

# REPORT OF THE FORTY-FOURTH SESSION OF THE IPCC

Bangkok, Thailand, 17 – 20 October 2016

## 1. OPENING OF THE SESSION

Mr Hoesung Lee, Chair of the Intergovernmental Panel on Climate Change (IPCC), called the 44<sup>th</sup> Session of the IPCC to order on Monday 17 October 2016 at 10 am at the Headquarters of the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Bangkok, Thailand. He requested the delegations to stand in silence for one minute to show respect and condolences at the passing of His Majesty King Bhumibol of Thailand.

Mr Lee then welcomed the dignitaries and delegates and thanked the UN ESCAP for hosting this session and the Government of Thailand for its support in the organization of the meeting.

Mr Lee then introduced H.E. General Surasak Karnjanarat, Minister of Natural Resources and Environment of Thailand. H.E. General Surasak Karnjanarat expressed respect and gratitude to the IPCC for its assessment reports and products providing crucial scientific source to developing international cooperation under the United Nations Framework Convention on Climate Change (UNFCCC) negotiations and for government policy relevant to climate change. He stated that the two reports, the outlines of which would be considered at this session, would significantly contribute to ongoing work of the global community to address climate change, especially the work under UNFCCC and the Paris Agreement. He indicated that Thailand was among the 31 parties which submitted the instrument of ratification for the Paris Agreement during the United Nations General Assembly in September 2016.

Mr Lee then introduced Mr Kaveh Zahedi, Deputy Executive Secretary for Sustainable Development of UN ESCAP, who made his opening statement on behalf of the Executive Secretary of UN ESCAP Ms Shamshad Akhtar. He highlighted the relationship between climate change and sustainable development and the opportunity that the linkage between climate change and the 2030 Agenda for Sustainable development provides. He stated that Asia Pacific countries have moved from adoption of the 2030 Agenda to its implementation much faster than was the case with the previous Millennium Development Goals. Mr Zahedi emphasized that this would provide an opportunity to fast track climate action, embedding the nationally determined contributions and actions into the mechanisms, processes, and institutions for implementing the 2030 Agenda for Sustainable Development along with the Sustainable Development Goals. He also informed that Asia Pacific is the world's most disaster prone region and indicated that there was urgency for action to implement the Paris Agreement and to keep temperature increase well below 2 degrees. Mr Zahedi stressed that the IPCC has always provided the science that drives climate policy and now could also help to generate the transformative solutions that would enable countries to meet the ambitions of the Paris Agreement, and at the same time help deliver on the Sustainable Development Goals.

Mr Lee then introduced Ms Elena Manaenkova, Deputy Secretary-General of the World Meteorological Organization (WMO), representing the Secretary-General of WMO Mr Petteri Taalas, and invited her to deliver her opening remarks. Ms Manaenkova emphasized that the WMO, having established the IPCC together with United Nations Environment Programme (hereinafter UN Environment) and having its Secretariat located at its premises in Geneva, is proud to see that the IPCC continuously provides quality assessments to support international and national climate change related policies. She stated that the World Meteorological Congress, the Executive Council of WMO, and all the Members of WMO support greatly the IPCC and underlined its critical role in the implementation of and providing information to the Paris Agreement. She stated that WMO would continue to provide comprehensive observations for any assessment and decision-making process and to maintain and enhance observing networks to support preparedness, adaptation and mitigation to climate change.

Ms Manaenokova highlighted the important roles played by National Meteorological Services in informing the people, as well as the roles of the World Climate Research Programme (WCRP) and the Global Climate Observing System (GCOS). She stated that WMO advocates strongly a continued and strong involvement of the WMO community and experts especially from developing countries in all activities of the IPCC. She highlighted the need to develop regional climate assessments which could feed into the next assessment cycle to give even more precise information. Ms Manaenokova also stressed that WMO remained committed to assist IPCC in delivering its work programme through operational, financial and administrative support.

Mr Lee then introduced Ms Jacqueline McGlade, Chief Scientist and Director of the Science Division of UN Environment who delivered a statement on behalf of Erik Solheim, Executive Director of UN Environment, via video connection. Ms McGlade emphasized the importance of the Paris Agreement to keep the world safe from the worst effects of climate change and also the recent amendment to the Montreal Protocol to phase out hydrofluorocarbons which could provide a chance to cut half a degree of warming out of the system. Ms McGlade stated that these steps were a clear signal that green transformation has become irreversible and that science is the key to this success. She stated that for science to be a powerful argument, it must make sense to politicians and citizens and praised the importance of the IPCC and its work. Ms McGlade stated that UN Environment was proud to be supporting the IPCC and confident that the new IPCC assessments would help governments act effectively on climate change and secure multiple environmental, social and economic benefits.

Mr Lee then introduced Mr Florin Vladu, Manager Adaptation Programme, representing the United Nations Framework Convention on Climate Change (UNFCCC) and invited him to deliver his opening remarks. Mr Vladu stated that the Paris Agreement became a legal reality with more than 79 Parties having deposited their instruments of ratification covering some 60 per cent of global emissions. Mr Vladu stated that this would trigger a variety of important consequences, including: the launch of the Agreement's governing body; the transformation of the Intended Nationally Determined Contributions into Nationally Determined Contributions and that governments would be obliged to take action to keep the average global temperature rise from pre-industrial times below 2°C and pursuing efforts to limit it to 1.5°C. He also highlighted the importance of the decision taken on a global market-based measure to offset international aviation emissions by the Assembly of the International Civil Aviation Organization and the recent decisions in Kigali by the Conference of the Parties to the Montreal Protocol. Mr Vladu stated that now together with the Sustainable Development Goals there was a global framework for action. He stated that governments would turn to the scientific community and the IPCC for additional information to support national policymaking and will soon be searching for the scientific basis to achieve their individual contributions to the Paris Agreement. He expressed appreciation to the IPCC for its valuable support to the special event with the Subsidiary Body for Scientific and Technological Advice (SBSTA) during the May 2016 session of the subsidiary bodies on how IPCC assessment could inform the global stocktake. Mr Vladu also expressed appreciation to the IPCC for the positive response to UNFCCC's Conference of the Parties' invitation to prepare a special report on 1.5°C.

Mr Lee expressed gratitude to all speakers in his opening statement. He highlighted the importance of two particular items on the agenda – the outline of the Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways in the context of strengthening the global response to the threat of climate change, sustainable development and efforts to eradicate poverty; and the outline of the Methodology Report or Reports to refine the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

Mr Lee emphasized that both reports were highly policy-relevant and recalled that the last weeks have demonstrated the increasing dynamism of international policymaking on climate change as after a wave of ratifications by Parties, the Paris Agreement would enter into force on November 4. He stated that agreement was also reached on a global carbon offsetting scheme for the aviation industry to address the growth in its CO<sub>2</sub> emissions and that governments in Kigali amended the Montreal Protocol to phase out hydrofluorocarbons. He emphasized that policymakers have shown they are ready to act and it was up to the IPCC to give them the robust scientific information that they need to do so.

With those words the Chair of IPCC declared the 44<sup>th</sup> Session of the IPCC open.

The provisional agenda of the meeting, contained in document [IPCC-XLIV/Doc. 1](#) and the provisional annotated agenda [IPCC-XLIV/Doc. 1, Add.1](#) were adopted by the Panel. At the request of some delegations it was agreed that two topics: the Strategic Planning Schedule for the Sixth Assessment Report (AR6) and the Global Stocktake under article 14 of the Paris agreement will be addressed under agenda item 12 on Any Other Business. It was also agreed to address agenda item 7.1 just after agenda item 4 and to address agenda item 8 as soon as possible during this session of the Panel.

## **2. APPROVAL OF THE DRAFT REPORT OF THE 43<sup>RD</sup> SESSION**

The draft report of the 43<sup>rd</sup> Session of the IPCC ([IPCC-XLI/Doc 3](#)) was presented and approved without changes.

## **3. IPCC TRUST FUND PROGRAMME AND BUDGET**

### **3.1 Financial statement – Audit report**

*Document.* [IPCC-XLIV/INF.2](#)

The Agenda Item was introduced by Ms Judith Ewa, Programme Officer.

A member country expressed concern over the decline in the number of contributions and indicated that it remains a strong supporter of the IPCC but cautioned that it would be very difficult to sustain the current percentage of its contribution to the Trust Fund. He quoted from the Executive Summary of the Report of the External Auditor “IPCC currently enjoys a healthy financial position despite effects on liquidity caused by losses in recent years. Any future losses on the scale of those suffered to date could seriously compromise IPCC activities.” He further implored member countries to contribute to the IPCC Trust Fund.

The IPCC took note of the report.

### **3.2 Budget for the years 2016, 2017, 2018 and 2019**

*Document:* [IPCC-XLIV/Doc.2](#)

The Agenda Item was introduced by Ms Judith Ewa, Programme Officer. The Financial Task Team (FiTT) was established confirming that it is open-ended with a core membership which comprises Germany, Pakistan, Saudi Arabia and United States of America and co-chaired by Mr Amjad Abdulla (Maldives) and Ms Helen Plume (New Zealand). In Mr Abdulla’s absence, the FiTT was co-chaired by Mr Ali Shareef (Maldives). The FiTT met six times during the week to deliberate on key issues relating to the IPCC programme and budget, including the proposed budget for 2017, the forecast budget for 2018 and the indicative budget for 2019

and resource mobilization. The Chair of the IPCC instructed the FiTT to report back to Panel with its recommendations on Thursday, 20 October 2016.

The IPCC approved the revised proposed budget for 2017 and noted the forecast 2018 budget and the indicative budget for 2019 and adopted Decision IPCC-XLIV-1 regarding the IPCC Programme and Budget as contained in Annex 1.

### 3.3 Resource mobilization

*Document: [IPCC-XLIV/INF.9](#)*

The Agenda Item was introduced by Mr Abdalah Mokssit, Secretary of the IPCC. The Chair of the IPCC thanked governments who had contributed to the IPCC and invited other governments to contribute and, if possible, scale up their support.

The following member countries took the floor: Belgium, Brazil, China, Comoros, Ecuador, France, Germany, Japan, Madagascar, Mali, Mexico, Nigeria, Saudi Arabia, Singapore, Spain, Sweden, Switzerland, Tanzania, United Kingdom and United States of America. The member countries thanked the Secretariat for its efforts regarding resource mobilization.

The main issues raised during the consideration of this Agenda Item were the IPCC's financial difficulties, assessed contributions versus voluntary contributions, approaching potential donors, development of a policy on how to approach potential donors, possibility of member countries providing in-kind contributions, enhancing the participation of developing countries in IPCC meetings, improving efficiency and countering expenditure.

It was noted that member countries needed to face the reality that the suite of products in the Sixth Assessment cycle is bigger than in any other assessment cycle. In addition, in the last five years the level of contributions and the number of contributors have declined. This has placed a heavy burden on the finances of the IPCC Trust Fund. Solutions provided on how to improve the financial situation centered on the options for governments to increase the amounts of their contribution and to reduce costs. It was recommended to focus fundraising efforts on governments who no longer contribute to the IPCC Trust Fund and also to focus on governments who may be in a position to increase their contributions. The Secretariat was invited to find ways to improve on efficiency and to set up priorities on expenditures. It was felt that, given the current financial situation, new proposals for activities would have to be closely evaluated before being included in the core business, as they would have financial implications.

With regard to assessed contributions, some delegations felt that this was an interesting idea but explained that they would not be able to support it. The Secretariat was requested, however, to produce numbers on what these assessed contributions would be. One suggestion offered was that, given that the IPCC Trust Fund has to attain the 2016 funding target of CHF 8 million, member countries should be informed about how much they need to contribute to meet this target. Another suggestion was for the requirements to be explained and the associated costs should be attributed to these requirements. Some member countries requested that the voluntary nature of contributions be maintained. Some member countries indicated that they had suffered from the global financial crisis but were currently exploring the possibility of resuming their contribution to the IPCC Trust Fund. Others indicated that they are still currently facing financial difficulties but would continue to support the IPCC during the AR6. With regard to approaching potential donors, the possibility to apply resource mobilization policies of WMO and UNEP in implementing the IPCC resource mobilization strategy was discussed, but no agreement was reached on this matter. The resource mobilization strategy will be included in the agenda of IPCC 45, see Decision IPCC/XLIV-1."

#### **4. ADMISSION OF OBSERVER ORGANIZATIONS**

*Document: [IPCC-XLIV/Doc. 4](#)*

The Agenda Item was introduced by Ms Sophie Schlingemann, Legal Officer. She informed the Panel that the Bureau at its 52<sup>nd</sup> Session (Geneva, 18-19 August 2016) had made a positive review of the proposal presented to the Panel for its acceptance.

There were no comments made from the floor and the 10 organizations were admitted as observer organizations by the Panel by consensus, as reflected in Decision IPCC/XLIV-2 contained in Annex 1.

#### **5. REPORTS**

##### **5.1. Communication and outreach activities**

*Document: [IPCC-XLIV/INF. 2](#)*

The Agenda was introduced by Mr Jonathan Lynn, Senior Communications Manager, who presented the report on communications and outreach activities undertaken since the 43<sup>rd</sup> Session of the IPCC and plans for the coming year. He highlighted that although the outreach is still supported from the generous contribution of a number of countries, in the future it would be needed to look at funding possibilities especially if there was a wish to continue ensuring the participation of representatives from developing countries in the events.

The following member countries took the floor: Belgium, Mali and Spain. Appreciation was expressed for the initiatives taken by the Secretariat, stating that communications and outreach activities are fundamental for the IPCC and no possibility should be missed to enhance these activities. Examples of initiatives which require a low level of investment but could give excellent results were mentioned.

The Senior Communications Manager clarified the composition of the Communications Action Team and informed that this information is available in the Communications Strategy Implementation Plan.

The Chair of the IPCC emphasized the importance of outreach and the needs for funding for this programme to continue supporting participants from developing countries.

The Panel took note of report.

##### **5.2 Status with respect to the establishment of the Technical Support Units**

The Working Group and Task Force Co-Chairs provided oral updates on the status with respect to the establishment of their respective Technical Support Units (TSU).

Working Group I (WGI) Co-Chair Ms Valérie Masson-Delmotte reported also on behalf of fellow Co-Chair Mr Panmao Zhai. She informed the Panel that the WGI Technical Support Unit (TSU) had been established at University of Paris-Saclay in France. She thanked the Government of France, especially the Ministry of Environment, Energy and Marine Affairs; Ministry of Foreign Affairs and International Development, and the Ministry of National Education, Higher Education and Research who have signed an inter-ministerial agreement to support the TSU. The TSU is also supported in China by the Chinese Academy of Meteorological Sciences and by the International Center for Theoretical Physics which co-hosts the head of the TSU. The TSU data center is hosted by the Laboratoire des Sciences du

Climat et de l'Environnement of Institut Pierre Simon Laplace. The TSU currently has 4 members of staff; the Head of the TSU Ms Anna Pirani, the Head of Science Mr Wilfran Moufouma-Okia, the Head of Operations Ms Clotilde Péan based in Paris, and a Science Officer Mr Yang Chen, based at the Chinese Academy of Methodological Sciences, Beijing. A second Science Officer Mr Robin Matthews will be joining the TSU office in Paris in January. Recruitment is on-going for an Information Technology (IT) Officer and a Project Assistant. A third Science Officer that will be based in China will join the team in 2017.

Working Group II (WGII) Co-Chair Mr Hans-Otto Pörtner reported that the office of WGII in Germany is hosted by the Alfred-Wegener-Institute of Polar and Marine Research in Bremen and is funded by the Government of Germany with contributions from the Alfred-Wegener-Institute. The previously identified office space is operational and staffing of the TSU has expanded since the 43<sup>rd</sup> Session of the Panel. New staff members include, Director of Science Ms Elvira Poloczanska, Director of Operations Mr Bardhyl Rama, Science Officer Ms Nadine Andrews, another Science Officer Ms Nina Bednarski whose position is co-funded with Fondation de France mediated through the Foundation Prince Albert II of Monaco. A third Science Officer Mr Jan Petzold will be joining the TSU shortly. In addition, the TSU has secured two freelance IT Officers, Mr Jussi Savolainen and Mr Stefan Weisfeld for the AR6 cycle. WGII Co-Chair Ms Debra Roberts reported that the office of WGII TSU in South Africa will be hosted at the University of Kwazulu Natal. The office space has been prepared and recruitment is underway for administrative support. The administrative process for further funding of two Science Officers to be based there is being finalized.

Working Group III (WGIII) Co-Chair Mr Jim Skea reported also on behalf of his fellow Co-Chair Mr Priyadarshi Shukla. He recalled that the WGIII TSU is based at Imperial College London in the United Kingdom and the *Indian Institute of Management* in Ahmedabad, India. He reported that Imperial College has provided the necessary office space and funding has been received from the United Kingdom's Department of Business, Energy and Industrial Strategy. Also in place is a sub-award with the Indian Institute of Management for the TSU operations in Ahmedabad. An application for funding for further TSU posts has been submitted to the United Kingdom's Engineering and Physical Science Research Council. The TSU has employed a Head of TSU (Science) Mr Raphael Slade, Head of TSU (Operations) Ms Elizabeth Huntley, and an IT web manager Mr Malek Belkacemi. The TSU also has in place ad-hoc scientific support and recruitment of science officers is underway. The TSU plans to have in place a communications post and an administrative post in 2017. He noted that the Co-Chairs consider the TSU fully operational and ready for the AR6 cycle.

The Co-Chair of the Task Force on National Greenhouse Gas Inventories (TFI), Mr Kiyoto Tanabe, reported also on behalf of his fellow Co-Chair, Mr Eduardo Calvo Buendia. He recalled that the TFI TSU continues to be hosted by the Institute for Global Environment Strategies (IGES) with the generous support of the Government of Japan. It has been working seamlessly since the Fifth Assessment cycle. He introduced the new Head of the TSU Mr Andrej Kranjc who had joined the TSU in July 2016.

The Panel took note of the reports.

### **5.3. Participation of Developing Countries in IPCC Activities**

*Document:* [IPCC-XLIV/INF. 4](#)

The Agenda item was introduced by Mr Mxolisi Shongwe, Programme Officer, who mentioned five actions that the Secretariat and Working Groups intend to undertake towards the implementation of Decision IPCC/XLI-4, paragraphs 24-27.

The following member countries took the floor: Benin, the Bolivarian Republic of Venezuela, Botswana, Chad, Comoros, Congo, Dominican Republic, Ecuador, Ethiopia, France, Germany, India, Indonesia, Lesotho, Madagascar, Mali, Marshal Islands, Mexico, Niger, Nigeria, Netherlands, Norway, South Africa, Spain, Swaziland, Tanzania, Togo, Switzerland, United Kingdom, Ukraine, United States of America and Zimbabwe. Mr Ramon Pichs-Madruga, Working Group III Vice-Chair, also took the floor.

Some member countries highlighted the need for additional means to build the capacity of developing countries to carry out research suggesting that additional efforts should be made to overcome barriers limiting the participation of developing countries, some of which have already been identified, recommended capacity building for IPCC National Focal Points and suggested that networks of relevant experts should be established and/or strengthened.

Some member countries supported one-day briefing sessions prior to IPCC sessions while others raised concerns regarding the financial constraints associated with the one-day briefing sessions and suggested that owing to the financial constraints, briefing sessions could be held during lunch breaks or early in the morning, and that such sessions should be held at the beginning of the assessment cycle, not at every Panel Session. Some member countries mentioned that briefing sessions whenever they are held should be open to all delegates including those from developed countries.

The Chair of the IPCC informed the Panel that the financial implications associated with the individual actions referred to in the Information document would be assessed under Agenda item 3.2.

University College London (UCL) took the floor and presented their project the aim of which is to enhance the participation of developing countries in the Sixth Assessment Cycle, with an initial focus in Africa.

The Economic Cooperation Organization (ECO) offered an in-kind contribution and conference facilities to facilitate capacity building and technical workshops for IPCC Member countries in their region; in-kind contribution to support the pre-Panel briefing sessions; and a cluster of resource persons and communication networks which they are establishing in their region.

The Panel took note of the document.

#### **5.4. IPCC Carbon Footprint**

*Document: [IPCC-XLIV/INF. 5](#)*

The Agenda item was introduced by Mr Mxolisi Shongwe, Programme Officer.

A member country suggested that Bureau sessions and face-to-face Executive Committee meetings should be moved to either side of Panel Sessions to reduce the volume of aircraft emissions arising from separate trips. He noted that some Bureau members may travel for more than 24 hours to attend a one-day meeting. He suggested that in such cases, the IPCC should consider providing options to enable Bureau members to participate in sessions remotely in an active rather than passive way.

The Panel took note of the document.

## 6. PROCEDURAL MATTERS

### 6.1 Review of the IPCC Conflict of Interest Policy

*Document: [IPCC-XLIV/Doc. 13](#)*

The Agenda Item was introduced by Mr Youba Sokona, Chair of the sub-committee of the Conflict of Interest (COI) Committee, established in Decision IPCC/XLIII-3 on procedural matters, review of the Conflict of Interests. He explained that the sub-committee had met several times and received advice from the 52<sup>nd</sup> Session of the IPCC Bureau (Geneva, 18-19 August 2016) before the recommendations were drafted as submitted to the Panel in Document IPCC-XLIV/Doc. 13.

The following member countries took the floor: Belgium, Dominican Republic, Germany, Japan, Mali, Russian Federation, Saudi Arabia, Sweden, Switzerland, United Kingdom and United States of America. The following IPCC Bureau members took also the floor: Mr Andy Reisinger and Mr Sergey Semenov. Some supported the proposal while others challenged the length and number of questions in the form.

The Chair of the sub-committee answered a number of questions concerning the mandate of the committee, the recommendations and the proposed revised COI declaration form.

COI sub-committee met for further consultations during the session to consider comments made by the member countries.

The Panel adopted Decision IPCC/XLIV-3 on Procedural matters, review of the IPCC Conflict of Interests Policy contained in Annex 1.

The Chair of the COI Committee, Mr Youba Sokona, informed the Panel that in the margins of the IPCC Session, the COI Committee met in the evening of 17 October 2016, for its Twelfth Meeting. The Committee reviewed the annual updates of the COI forms as submitted by the IPCC Bureau and Task Force Bureau members in accordance with paragraph 4 of the Implementation Procedures of the IPCC COI Policy. 100% compliance was reached and all 47 updates were found in order and no conflict of interest was found.

The Panel took note of this information.

## 7. SIXTH ASSESSMENT REPORT (AR6) PRODUCTS

### 7.1 Outline of the Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways in the context of strengthening the global response to the threat of climate change, sustainable development and efforts to eradicate poverty

*Documents: ([IPCC-XLIV/Doc. 11](#)), ([IPCC-XLIV/INF. 6, Rev. 1](#))*

Ms Thelma Krug, Vice-Chair of the IPCC and Chair of the Scientific Steering Committee (SSC) for the scoping of this Special Report, Introduced documents [IPCC-XLIV/Doc. 11](#) and [IPCC-XLIV/INF. 6, Rev. 1](#). Ms Krug emphasized that the SSC had decided not to propose a pre-defined structure to the scoping meeting, which took place on 15-18 August 2016 in Geneva, and therefore the proposed outline was the sole result of the work of the participants. She noted that the IPCC Bureau members had participated in this scoping meeting and that at its 52<sup>nd</sup> Session on 19-20 August 2016 in Geneva, the Bureau noted the outcomes of the scoping meeting as contained in document [IPCC-XLIV/Doc. 11](#).

The Chair of the IPCC emphasized that for the first time all the Working Groups were involved in the preparations of a special report and that all Bureau members attended the scoping meeting in Geneva. The Chair invited the IPCC to take note of document [IPCC-XLIV/INF. 6, Rev. 1](#) and to approve the outline as contained in document [IPCC-XLIV/Doc. 11](#).

The IPCC took note of document [IPCC-XLIV/INF. 6, Rev. 1](#).

When considering document [IPCC-XLIV/Doc. 11](#) the following member countries took the floor: Algeria, Argentina, Belgium, Bolivarian Republic of Venezuela, Brazil, Canada, Chile, China, Republic of Congo, Germany, Ireland, Jamaica, Japan, Kenya, Luxembourg, Madagascar, Maldives, Mali, Mexico, Morocco, Netherlands, Norway, Philippines, Russian Federation, Saint Lucia, Saudi Arabia, Spain, South Africa, Sweden, Switzerland, Tanzania, United Kingdom, United States of America, and Zambia.

Mr Sergey Semenov, Vice Chair of WGII, also took the floor.

The work of the SSC and the outcome of the scoping meeting were appreciated. Many highlighted the importance of the report as it had been requested by the UNFCCC and emphasized on the value of the involvement of the entire Bureau. The main issues raised were:

- Some participants raised the need to reduce redundancy in the outline and in particular in chapters 4, 5 and 6 as contained in [IPCC-XLIV/Doc. 11](#);
- Time constraints were highlighted as the Panel had never before had to produce a report in two years especially in the context of the other work of the IPCC;
- The need for the report and its outline to be policy-relevant and not policy-prescriptive;
- Many highlighted that the content should be focused on the implementation of the Paris Agreement;
- For some the report should focus on the terms of the request by UNFCCC while others highlighted that the IPCC as an independent body has already broadened the scope of the report with its decisions from Nairobi;
- Some stated that it was important to focus more on the impacts and pathways, while others were of the opinion that treatment of adaptation and mitigation were equally important in relation to 1.5°C;
- The inclusion of case studies which are balanced among regions and sectors was welcomed, with focus on the vulnerable regions;
- Many emphasized the importance of using scientific and peer-reviewed literature in accordance with the IPCC guidelines, as well literature on 1.5°C available since the publication of the AR5;
- It was proposed that the bullet-points under each chapter should be seen as recommendations, given uncertainty about what literature will be available, and that authors should include only those elements for which there will be literature available;
- The need to have a final product which is relevant to policymakers as well as accessible to the broader public was highlighted;
- Many suggested that the report should be concise, the summary for policymakers shorter than in recent reports, and some proposed including a technical summary, as well as headline statements.

The Chair of the IPCC proposed that the SSC should reconvene to review the outline proposed by the scoping meeting taking into account the views that had been expressed without compromising the work that had already been done.

A revised draft proposal prepared by the SSC was considered by the Plenary. Ms Krug emphasized that all the comments and suggestions had been duly considered in a balanced approach. Some of the elements that were adjusted included:

- The new outline merged chapter 4 and 5 in a new chapter 4; it kept the original content of chapter 6 but reduced its length;
- Further boxes were to be included to strengthen the sectoral and regional aspects;
- To take into account concerns regarding the availability of literature, a recommendation would be provided to the authors of each chapter to include only topics for which sufficient literature is available in coherence with the IPCC guidelines. Therefore the length of the chapters could be further enhanced depending on the availability of such literature;
- The bullets under each proposed chapter were just indicative material for the author teams; some of them were revised to eliminate redundancy;
- The Summary for Policy Makers (SPM) was shortened to 5-8 pages excluding figures if necessary.

The Chair of the IPCC stated that the indicative list under the chapters cannot be exhaustive and will depend on the literature available, and highlighted his trust in the ability of the scientists to deliver the special report.

The following member countries took the floor: Afghanistan, Algeria, Austria, Bahamas, Belgium, Brazil, China, Congo, Ecuador, El Salvador, France, Germany, Hungary, Indonesia, Ireland, Jamaica, Japan, Jordan, Luxembourg, Madagascar, Maldives, Mali, Marshall Islands, Mexico, Morocco, Netherlands, Nicaragua, Norway, Philippines, Republic of Korea, Russian Federation, Saint Lucia, Saudi Arabia, Singapore, Solomon Islands, Spain, Sweden, Switzerland, Tanzania, United Kingdom, United States of America, and Venezuela. The European Union also took the floor.

Mr Andreas Fischlin, Vice-Chair of WGII also took the floor, as well as Timothy Carter, Co-Chair of TGICA.

Many expressed appreciation to the SSC for taking into account their comments and preparing a well-balanced text. The main issues raised were as follows:

- Some delegations emphasized that there should be more content dedicated to the topic of impacts of climate change;
- While the report should be focused on 1.5°C, many said it was important to keep the element of comparison between 1.5°C and 2°C;
- It was proposed to include explicitly the topic of loss and damage and in particular in the context of warming of 1.5°C, 2°C or 3°C, so that the differences could be compared;
- The importance of covering regional and sectoral impacts was also emphasized;
- The reference to an indicative list was welcomed; however some stated that they do not wish to see fundamental changes in the approved outline, including the indicative list when the report is prepared;
- The reduction in length of the report and the Summary for policymakers (SPM) was appreciated by many, but some delegations raised the importance of limiting the pages of the SPM (including figures) even further and the need to have a technical summary; others said that limiting the pages of the SPM further could be challenging. Some argued there was no need for a technical summary as the chapters would have executive summaries. The explicit mention of headline statements was appreciated;
- The importance of using adequate graphics and pictures to be able to communicate the report successfully was emphasized;
- It was again stressed that the report should be based on peer-reviewed scientific literature.

The Chair of the IPCC proposed that the SSC should revise again the draft proposal so that it would capture the issues raised. He also invited the SSC to produce a draft decision for the consideration of the Panel.

On 19 October the revised draft proposal and draft decision prepared by the SSC was considered by the Plenary. Ms Thelma Krug introduced the two proposals at the invitation of the IPCC Chair.

The following member countries took the floor: Belgium, France, Germany, Greece, New Zealand, Nigeria, Norway, Russian Federation, Saint Lucia, Saudi Arabia, South Africa, Switzerland, and United States of America.

Many delegations expressed gratitude to the SSC and satisfaction with the adjusted outline and the draft decision. Some matters that were raised included:

- As this would be one of the Panel's most highlighted reports, the work should be to the highest standard;
- Guidelines to author teams should be prepared carefully and the report based on peer-reviewed literature;
- A reference to "scientific gaps will be explicitly identified" would be added in the decision text.

After consultation, comments were taken into account and revisions made to the two proposals.

The IPCC adopted Decision IPCC/XLIV on the Sixth Assessment Report (AR6) Products, outline of the Special Report on 1.5°C contained in Annex 1.

## **7.2. Outline of the Methodology Report(s) to refine the 2006 IPCC Guidelines for National Greenhouse Gas Inventories**

*Documents:* [IPCC-XLIV/Doc. 12](#); [IPCC-XLIV/INF. 7](#)

The Agenda item was introduced by Mr Kiyoto Tanabe, Co-Chair of the Task Force on National Greenhouse Gas Inventories (TFI), who informed the Panel that the Scoping Meeting attended by 94 experts and 14 members of the Task Force Bureau (TFB), was held on 29-31 August 2016 in Minsk, Belarus. This was immediately followed by the TFB meeting on 1-2 September 2016, which discussed the draft outline prepared during the Scoping Meeting. The TFI Co-Chair confirmed that the refinement work will not revise the 2006 IPCC Guidelines but will provide an update to supplement the guidelines and will be used in conjunction with them.

Australia, Belgium, Brazil, Canada, Chile, Denmark, Germany, Japan, Mexico, Netherlands, New Zealand, Norway, Philippines, Republic of Korea, Russian Federation, Switzerland, Togo, United Kingdom and United States of America made interventions on the proposed outline of the refined guidelines. Mr Eduardo Calvo Buendia, TFI Co-Chair also took the floor.

Comments and questions included those related to the Table of Contents, IPCC default factors, the software which is used with the 2006 IPCC Guidelines, translation of the Methodology Report, national inventory management systems, emissions from iron & steel production, remotely sensed data and direct measurements, emissions from flooded land, approaches to data collection, collaboration with GCOS<sup>1</sup> and IGAS<sup>2</sup>, and inclusion of black carbon and other short-lived climate pollutants.

Several member countries and the TFI Co-Chair requested that the refined guidelines be dedicated to Mr Jim Penman, who passed away on 8 September 2016. Mr Penman was a member of the Task Force Bureau until October 2015. The Panel observed a minute of silence in remembrance of Mr Penman. The Chair of the IPCC confirmed that the Methodology Report should be dedicated to Mr Penman.

---

<sup>1</sup> The Global Climate Observing System

<sup>2</sup> In-service Aircraft for a Global Observing System for the GMES Atmospheric Service

A revised proposal was presented to the Panel addressing the comments made by the member countries. Australia, Brazil, Canada, Finland, Japan, Mexico, Norway, Philippines, Switzerland, Togo and United States of America made comments on this revised outline proposal, mainly commending the efforts made to incorporate earlier interventions. Some member countries raised concerns regarding scheduling of the government review process around holidays period in many parts of the world.

Member countries discussed, if related short-lived climate forcers should be addressed by the TFI in future Methodology Reports. As there was no agreement reached, this possibly entails including an agenda item on this topic at the 45<sup>th</sup> Session of the IPCC.

The Panel adopted Decision IPCC/XLIV-5 on the Sixth Assessment Report (AR6) Products, Outline of the Methodology Report(s) to refine the 2006 IPCC Guidelines for National Greenhouse Gas Inventories contained in Annex 1.

### **7.3. Workshop on Climate Change and Cities**

*Document: [IPCC-XLIV/Doc. 9](#)*

The Agenda item was introduced by Ms Debra Roberts, Working Group II Co-Chair.

The following member countries took the floor: Belgium, Mali, Marshall Islands, Saint Lucia, Saudi Arabia, South Africa and United States of America. Mr Edwin Aldrian, Working Group I Vice-Chair, also took the floor.

Suggestions were made that the workshop should involve all IPCC Working Groups.

The Chair of the IPCC requested the Secretariat and the Working Group II Co-Chair to prepare a revised proposal taking into consideration the comments made by the Panel.

A revised proposal was presented to the Panel addressing comments made by the member countries. Belgium, Comoros, Germany, Nigeria, Norway, South Africa, Tanzania, United Kingdom and United States of America took the floor and commented this revised proposal.

The observer organization C40 informed the Panel that they are in partnerships with cities of various sizes across all regions and in different levels of development, and that situations in different cities could be represented in the proposed workshop. C40 manifested that it will contribute to ensure that the workshop meets its objectives and involves the most relevant stakeholders, scientists, academia and urban practitioners.

The IPCC adopted Decision IPCC/XLIV-6 on the Workshop on Climate Change and Cities as contained in Annex 1.

### **7.4. Expert Meeting on Mitigation, Sustainability and Climate Stabilization Scenarios**

*Document: [IPCC-XLIV/Doc. 7](#)*

The Agenda item was introduced by Mr Jim Skea, Working Group III Co-Chair, who informed the Panel that the proposal for the Expert Meeting built on a Norwegian proposal for a Special Report on Mitigation, Climate Stabilization Scenarios and Sustainability which was not selected as a Special Report topic at the 43<sup>rd</sup> Session of the Panel. He reminded the Panel of the decision which was taken at the 43<sup>rd</sup> Session of the IPCC (paragraph 1 of Decision IPCC/XLIII-6) that all of the topics contained in the Special Report proposals are important and should be addressed in the Sixth Assessment Report suite of products.

The following member countries took the floor: Australia, Belgium, Egypt, Germany, Japan, Mali, Netherlands, Norway, Saudi Arabia, Singapore, Switzerland, United Kingdom and United States of America. Ms Diana Ürge-Vorsatz, Working Group III Vice-Chair and Mr Ramon Pichs-Madruga, Working Group III Vice-Chair also took the floor.

It was suggested that representatives from IPCC Working Group I and Working Group II should also be involved in the Expert Meeting; that the two Working Groups should form part of the Scientific Steering Committee; and that the Expert Meeting should be held early in 2017.

Gratitude was expressed to the Government of Norway for indicating its willingness to host the Expert Meeting. A member country asked if options for co-sponsorship by institutions such as the International Institute for Applied Systems Analysis (IIASA), which may be interested in the topics to be covered during the meeting, could be explored to defray some of the costs from the IPCC budget.

Mr Jim Skea informed the Panel that the intention is to get out of silos within and across Working Groups, and to build bridges between the domains of the three Working Groups. He mentioned that if the Expert Meeting will be held in March 2017, its outcome will inform the Scoping of the main Sixth Assessment Report and will also be picked up during the Lead Author Meetings for the Special Report on Global Warming of 1.5°C.

The Panel adopted Decision IPCC/XLIV-7 on the Expert meeting on mitigation, Sustainability and Climate Change Stabilization Scenarios as contained in Annex 1.

## **8. FUTURE OF THE TASK GROUP ON DATA AND SCENARIO SUPPORT FOR IMPACT AND CLIMATE ANALYSIS (TGICA)**

*Document: [IPCC-XLIV/Doc. 8](#)*

The Agenda Item was introduced by Mr Timothy Carter, TGICA Co-Chair.

The following member countries took the floor Botswana, Canada, Comoros, Ethiopia, France, Germany, Japan, Kenya, Lesotho, Madagascar, Malawi, Mali, Netherlands, Nigeria, South Africa, Swaziland, Switzerland, Sweden, Tanzania, United Kingdom, United States of America and Zambia.

Canada suggested that seeing the current work of TGICA through to completion should be the priority for the coming year, particularly the 'General Guidelines on the use of scenario data for climate impact and adaptation assessment', and offered support in the form of ½ FTE<sup>3</sup> over the next 18 months, specifically targeted at facilitating the final drafting, review and publication of the guideline document. The Chair of the IPCC thanked Canada for the offer.

Some member countries proposed a revision of the third draft decision point to allow for possibilities of either secondment of staff to the Secretariat to provide administrative support for TGICA or direct funding support for additional staff. It was also proposed that the Ad Hoc Task Force on the future of TGICA could be led by the Working Group Co-Chairs and that the Task Force should keep regular contact with the Working Group Co-Chairs in order for them to provide guidance. Some member countries opposed the direct involvement of the Co-Chairs in the Task Force and supported that Vice-Chairs should take the lead as stipulated in the Terms of Reference.

Mr Jim Skea, Working Group III Co-Chair, supported by Ms Valérie Masson-Delmotte, Working Group I Co-Chair, and Mr Hans-Otto Pörtner, Working Group II Co-Chair, mentioned that they have full confidence in the ability of the Working Group Vice-Chairs to contribute to the process and in the communication within the Working Groups to ensure that full engagement will take place.

---

<sup>3</sup> Full time equivalent

Mr Bruce Hewitson, TGICA Co-Chair, clarified that the membership of the Ad Hoc Task Force is open to all countries who would want to participate in the process.

Mr Carter reported to the Panel that during the 24<sup>th</sup> Meeting of TGICA, which was held in Helsinki, Finland, in July 2016, priorities for completing ongoing activities of the Task Group were identified. He announced the publication and posting of a TGICA Factsheet on the CMIP5 data provided at the IPCC Data Distribution Center (DDC), which was drafted by a seven person TGICA author team.

The IPCC adopted Decision IPCC/XLIV-8 on the Future on the Task Group on Data and Scenario Support for Impact and Climate Change Analysis (TGICA) as contained in Annex 1.

## **9. COMMUNICATIONS FOR THE SIXTH ASSESSMENT REPORT (AR6)**

### **9.1 Communications and scoping processes**

*Document: [IPCC-XLIV/Doc. 5](#)*

The Senior Communications Officer introduced this agenda item.

The following member countries took the floor: Belgium, Botswana, Brazil, France, Germany, India, Indonesia, Luxembourg, Mali, Marshall Islands, Netherlands, Norway, Philippines, Russian Federation, Saudi Arabia, Spain, Switzerland, Tanzania, United Kingdom, United States of America and Zambia.

Main comments made included the need for more clarity on how far the document addressed the AR6 scoping process, addressing perceived biases resulting from consultations with stakeholders, budgetary implications, further clarity on the proposed suggestions, and consideration of the situation in developing countries which may need support to implement some of the proposed initiatives.

The IPCC Chair established a contact group chaired by Mr Youba Sokona, Vice Chair of the IPCC, to consider how to incorporate the comments made by member countries. The Contact Group met twice between 19 and 20 October 2016.

Subsequently, the IPCC adopted Decision IPCC/XLIV-9 on “Communications for the Sixth Assessment Report (AR6) – Communications and the scoping processes” as contained in Annex 1.

### **9.2 Review of the IPCC Communications Strategy**

*Document: [IPCC-XLIV/Doc. 6](#)*

The Senior Communications Officer introduced this agenda item.

Belgium, Comoros, France, Germany, India, Madagascar, Marshall Islands, Netherlands, Nigeria, Norway, South Africa, Switzerland and Tanzania took the floor.

Interventions covered suggestions of wording specific to the document, accessibility and usability of the Summary for Policymakers and Technical Summary, clarity on the revised language for IPCC spokespersons, IPCC outreach and audiences, budgetary considerations, the possibility of selecting experts from universities in developing countries who can present IPCC findings at existing national platforms based on presentations prepared by the IPCC, more clarity on the strategy’s implementation plan, graphics tools for communicating IPCC findings, and the need to distinguish between experts speaking on behalf of the IPCC and those speaking as experts in their own right. Delegates emphasized the importance of the IPCC website as a single entry point for branding and clarity.

The document was revised taking into account the comments by member countries.

The Senior Communications Officer explained that the implementation strategy would follow a similar process to that undertaken in June 2012. He clarified that the strategy retained the need for the scientific leadership to speak on the science while the Secretary speaks on issues of process, but noted that the Secretary may speak on the key findings of the report to the UN system and in other appropriate circumstances. Member countries recognized that the Secretary should speak on key findings whenever necessary.

The IPCC adopted Decision IPCC/XLIV-10 on “Communications for the Sixth Assessment Report (AR6) – Review of the IPCC Communications Strategy” as contained in Annex 1.

## **10. IPCC SCHOLARSHIP PROGRAMME**

Document: [IPCC-XLIV/Doc. 10](#)

Ms Ko Barrett, IPCC Vice-Chair and Chairperson of the IPCC Scholarship Programme Science Board, introduced the agenda item.

The following member countries took the floor: Afghanistan, Bahamas, Belgium, Benin, Chad, Comoros, Ecuador, Germany, Lebanon, Madagascar, Mali, Marshall Islands, Morocco, Netherlands, Nicaragua, Nigeria, South Africa, Sweden, Tanzania, Togo, United Kingdom and United States of America. Mr Nouredine Yassaa, Working Group I Vice-Chair, also took the floor.

Member countries diverged in their support to different options presented in the document.

Suggestions were made that a tradeoff should be found between the number of students awarded scholarships in any given award round, and the duration of the awards, and that an invitation should be extended to academic IPCC Observer Organizations to host students; that existing partnerships with the Prince Albert II of Monaco Foundation and the Cuomo Foundation should be enhanced; that the Board of Trustees of the IPCC Scholarship Programme should be reconstituted; that the beneficiaries of the Scholarship Programme should be given the opportunity to participate in IPCC activities; that the Scholarship Programme Trust Fund could be used to support TGICA activities or communications and outreach efforts aimed at enhancing the participation of developing countries; that more attention should be paid to the selection process of awardees to ensure that only candidates with proven potential to complete their studies are awarded scholarships; that the IPCC scholarships could be used for capacity building of potential IPCC authors; and that the IPCC Trust Fund could be used to support targeted research in certain topics of interest to the IPCC, particularly in regions where the literature is thin.

Concerns were raised that since the inception of the Scholarship Programme, Small Island Developing State (SIDS), particularly in the Caribbean, have not benefitted much from the programme and suggestions were made that they should be given priority in future awards. Suggestions were also made to give more priority to regions which have least benefited from the Scholarship Programme.

Ms Barrett stated that in the future, efforts should be made to make scholarships more accessible to non-English applicants, to improve transparency on existing scholarship recipients and their fields of study, and to bring them into the IPCC process after completing their studies.

The IPCC adopted Decision IPCC/XLIV-11 on the IPCC Scholarship Programme as contained in Annex 1.

## 11. ROLES OF MEMBERS OF THE BUREAU

Document: [IPCC-XLIV/INF.3](#)

Mr Carlos Martin-Novella, Deputy Secretary of the IPCC, introduced this agenda item.

The following member countries took the floor: Bolivarian Republic of Venezuela, France, Germany, Mali, Norway, Republic of Tanzania, Switzerland and the United States of America. The Working Group III Co-Chair Mr Jim Skea, TFI Co-Chair Mr Eduardo Calvo and Working Group III Vice-Chair Mr Ramon Pichs-Madruga also took the floor.

Delegates stressed the importance of participation of Bureau members in the IPCC process. As appropriate, the participation of Bureau members from developing countries should be subsidized within the overall budget limits as determined by the FiTT.

The Chair noted that this issue was discussed in the FiTT and asked the Secretariat to note the comments made by Members of the Panel and the Bureau and revise the INF document accordingly. The revised document would be included in the report of this Session (see Annex 2).

## 12. ANY OTHER BUSINESS

### 12.1 Workshop on “Integrated research on climate risk and sustainable solutions across IPCC working groups: Lessons learnt from the AR5 to support the AR6”

Mr Mxolisi Shongwe, Programme Officer, introduced document [IPCC-XLIV/INF. 8](#). The document presents a report on the workshop, which was co-sponsored by the IPCC, titled “Integrated research on climate risk and sustainable solutions across IPCC working groups: Lessons learnt from the Fifth Assessment Report (AR5) to support the AR6”, held on 29-31 August 2016 in Stockholm, Sweden.

Future Earth International, which co-sponsored the workshop, informed the Panel about their mandate, structure and activities. The Panel was further informed that one of the priorities of Future Earth is to contribute to the work of the IPCC and its products. She referred to the workshop as a first example of the potential benefit of collaboration between the IPCC and Future Earth.

A member country commended the involvement of developing countries, particularly from Africa, at the workshop.

The IPCC took note of the report.

### 12.2 Pre-scoping questionnaire for the Sixth Assessment Report

The Chair of IPCC reported to the Panel that the questionnaire which had been circulated soliciting views and ideas for the Sixth Assessment Report (AR6) is in preparation for the scoping process and the meeting to be held in May 2017. He elaborated further on the envisaged process and associated timelines. Documents which will be made available at the AR6 Scoping Meeting will be a Chair’s vision paper and inputs from Governments and IPCC Observer Organizations. The Scoping Paper to be produced at the Scoping Meeting will be distributed for government review in advance of the 46<sup>th</sup> Session of the IPCC tentatively scheduled for September 2017.

The following member countries took the floor: Germany, Hungary, Mali, Netherlands, Norway, Tanzania and United Kingdom. Suggestions were made to extend the deadline for answering to the pre-scoping questionnaire.

The Chair of the IPCC urged delegates to include in their answers ideas and suggestions they may have to inform the scoping of the AR6. The Chair requested the Secretariat to consider the request by member countries to extend the deadline for submitting the questionnaire.

### **12.3 Strategic Planning Schedule**

Germany, Japan, Norway, Switzerland, Tanzania, United Kingdom and United States of America took the floor. Mr Andy Reisinger, Working Group III Vice-Chair, also took the floor.

Concerns were raised that the parallel approval sessions of the two Special Reports (i.e. Special Report on climate change and oceans and cryosphere, and Special Report on climate change, desertification, land degradation, sustainable land management, food security and greenhouse gas fluxes in terrestrial ecosystems) in one single Plenary session in September 2019 might be too cumbersome and may have undesirable implications for outreach activities. Suggestions were made that the approval sessions be split into two; and that the time allocated for submission of author nominations could be extended to the procedural 8 weeks instead of the 4 weeks currently reflected in some instances in the strategic plan. Questions were also raised regarding the second Scoping Meeting for the Synthesis Report scheduled for June 2019, which is not preceded by a call for nominations for participants to the scoping meeting, whether it would be attended by government representatives and whether more thought should be given to the scheduling of the scoping of the Synthesis Report in relation to the selection of the Core Writing Team. Clarifications were sought regarding the mandate of the Executive Committee in the context of the Strategic Planning.

The Chair of IPCC invited member countries to submit written comments on the strategic planning document to the Secretariat, which will be considered in consultation with the IPCC Executive Committee. Mr Hans-Otto Pörtner, Working Group II Co-Chair, informed the Panel that the two relevant Technical Support Units (Working Group II and Working Group III) have been discussing the scheduling of the approval sessions of the two Special Reports and have suggestions to be tabled to the Executive Committee to split the approval sessions, while ensuring that they take place before the 25<sup>th</sup> Conference of Parties (COP 25) to the UNFCCC.

The Chair clarified that the first Scoping Meeting of the Synthesis Report will identify key issues and draft a skeletal framework of the report while the second meeting, which will be attended by relevant experts including Bureau members and selected Lead Authors across the three Working Groups as well as relevant stakeholder and user groups, including governments, will be an in-depth Scoping Meeting. The Chair further clarified that a vision paper will be prepared to cover the entire AR6, including all Working Groups, cross-cutting issues and the Synthesis Report. The vision paper will be available by 28 February 2017 and will be distributed as soon as possible thereafter to member countries and Observer organizations for review and comments.

### **12.4 Global Stocktake under article 14 of the Paris Agreement**

France reminded the IPCC decision IPCC-XLIII-7 requesting the Secretariat to prepare proposals for aligning the work of the IPCC during its Seventh Assessment Report with the needs of the global stocktake foreseen under the Paris Agreement and to submit these proposals for consideration at a Plenary session of the IPCC no later than 2018. France invited the Secretariat to inform the Plenary about the process to be launched for preparing these proposals. The Deputy Secretary of the IPCC informed the Panel that the need for alignment will be taken into consideration during the review process of IPCC procedures in 2017. Factors to be considered include, inter alia, the possibility of reducing the duration of the assessment cycle to about five years which may entail holding elections early to allow enough time to set up the TSUs. Proposals will be submitted to Panel at its 46<sup>th</sup> Session in September 2017.

Brazil, Netherlands and Norway took the floor. Suggestions were made about the possibility to move into a 10-year cycle with a possibility of developing intermediate products every 5 years.

In response, the Deputy Secretary of the IPCC mentioned that at present, the ideas being considered are preliminary and require further refinement before submission to the Panel for formal consideration.

### **13. PLACE AND DATE FOR THE 45<sup>TH</sup> PLENARY SESSION OF THE IPCC**

The Chair of the IPCC invited offers from member countries to host the 45<sup>th</sup> Session of the IPCC to be held in April 2017.

Costa Rica informed the Panel that they are considering the possibility to host the 45<sup>th</sup> Session of the IPCC.

Mexico informed the Panel that they are also exploring the possibilities of hosting the 45<sup>th</sup> Session of the IPCC. Both countries will consult each other before formalizing the pledges.

The Panel was also informed that Mexico will be hosting the thirteenth meeting of the Conference of the Parties to the Convention on Biological Diversity in December 2016.

The Chair of the IPCC concluded that the Secretariat will consider the issue of the venue of the session in due course and will engage the two governments to arrive at conclusions.

### **14. CLOSING OF THE SESSION**

The Chair expressed warm gratitude to the delegates for four days of intense and productive discussions. He mentioned that with the decisions taken during the Session the IPCC is well on the way to deliver a strong set of policy-relevant assessments in the Sixth Assessment cycle in the best traditions of the IPCC.

He declared the 44<sup>th</sup> Session of the IPCC closed at 17:45 on 20 October 2016.

**44<sup>TH</sup> SESSION OF THE IPCC**  
17 – 20 October 2016, Bangkok, Thailand

**Decisions adopted by the Panel**

**Decision IPCC/XLIV-1. IPCC Programme and Budget**

Based on the recommendations of the Financial Task Team, the Intergovernmental Panel on Climate Change:

1. Thanks the Secretariat of the IPCC for the 2015 IPCC Financial Statements and Audit Report as contained in document IPCC-XLIV/INF.1, the Statement of Contributions, 2016-2019 budget tables and the interim statement of comparison of budget and actual amount (as of 31 July 2016) as contained in document IPCC-XLIV/Doc.2 and the outline of the resource mobilization campaign and the resource mobilization strategy as contained in document IPCC-XLIV/INF.9.
2. Approves that the revised 2017 budget proposal should include the following modifications in **Annex 6** as compared to the budget approved at the 43<sup>rd</sup> Session of the IPCC:

**Changes related to Governing Bodies, Scoping, Expert Meetings and Workshops**

- Deletion of “Lead Author meeting – contingency” budget line; decrease of CHF 140,400;
- Adjustment in the number of journeys for “IPCC-46 and Working Group Sessions”; decrease of CHF 240,000;
- Adjustment in the number of journeys for budget line “Bureau”; decrease of CHF 288,000;
- Adjustment in the number of journeys for budget line “Executive Committee”; decrease of CHF 64,000;
- Addition of “Scoping Meeting (SR 2)” budget line; increase of CHF 234,000;
- Adjustment in the number of journeys and rename “Expert Meeting/workshops contingency” as “Expert Meeting on Mitigation, Sustainability and Climate Stabilization Scenarios”; decrease of CHF 140,400;
- Addition of SR 1-LA 3 meeting from 2018 to 2017 to budget line “SR 1–LA 1 and LA 2” and renamed as budget line “SR 1-LA 1, LA 2 and LA 3”; increase of CHF 210,600;
- Move of SR 2-LA 2 meeting from 2017 to 2018 and budget line renamed as “SR 2-LA 1”; decrease of CHF 210,600;
- Move of SR 3-LA 2 meeting from 2017 to 2018 and budget line renamed as “SR 3-LA 1”; decrease of CHF 210,600;
- Move of budget line “Workshop on Cities” from 2017 to 2018; decrease of CHF 468,000;
- Adjustment in the number of meetings and journeys for “TGICA” budget line; decrease of CHF 46,800;
- Addition of budget line “IPCC-45 1 day Briefing for developing countries”; increase of CHF 70,000.
- Deletion of budget line “IPCC-46, 1 day briefing for developing countries”; decrease of CHF 70,000.
- Adjustment in the number of journeys for “SR 1-LA1, LA2 & LA3” budget line; increase of CHF 70,200.

### Changes related to TFI

- Adjustment in the number of meetings for budget line “TFI Methodological Development – Lead Author meetings”; increase of CHF 191,880;
- Adjustment in the number of meetings and journeys for “EFDB Data meeting” budget line; decrease of CHF 46,800;
- Move of budget line “TFI Methodological Development – Science meeting” from 2017 to 2018; decrease of CHF 51,480.

### Changes related to Other Expenditures

- Adjustment in the amount for budget line “Publications/Translations”; decrease of CHF 100,000;
- Adjustment in the amount of “Advisory Services – COI” budget line; decrease of CHF 15,000;
- Deletion of budget line “TGICA staff position”; decrease of CHF 88,825.

3. Notes the forecast budget for 2018 (**Annex 6**) and indicative budget for 2019 (**Annex 7**), as proposed in these decisions.

4. Expresses its gratitude to the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) for financing one Secretariat position each, and to WMO for hosting the Secretariat. Thanks WMO for its contribution to the IPCC Trust Fund. Thanks the United Nations Framework Convention on Climate Change for its contribution to the IPCC Trust Fund.

5. Expresses its gratitude to member countries, especially those from developing countries, for their generous contributions to the IPCC Trust Fund, with special thanks to governments which support the Technical Support Units (TSUs) and a number of IPCC activities, including data centres, meetings and outreach actions.

6. Urges member countries to maintain their generous contribution in 2016 and invited governments, who are in a position to do so, to increase their level of contribution to the IPCC Trust Fund or to make a contribution in case they have not yet done so. Further urges member countries to make multi-year contributions, if they are in a position to do so. Reminded member countries, when transferring funds to WMO, to indicate that the contribution is “for the IPCC Trust Fund” to ensure proper identification of the recipient.

7. Requests the Secretariat to inform member countries of the possibility of making an in-kind contribution by supporting specific activities. A list of such activities should be shared with the National Focal Points.

8. Urges member countries, in a position to do so, to provide in-kind support to their government representatives, Bureau members and experts participating in the meetings and activities of the IPCC.

9. Requests the Secretariat to continue to strictly enforce WMO travel rules.

10. Requests the Secretariat to develop, and present to IPCC-45, proposals for decreasing the expenditures associated with “journeys” (e.g. flight costs, reimbursement of actual vs pre-set expenditures, enforcing deadlines).

11. Further requests the Secretariat to develop and present to IPCC-45, proposals for restructuring the budget of the IPCC while ensuring the core functions of the IPCC continue (e.g. separate core budget vs participation budget).

12. Recognizes the importance of organizing a 1-day briefing session to reinforce capacity and enhance participation of developing countries in the IPCC process, noting that this briefing should be open to all member countries. Proposes that the briefing session takes place, as a pilot, 1 day before IPCC-45. In order to free up resources for this briefing and to account for concerns over the number of journeys for IPCC-46, the number of journeys has been reduced from 240 to 180. The outcome of the briefing session will be evaluated and a decision will be taken as to whether the activity should continue as in-session briefings at future Plenary sessions.

13. As part of its resource mobilization efforts, requests the Secretariat to explore co-sponsored IPCC workshops.

14. Requests the Secretariat to consider the “UNEP Partnership Policy and Procedures” ([www.unep.org/about/funding/portals/50199/documents/partnership-policy.pdf](http://www.unep.org/about/funding/portals/50199/documents/partnership-policy.pdf)), to report to IPCC-45 on its suitability for use by the IPCC and to continue informal discussions with potential partners.

15. Requests the Secretariat to determine the reasons for the decline in the number of countries contributing to the IPCC Trust Fund in an effort to finding solutions to reverse this trend. Suggests that in its discussions with member countries that no longer contribute to the IPCC Trust Fund, it should focus on raising awareness on the effects of climate change in addition to highlighting the difficult financial situation the IPCC Trust Fund is facing.

16. Encourages the Secretariat to continue to visit ambassadors in Geneva whose countries may be in a position to contribute to the Trust Fund and report back regularly to the Panel.

17. Proposes that, given the financial constraints of the IPCC Trust Fund, no new activities will be considered by the Panel unless funding has been secured to carry out that activity.

18. Further requests the Secretariat to dedicate an agenda item on the financial situation of the IPCC Trust Fund and to prepare a document on the resource mobilization strategy for consideration at IPCC-45.

19. Notes that **Annex 4** attached to document IPCC-XLIV/Doc.2, containing the list of 2015 in-kind contributions was amended. The revised table is attached to this decision as **Appendix 1**.

20. Notes that the total savings made in the 2017 budget as presented in Document IPCC-XLIV/Doc.2 is CHF 1,595,816.

## 2016 BUDGET ADOPTED BY IPCC-XLIII

Activity	Purpose	DC/EIT support	Other Expenditure	Sub-total
<b>Governing bodies</b>				
IPCC-43 3 days	Programme and budget SR, AR6 products & TGICA	480,000 120 journeys	210,000	690,000
IPCC-44 4 days	Programme and budget SR/MR outline approval	480,000 120 journeys	280,000	760,000
Bureau 4 days	2 sessions	288,000 72 journeys	120,000	408,000
Executive Committee 4 days	2 sessions and consultations	64,000 16 journeys	10,880	74,880
TFB	1 session	36,000 9 journeys	6,120	42,120
UNFCCC and other UN meetings		80,000 20 journeys	0	80,000
<b>SUB-TOTAL</b>				<b>2,055,000</b>
<b>Lead Authors, scoping, expert meetings and workshops</b>				
Expert meetings/workshops	contingency	240,000 60 journeys	40,800	280,800
Scoping meetings (SR 1 & SR 3)	2 meetings contingency	400,000 100 journeys	68,000	468,000
Co-sponsored mtg Lessons learned Gaps in knowl WG I/II/III AR5	(moved from 2015)	120,000 30 journeys	20,400	140,400
TGICA	1 meeting contingency	48,000 12 journeys	8,160	56,160
TGICA Vision for future	1 workshop/expert meeting	120,000 30 journeys	20,400	140,400
Lesson learned AR5 communications/outreach	1 expert meeting	80,000 20 journeys	0	80,000
EFDB Editorial Board	1 meeting	96,000 24 journeys	16,320	112,320
EFDB Data meeting	2 meetings	80,000 20 journeys	13,600	93,600
EFDB and Software Users Feedback (Japan)	1 meeting	44,000 11 journeys	0	44,000
TFI Expert meeting - Technical Ass'mnt (Cross-sectoral issues)	1 expert meeting	132,000 33 journeys	22,440	154,440
TFI Expert meeting - Technical Ass'mnt IPCC Inventory GL	1 expert meeting	132,000 33 journeys	22,440	154,440
TFI Scoping meeting - Future methodological devt.	1 scoping meeting contingency	196,000 49 journeys	33,320	229,320
<b>SUB-TOTAL</b>				<b>1,953,880</b>
<b>Other Expenditures</b>				
2006 GL software	maintenance/development			6,000
EFDB maintenance	update/management			7,000
Publication/Translation	IPCC publications			200,000
Publication	Wetlands & KP Supplements			100,000
Communication	AR6 material/travel/events			260,500
Distribution	IPCC publications			170,000
Webconferences	licences & communication costs			30,000
IT Infrastructure	web hosting/cloudflare/upgrade			41,818
Library facility	one-time fee			103,000
External Audit	fee			20,000
Advisory Services	Conflict of Interest			30,000
Co-Chairs	support			200,000
<b>SUB-TOTAL</b>				<b>1,168,318</b>
<b>Secretariat</b>				
Secretariat	staff/misc expenses			1,912,500
<b>SUB-TOTAL</b>				<b>1,912,500</b>
<b>TOTAL</b>				<b>7,089,698</b>

## PROPOSED 2017 BUDGET ADOPTED BY IPCC-XLIV

Activity	Purpose	DC/EIT support	Other Expenditure	Sub-total
<b>Governing bodies</b>				
IPCC-45 4 days	Programme and budget Approval outline SRs	480,000 120 journeys	280,000	760,000
IPCC-45 1 day	Briefing for developing countries (pilot)	0	70,000	70,000
IPCC-46 + WG I, II, III 5 days	Programme and budget Approval AR6 outline	720,000 180 journeys	350,000	1,070,000
Bureau 4 days	2 sessions	0	120,000	120,000
Executive Committee 4 days	2 sessions and consultations	0	10,880	10,880
TFB	1 session	36,000 9 journeys	6,120	42,120
UNFCCC and other UN meetings		80,000 20 journeys	0	80,000
<b>SUB-TOTAL</b>				<b>2,153,000</b>
<b>Lead Authors, scoping, expert meetings and workshops</b>				
Scoping meeting (SR 2)	1 meeting	200,000 50 journeys	34,000	234,000
Expert meeting - Mitigation, Sustain & Climate Scenarios SR 1	1 meeting	120,000 30 journeys	20,400	140,400
LA 1, LA 2 and LA 3	CLA/LA	600,000 150 journeys	102,000	702,000
SR 2 LA 1	CLA/LA	180,000 45 journeys	30,600	210,600
SR 3 LA 1	CLA/LA	180,000 45 journeys	30,600	210,600
Scoping meeting (AR6)		480,000 120 journeys	81,600	561,600
TFI Methodological devt. Lead Author meetings	4 meetings	848,000 212 journeys	144,160	992,160
TGICA	1 meeting	48,000 12 journeys	8,160	56,160
EFDB Editorial Board	1 meeting	96,000 24 journeys	16,320	112,320
EFDB Data meeting	1 meeting	40,000 10 journeys	6,800	46,800
EFDB and Software Users Feedback, Japan	1 meeting	44,000 11 journeys	0	44,000
<b>SUB-TOTAL</b>				<b>3,310,640</b>
<b>Other Expenditures</b>				
2006 GL software	maintenance/development			30,000
EFDB maintenance	update/management			7,000
Publication/Translation	IPCC publications			100,000
Communication	AR6 material/travel/events			260,500
Distribution	IPCC publications			100,000
IT Infrastructure	web hosting/cloudflare/upgrade			13,128
Webconferences	licences & communication costs			30,000
External Audit	fee			20,000
Advisory Services	Conflict of Interest			15,000
Co-Chairs	support			200,000
<b>SUB-TOTAL</b>				<b>775,628</b>
<b>Secretariat</b>				
Secretariat	staff costs/misc expenses			1,912,500
<b>SUB-TOTAL</b>				<b>1,912,500</b>
<b>TOTAL</b>				<b>8,151,768</b>

## FORECAST 2018 BUDGET NOTED BY IPCC-XLIV

Activity	Purpose	DC/EIT support	Other Expenditure	Sub-total
<b>Governing bodies</b>				
IPCC-47 4 days	Programme and budget various	480,000 120 journeys	280,000	760,000
IPCC-48 4 days	Programme and budget Acceptance SR1	480,000 120 journeys	280,000	760,000
Bureau 4 days	2 sessions	0	120,000	120,000
Executive Committee 4 days	2 sessions and consultations	0	10,880	10,880
TFB	1 session	36,000 9 journeys	6,120	42,120
UNFCCC and other UN meetings		80,000 20 journeys	0	80,000
<b>SUB-TOTAL</b>				<b>1,773,000</b>
<b>Lead Authors, scoping, expert meetings and workshops</b>				
WG I AR6 LA 1	CLA/LA	400,000 100 journeys	68,000	468,000
WG II AR6 LA 1	CLA/LA	400,000 100 journeys	68,000	468,000
SR 1 LA 4	CLA/LA	180,000 45 journeys	30,600	210,600
SR 2 LA 2 and LA 3	CLA/LA	360,000 90 journeys	61,200	421,200
SR 3 LA 2 and LA 3	CLA/LA	360,000 90 journeys	61,200	421,200
Expert meeting Science of Communicating Science	1 meeting	80,000 20 journeys	13,600	93,600
Workshop on Cities (co-sponsored)	1 workshop (moved from 2017)	200,000 50 journeys	34,000	234,000
TFI Methodological devt. Science meeting	1 meeting	60,000 15 journeys	10,200	70,200
TFI Methodological devt. Lead Author meetings	2 meetings	872,000 218 journeys	148,240	1,020,240
TGICA	1 meeting (contingency)	48,000 12 journeys	8,160	56,160
EFDB Editorial Board	1 meeting	96,000 24 journeys	16,320	112,320
EFDB Data meeting	1 meeting	40,000 10 journeys	6,800	46,800
EFDB and Software Users Feedback (Japan)	1 meeting	44,000 11 journeys	0	44,000
<b>SUB-TOTAL</b>				<b>3,666,320</b>
<b>Other Expenditures</b>				
2006 GL software	maintenance/development			6,000
EFDB maintenance	update/management			7,000
Publications/Translations	IPCC publications			200,000
Communication	AR6 material/travel/events			260,500
Distribution	IPCC publications			100,000
Webconferences	licences & communication costs			30,000
IT Infrastructure	web hosting/cloudflare/upgrades			13,128
External Audit	fee			20,000
Advisory Services	Conflict of Interest			15,000
Co-Chairs	support			200,000
<b>SUB-TOTAL</b>				<b>851,628</b>
<b>Secretariat</b>				
Secretariat	staff costs/misc expenses			1,912,500
<b>SUB-TOTAL</b>				<b>1,912,500</b>
<b>TOTAL</b>				<b>8,203,448</b>

New activity as compared to budget noted in IPCC-42 subject to Panel approval in IPCC-46  
All other activities with no colour are also subject to Panel approval in IPCC-46

## INDICATIVE 2019 BUDGET NOTED BY IPCC-XLIV

Activity	Purpose	DC/EIT support	Other Expenditure	Sub-total
<b>Governing bodies</b>				
IPCC-49 4 days	Programme and budget Acceptance MR	480,000 120 journeys	280,000	760,000
IPCC-50 4 days	Programme and budget Acceptance SR 2 & SR3	480,000 120 journeys	280,000	760,000
Bureau 4 days	2 sessions	0	120,000	120,000
Executive Committee 4 days	2 sessions and consultations	0	10,880	10,880
TFB	1 session	36,000 9 journeys	6,120	42,120
UNFCCC and other UN meetings		80,000 20 journeys	0	80,000
<b>SUB-TOTAL</b>				<b>1,773,000</b>
<b>Lead Authors, scoping, expert meetings and workshops</b>				
WG I AR6 LA 2 and LA 3	CLA/LA meeting	800,000 200 journeys	136,000	936,000
WG II AR6 LA 2	CLA/LA meeting	400,000 100 journeys	68,000	468,000
WG III AR6 LA 1 and LA 2	CLA/LA meeting	800,000 200 journeys	136,000	936,000
SR 2 LA 4	CLA/LA meeting	180,000 45 journeys	30,600	210,600
SR 3 LA 4	CLA/LA meeting	180,000 45 journeys	30,600	210,600
SYR AR6	Scoping meeting 2	160,000 40 journeys	27,200	187,200
SYR AR6	CWT-1 meeting	60,000 15 journeys	10,200	70,200
TGICA	1 meeting (contingency)	48,000 12 journeys	8,160	56,160
EFDB Editorial Board	1 meeting	96,000 24 journeys	16,320	112,320
EFDB Data meeting	1 meeting	40,000 10 journeys	6,800	46,800
EFDB and Software Users Feedback (Japan)	1 meeting	44,000 11 journeys	0	44,000
TFI Methodological devt	1 prep meeting before Plenary (moved from 2017)	80,000 20 journeys	0	80,000
TFI Expert meeting	1 meeting (contingency)	100,000 25 journeys	17,000	117,000
<b>SUB-TOTAL</b>				<b>3,474,880</b>
<b>Other Expenditures</b>				
2006 GL software	maintenance/development			6,000
EFDB maintenance	update/management			7,000
Publications/Translations	IPCC publications			200,000
Communication	AR6 material/travel/events			260,500
Distribution	IPCC publications			100,000
Webconferences	licences & communication costs			30,000
IT Infrastructure	web hosting/cloudflare/upgrades			13,128
External Audit	fee			20,000
Advisory Services	Conflict of Interest			15,000
Co-Chairs	support			200,000
<b>SUB-TOTAL</b>				<b>851,628</b>
<b>Secretariat</b>				
Secretariat	staff costs/misc expenses			1,912,500
<b>SUB-TOTAL</b>				<b>1,912,500</b>
<b>TOTAL</b>				<b>8,012,008</b>

New activity as compared to budget noted in IPCC-43, subject to Panel approval in IPCC-48  
All activities to be noted at IPCC-43 and subject to Panel approval in IPCC-48

## Appendix 1

**ANNEX 4 (revised)**

### List of In-kind Contributions/Activities (January-July 2016)

(In the following cases no financial support for hosting/meeting facilities was provided by the IPCC Trust Fund)

Government/Institution	Activity	Type
France	Technical Support Unit – WG I	Hosting
China	Technical Support Unit – WG I	Hosting
Germany	Technical Support Unit – WG II	Hosting
South Africa	Technical Support Unit – WG II	Hosting
India	Technical Support Unit – WG III	Hosting
United Kingdom	Technical Support Unit – WG III	Hosting
Japan	Technical Support Unit – TFI	Hosting
Peru	Technical Support Unit – TFI	Hosting
Germany	IPCC Data Distribution Centre	Hosting
United Kingdom	IPCC Data Distribution Centre	Hosting
United States of America	IPCC Data Distribution Centre	Hosting
WMO	Post of Secretary of the IPCC	Salary
UNEP	Post of Deputy Secretary of the IPCC	Salary
Japan	NGGIP – IPCC Expert Meeting to Collect EFDB, Kobe, Japan (25-28 January 2016)	Meeting facilities
WMO	TGICA – Expert Meeting, Geneva, Switzerland (26-27 January 2016)	Meeting facilities
Norway	IPCC Expert Meeting on Communications, Oslo, Norway (9-10 February 2016)	Meeting facilities
WMO	51 <sup>st</sup> Session of the IPCC Bureau, Geneva Switzerland (16-17 February 2016)	Meeting facilities
Australia	NGGIP – Expert Meeting for Technical Assessment of the IPCC Inventory Guidelines – follow-up on specific issues from the 2015 Expert Meeting, Sydney, Australia (25-27 April 2016)	Meeting facilities
Australia	NGGIP – Expert Meeting for Technical Assessment of IPCC Inventory Guidelines – Cross-sectoral Issues, Sydney, Australia (27-29 April 2016)	Meeting facilities
Finland	24 <sup>th</sup> Session of TGICA, Helsinki, Finland (6-8 July 2016)	Meeting facilities
Croatia*	IPCC-42, Dubrovnik, Croatia (5-8 October 2015)	Meeting facilities

\* 2015

## **Decision IPCC/XLIV-2. Admission of Observer Organizations**

*The Intergovernmental Panel on Climate Change decides,*

To admit the following new Observer Organizations:

1. Climate Alliance
2. C40 Cities Climate Leadership Group
3. Climate and Clean Air Coalition (CCAC)
4. World Climate Research Programme (WCRP)
5. Consortium of International Agricultural Research Centers (CGIAR)
6. Friends World Committee for Consultation (FWCC)
7. Mary Robinson Foundation – Climate Justice
8. Intergovernmental Technical Panel on Soils (ITPS)
9. Université catholique de Louvain
10. Pacific Community

## **Decision IPCC/XLIV-3. Procedural matters. Review of the IPCC Conflict of Interest Policy**

*The Intergovernmental Panel on Climate Change,*

Recalling paragraph 12 of the IPCC COI Policy, which states that IPCC author teams are to include individuals with different perspectives and affiliations,

*Decides,*

1. To adopt and replace Annex B to the IPCC COI Policy by the revised COI disclosure form as contained in Annex 1 to this document, which includes the request that COI disclosure forms should be submitted together with a CV.
2. To delete paragraphs 23 and 24 of the Implementation Procedures of the IPCC COI Policy on the COI Expert Advisory Group (EAG), as well as the reference to the EAG in paragraphs 3, 4, 10, and 17 of the Implementation Procedures.
3. To replace the words “IPCC Bureau” in paragraph 7 of the Implementation Procedures by “COI Committee”.
4. To add and start the last sentence of paragraph 5 of the Implementation Procedures with the words: “Before a CLA, LA or RE can start working” and delete the word “then”.
5. To delete the phrase “in person” in paragraph (f) of the Method of Working of the IPCC COI Committee. This will allow virtual participation in COI meetings by the COI Committee members.

**CONFLICT OF INTEREST DISCLOSURE FORM (REV.)**

NAME:

ADDRESS:

E-MAIL ADDRESS:

TELEPHONE:

CURRENT EMPLOYER:

FUNCTION/ROLE IN IPCC:

**NOTE:** You have been invited to serve on the IPCC because of your professional standing and expertise. As outlined in the IPCC Conflict of Interest Policy, the role of the IPCC demands that it pay special attention to issues of independence and potential bias in order to maintain the integrity of, and public confidence in, its products and processes. It is essential that the work of the IPCC is not compromised by any conflict of interest for those who execute it. In view of this, disclosure of certain circumstances is necessary to ensure that the work of the IPCC is not compromised by conflicts of interest. In filling out this form, therefore, we rely on your professionalism, common sense, and honesty.

These arrangements and disclosure of interests are required as a matter of due diligence, to ensure appropriate assurance for the IPCC in matters of conflict of interest, professional and scientific integrity, and to protect the IPCC and participants from reputational risk.

This declaration of interests, and disclosure of conflicts of interest or potential conflicts of interest, is required under the IPCC Conflict of Interest Policy and Implementation Procedures.

You should disclose interests that could: i) significantly impair your objectivity in carrying out your duties and responsibilities for the IPCC, or ii) create an unfair advantage for you or any person or organization; and which could result in your securing a direct and material gain through outcomes in an IPCC product. For the purposes of this policy, circumstances that could lead a reasonable person to question your objectivity, or whether an unfair advantage has been created, constitute a potential conflict of interest and should be disclosed in this form.

You must also declare any relevant interests of parties with whom you have current contractual relationships or substantial common interests and which could be perceived as unduly influencing, or likely to unduly influence, your judgement (for example your employer(s), close professional associates, your administrative unit or department, sponsoring or funding entities).

A **brief** description of details should be provided in relation to any question below. You should aim to provide sufficient and explicit information to allow the IPCC to form a view on whether the circumstances disclosed give rise to an actual or potential conflict of interest. If in doubt about whether an interest should be disclosed, individuals are encouraged to disclose that information.

Please **sign** and **date** this form on the last page, and return the form to the Secretary of the IPCC with a **Curriculum Vitae** and information supporting these disclosures where applicable. **Retain a copy for your records.**

You must promptly inform the IPCC Secretariat if there is any change in this information prior to or during the course of your work or meetings for the IPCC. This form and the declarations contained therein must be completed before participation in the IPCC activity can be confirmed.

**Answering “Yes” to a question on this form does not necessarily mean that a conflict is present or that you will be unable to perform your designated function/role in the IPCC. If in doubt about whether an interest should be disclosed, individuals are encouraged to disclose that information. This information will be assessed as a whole on the basis of the principles contained in the COI Policy (<http://ipcc.ch/pdf/ipcc-principles/ipcc-conflict-of-interest.pdf> ). In particular, what constitutes or not a COI is defined in paragraphs 11 to 17 of that document (reproduced below).** If in doubt about whether an interest should be disclosed, individuals are encouraged to seek advice from IPCC Secretariat (Legal Officer, [sschlingemann@wmo.int](mailto:sschlingemann@wmo.int)).

**Definition of « Conflict of Interest » (paragraphs 11 to 17 of the IPCC COI Policy <http://ipcc.ch/pdf/ipcc-principles/ipcc-conflict-of-interest.pdf> ).**

Conflict of Interest

11. A “conflict of interest” refers to any current professional, financial or other interest which could: i) significantly impair the individual’s objectivity in carrying out his or her duties and responsibilities for the IPCC, or ii) create an unfair advantage for any person or organization. For the purposes of this policy, circumstances that could lead a reasonable person to question an individual’s objectivity, or whether an unfair advantage has been created, constitute a potential conflict of interest. These potential conflicts are subject to disclosure.

12. Conflict of interest policies in scientific assessment bodies typically make a distinction between “conflict of interest” and “bias,” which refers to a point of view or perspective that is strongly held regarding a particular issue or set of issues. In the case of author and review teams, bias can and should be managed through the selection of a balance of perspectives. For example, it is expected that IPCC author teams will include individuals with different perspectives and affiliations. Those involved in selecting authors will need to strive for an author team composition that reflects a balance of expertise and perspectives, such that IPCC products are comprehensive, objective, and neutral with respect to policy. In selecting these individuals, care must be taken to ensure that biases can be balanced where they exist. In contrast, conflict of interest exists where an individual could secure a direct and material gain through outcomes in an IPCC product. Holding a view that one believes to be correct, but that one does not stand to gain from personally is not a conflict of interest.

13. The conflict of interest requirements in this policy are not designed to include an assessment of one's behaviour or character or one's ability to act objectively despite the conflict of interest.

14. This policy applies only to current conflicts of interest. It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behaviour. Nor does it apply to possible interests that may arise in the future but that do not currently exist, as such interests are inherently speculative and uncertain. For example, a pending application for a particular job is a current interest, but the mere possibility that one might apply for such a job in the future is not a current interest.

15. Professional and other non-financial interests need to be disclosed only if they are significant and relevant. If in doubt about whether an interest should be disclosed, individuals are encouraged to seek advice from the appropriate IPCC body as defined in Annex A. Significant and relevant interests may include, but are not limited to, senior editorial roles, advisory committees associated with private sector organizations, and memberships on boards of non-profit or advocacy groups. However, not all such associations necessarily constitute a conflict of interest.

16. Financial interests need to be disclosed only if they are significant and relevant. These may include, but are not limited to, the following kinds of financial interests: employment relationships; consulting relationships; financial investments; intellectual property interests; and commercial interests and sources of private-sector research support. Individuals should also disclose significant and relevant financial interests of any person with whom the individual has a substantial business or relevant shared interest. If in doubt about whether an interest should be disclosed, individuals are encouraged to seek advice from the appropriate IPCC body as defined in Annex A "Implementation".

17. To prevent situations in which a conflict of interest may arise, individuals directly involved in or leading the preparation of IPCC reports should avoid being in a position to approve, adopt, or accept on behalf of any government the text in which he/she was directly involved.

## 1. APPOINTMENTS AND ACTIVITY

Do you hold any position or appointment, or any business or professional relationships (whether commercial or non-financial) with other bodies related to climate science, such as the UNFCCC or others? Yes    No

**Details:**

## 2. EMPLOYMENT AND CONSULTING

Do you receive any remuneration from a commercial entity or other organization with an interest related to the subject of the IPCC work in which you are engaged?  
Employment or consulting, including services as a technical or other adviser Yes    No

**Details:**

## 3. RESEARCH SUPPORT

Do you receive financial support from any commercial entity or other organization with an interest related to the subject of the IPCC work?  
Research support, including grants, collaborations, sponsorships, other funding Yes    No

**Details:**

Non-financial support valued collectively in excess of US\$10,000 per year (premises, equipment, facilities, assistants, paid travel, etc.) Yes    No

**Details:**

Support, including honoraria, for being on a speakers' panel, giving speeches or training for a commercial entity or other organization with an interest related to the subject of the IPCC work? Yes    No

**Details:**

#### **4. INVESTMENT INTERESTS**

Do you have investments in any commercial entity with an interest related to the subject of the IPCC work? (Please also include indirect investments such as a trust or holding company. You may exclude mutual funds, pension funds or similar investments that are broadly diversified and over which you exercise no control.)

Stocks, bonds, stock options, other securities (e.g. short sales) Yes No

**Details:**

Commercial business interests (eg, ownership, partnerships, joint ventures, board memberships, controlling interests)

Yes No

**Details:**

#### **5. INTELLECTUAL PROPERTY**

Do you own any intellectual property rights that might be affected by the IPCC work?

Patents, trademarks or commercial copyrights (including pending applications) Yes No

**Details:**

Proprietary knowledge in a technology or process being used for commercial purposes

Yes No

**Details:**

#### **6. PUBLIC STATEMENTS AND POSITIONS**

As part of a regulatory, legislative or judicial process, are you providing any expert opinion or testimony, related to the subject of the IPCC work, for a commercial entity or other organization?

Yes No

**Details:**

#### **7. NON-FINANCIAL INTERESTS**

Are you engaged in any professional or other activities which outside parties could consider might represent or give rise to a conflict of interest, or the perception of a conflict of interest with regard to your IPCC service?

Yes No

**Details:**

Are you involved in any:

- Senior editorial role or assignment? Yes No

**Details:**

- Official function in a government agency or international organization? Yes No

**Details:**

- Advisory committee associated with a public or private sector organization? Yes No

**Details:**

Are you a:

- Board member of a public or private sector organization? Yes No

**Details:**

- Board member of a non-profit organization? Yes No

**Details:**

- Board member of an advocacy group? Yes No

**Details:**

## 8. FINANCIAL INTERESTS

Do you hold any financial interests in excess of US\$10,000 per year which outside parties could consider might represent or give rise to a conflict of interest, or the perception of a conflict of interest with regard to your IPCC service? Yes No

**Details:**

## 9. ADDITIONAL INFORMATION

If not already disclosed above, are you aware of any aspect of your work for the IPCC that will enable you to obtain access to proprietary information or create for you a competitive advantage in your professional, financial or business dealings? Yes No

**Details:**

To your knowledge, could the outcome of your work for the IPCC adversely affect the interests of any other persons or entities with whom you have substantial common personal, professional, financial or business interests (such as your adult children or siblings, close professional colleagues, administrative unit or department)? Yes No

**Details:**

Which organisation is covering, partly or in full, your IPCC related travel costs?

**Details:**

Are you receiving any payments (other than for travel costs) or honoraria for speaking publicly on the subject of the IPCC work in which you are engaged? Yes No

**Details:**

Is there any other aspect of your background or present circumstances not addressed above that you consider might be perceived as affecting your objectivity or independence?

Yes      No

**Details:**

## **REMINDER**

“Yes” responses do not necessarily affect or prevent your participation in IPCC activities. Answering “Yes” to a question on this form does not necessarily mean that a conflict is present or that you will be unable to perform your designated function/role in the IPCC. If in doubt about whether an interest should be disclosed, individuals are encouraged to disclose that information.

## **DECLARATION**

I hereby declare that the information in and accompanying this disclosure is true and complete to the best of my knowledge and belief. I declare that I have disclosed all associations required for disclosure under the IPCC Conflict of Interest Policy; and that, except as declared, I do not consider that any of the associations present a conflict of interest.

Should there be any change to the above information and declaration, I will promptly notify the IPCC Secretariat and complete a new declaration of interest form that describes the changes. This includes any change that occurs before or during my work with the IPCC and through the period of my engagement up to finalization or publication of results, or completion of the activity concerned.

I understand that information about my interests will be held by the IPCC for a period of five years after the end of the assessment cycle during which I contributed, after which the information will be destroyed. Subject to requirement to notify the existence of a conflict of interest to others under paragraph 6 of the Implementation Procedures, I understand that these forms will be considered confidential and will be reviewed in accordance with the COI Implementation Procedures.

I hereby declare that I will comply with the IPCC COI Policy and the Implementation Procedures.

**Name:**

**Signature:**

**Date:**

## **Decision IPCC/XLIV-4. Sixth Assessment Report (AR6) Products, Outline of the Special Report on 1.5°C**

*The Intergovernmental Panel on Climate Change decides,*

1. To agree to the outline of Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty as contained in Annex 1 to this document;
2. That this report responds to the invitation of the UNFCCC to the IPCC as contained in paragraph 21 of its Decision 1/CP.21, the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), and should also be seen in the context of paragraph 17 of the same decision;
3. That this report assesses literature relevant to 1.5°C, especially since the Fifth Assessment Report (AR5), consistent with the IPCC guidance on the use of literature;
4. That the bulleted text in Annex 1 to this Decision, that resulted from the scoping process and refined through comments by the Plenary, be considered by authors as indicative, taking into account the scope of the literature assessment referred to in bullet 3 and scientific gaps that will be explicitly identified;
5. That the time schedule for the production of the Special Report is as follows:
  - A call for nominations of Coordinating Lead Authors (CLAs), Lead Authors (LAs) and Review Editors (REs) will be issued after the 44th Session of the IPCC in October 2016.
  - Approval and acceptance of the Special Report is planned for the 48th Session of the IPCC in September 2018.
  - In order to achieve this, the timetable for the Special Report is as follows:

31 October - 11 December 2016	Call for author nominations
29 January 2017	Selection of authors
6-12 March 2017	1st Lead Author Meeting
5-11 June 2017	2nd Lead Author Meeting
31 July - 24 September 2017	First Order Draft Expert Review
23-29 October 2017	3rd Lead Author Meeting
1 January - 25 February 2018	Second Order Draft Expert and Government Review
9-15 April 2018	4th Lead Author Meeting
4 June - 29 July 2018	Final Government Review of Summary for Policymakers (SPM)
24-30 September 2018	IPCC acceptance/adoption/approval
6. That the budget for the production of the Special Report is as contained in Decision (IPCC/XLIV-1) on the IPCC Trust Fund Programme and Budget.

**Proposed outline of the special report in 2018 on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development and efforts to eradicate poverty**

Title:

Global warming of 1.5°C

An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty

List of Contents

- Front Matter (2 pages)
- Summary for Policy Makers (up to 10 pages, incl. headline statements, tables, figures)
- Chapter 1: Framing and context (15 pages)
- Chapter 2: Mitigation pathways compatible with 1.5°C in the context of sustainable development (40 pages)
- Chapter 3: Impacts of 1.5°C global warming on natural and human systems (60 pages)
- Chapter 4: Strengthening and implementing the global response to the threat of climate change (50 pages)
- Chapter 5: Sustainable development, poverty eradication and reducing inequalities (20 pages)
- Boxes - integrated case studies/regional and cross-cutting themes (up to 20 pages)
- FAQs (10 pages)
- Total: up to 225

Front matter

- IPCC context
  - Building on AR5
  - Assessing literature since AR5
  - Reports to come in this cycle
- Context of UNFCCC invitation
- Specificity of this report within the cycle (integration, systems- and solutions-based approach, near-term)
- Laying the foundations for the Special Report in the context of strengthening the global response to climate change, sustainable development and poverty eradication

Chapter 1:

Framing and Context

- Understanding 1.5°C; reference levels, probability, transience, overshoot, stabilization
- 1.5°C in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty, with consideration for ethics and equity
- Key concepts central to understanding the report
- Building on AR5: new information, integrative approaches, response options
- Assessment and methodologies across spatial and time scales
- Treatment of uncertainty
- Storyline of the report

## Chapter 2:

### Mitigation pathways compatible with 1.5°C in the context of sustainable development

- Methods of assessment and assumptions in the literature
- Constraints on, and uncertainties in, global greenhouse gas emissions consistent with warming of 1.5°C compared to 2°C, considering short lived and other climate drivers and taking into account uncertainty in climate sensitivity
- Characteristics of mitigation and development pathways compatible with 1.5°C compared with 2°C and, where warranted by the literature, comparison with higher levels of warming. This may include short and long term timeframes, sectorial, regional, demand/supply-side, technological and socio-economic implications
- Technological, environmental, institutional and socio-economic opportunities and challenges related to 1.5°C pathways

## Chapter 3:

### Impacts of 1.5°C global warming on natural and human systems

- Methods of assessment
- Observed and attributable global and regional climate changes and impacts and the adaptation experience
- Key global and regional climate changes, vulnerabilities, impacts, and risks at 1.5°C, taking into account adaptation potential and limits to adaptive capacity
- Key sectoral vulnerabilities, impacts, and risks at 1.5°C, taking into account adaptation potential, limits to adaptive capacity and socio-economic aspects
- Avoided impacts and reduced risks at 1.5°C compared with 2°C and, where warranted by the literature, comparison with higher levels of warming
- Timeframe, slow vs. fast onset, irreversibility and tipping points
- Implications for impacts, adaptation and vulnerability of different mitigation pathways reaching 1.5°C, including potential overshoot

## Chapter 4:

### Strengthening and implementing the global response to the threat of climate change

- Assessing current and emerging adaptation and mitigation options, including negative emission methodologies, and associated opportunities and challenges
- Synergies, trade-offs and integration of adaptation and mitigation options
- The pace of the development and deployment of adaptation and mitigation options compared to pathways consistent with sustainable development and 1.5°C
- The potential and capacity limitations for development and deployment of adaptation and mitigation responses to accelerate transitions within and across scales and systems (e.g. food production, cities)
- Options for implementing far-reaching and rapid change; implications, challenges (e.g. lock in, spillover effects), enabling environments and across scales
- Case studies for implementation of adaptation and mitigation options at different scales and circumstances, and lessons learned

## Chapter 5:

### Sustainable development, poverty eradication, and reducing inequalities

- Linkages between achieving SDGs and 1.5°C
- Distributional impacts arising from response options
- Opportunities, challenges, risks, and trade-offs
- Positive and negative impacts of adaptation and mitigation measures including response measures and strategies, economic diversification, livelihoods, food security, cities, ecosystems, technologies
- Knowledge and experience from local to global, including case studies and integrated planning as relevant to aforementioned bullets
- Climate-resilient development pathways

**Decision IPCC/XLIV-5. Sixth Assessment Report (AR6) Products, Outline of the Methodology Report(s) to refine the 2006 IPCC Guidelines for National Greenhouse Gas Inventories**

The Intergovernmental Panel on Climate Change decides,

1. To prepare a Methodology Report to refine the 2006 IPCC Guidelines for National Greenhouse Inventories” with the following format and title:
  - The format should be one single Methodology Report comprising an Overview Chapter and five volumes following the format of the *2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 IPCC Guidelines)*.
  - The title of the Methodology Report should be “*2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*”.
2. To adopt the terms of reference for the production of a Methodology Report to refine the 2006 IPCC Guidelines for National Greenhouse Gas Inventories as contained in Annex 1 to this Decision.
3. To adopt the table of contents of the Methodology Report as contained in Annex 2 to this Decision.
4. To take note of document IPCC-XLIV/INF.7.
5. That the budget for the production of this Methodology Report is as contained in Decision (IPCC/XLIV-1) on the IPCC Trust Fund Programme and Budget.

## **Terms of Reference for the production of a Methodology Report to refine the 2006 IPCC Guidelines for National Greenhouse Gas Inventories**

### **Background**

1. The 26<sup>th</sup> Meeting of Task Force Bureau (TFB) (28 - 29 August 2014, Ottawa) concluded that:
  - The *2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 IPCC Guidelines)* provide a technically sound methodological basis of national greenhouse gas inventories, and therefore fundamental revision is unnecessary.
  - To maintain the scientific validity of the *2006 IPCC Guidelines*, certain refinements may be required, taking into account scientific and other technical advances that have matured sufficiently since 2006.
2. Following these conclusions by the TFB and approval by the IPCC at its 40<sup>th</sup> Session, the Task Force on National Greenhouse Gas Inventories (TFI) started a technical assessment of IPCC Inventory Guidelines through an on-line questionnaire survey and four expert meetings in 2015 and 2016. The technical assessment revealed that there has been abundant new scientific and empirical knowledge published since 2006 which the IPCC should take into account, particularly with respect to data for emission factor development for some categories and gases. Consequently, the necessity and usefulness of *refining* the current methodological guidance (e.g. updating default emission factors) has been recognized by TFB.
3. A refinement of the *2006 IPCC Guidelines* is required as early as possible in order to address the issues that were identified through the technical assessment referred to in paragraph 2 above. The refinement will help all UNFCCC Parties use good practice inventory methodologies based on up-to-date scientific knowledge.

### **Scope**

4. The IPCC at its 43<sup>rd</sup> Session (11-13 April 2016, Nairobi) approved the proposal on “Refinement of 2006 IPCC Guidelines for National Greenhouse Gas Inventories, including production of a Methodology Report(s)” as contained in the Decision IPCC/XLIII-8 “Update of methodologies on National Greenhouse Gas Inventories”, and decided to consider the draft Methodology Report(s) at a Plenary session of the IPCC in May 2019 as contained in the Decision IPCC/XLIII-7 “Sixth Assessment Report (AR6) Products. Strategic Planning”.
5. The overall aim of the refinement of the *2006 IPCC Guidelines* is to provide an updated and sound scientific basis for supporting the preparation and continuous improvement of national greenhouse gas inventories.
6. In order to achieve the overall aim, the Methodology Report will:
  - Provide supplementary methodologies for sources or sinks of greenhouse gases only where currently there are gaps or where new technologies and production processes have emerged requiring elaborated methodologies or for sources or sinks that are not well covered by the *2006 IPCC Guidelines*;
  - Provide updated default values of emission factors and other parameters based on the latest available science only where significant differences from currently adopted factors are identified;
  - Provide additional or alternative up-to-date information and guidance, where possible, as clarification or elaboration of existing guidance in the *2006 IPCC Guidelines*.

7. In line with paragraph 6 above, the Methodology Report will clearly indicate what type of refinement is provided in each section. The types of refinement are defined in Appendix 1. These terms should be used consistently throughout the Methodology Report.
8. For the purpose of elaborating on and clarifying the existing IPCC guidance, the Methodology Report should aim to address any important needs for clarification arising from GHG inventory reviews or the technical analysis of inventories as part of biennial update reports under the UNFCCC if such needs are identified in time during the elaboration of the report.
9. The refinement work will not revise the *2006 IPCC Guidelines*, but will update, supplement and/or elaborate the *2006 IPCC Guidelines* where gaps or out-of-date science have been identified. The Methodology Report will not replace the *2006 IPCC Guidelines*, but will be used in conjunction with the *2006 IPCC Guidelines*.

## **Approach**

10. The result of this work will be an IPCC Methodology Report “2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories”.
11. The authors will follow Appendix 2 “Instructions to Experts and Authors” to ensure a consistent and coherent approach across all the volumes or chapters, including the use of common terminology.
12. Literature will be considered up to a cut-off date at the start of the Government/Expert Review.
13. Table 1 provides the time table for this task.

**Table 1: Work Plan**

Date	Action	Comments
October 2016	IPCC-44	IPCC Plenary approves ToR, chapter outline, work plan and guidance to authors
November 2016	Call for Nomination of Authors and Review Editors	IPCC invites nominations from governments and international organizations
February 2017	TFB select Authors and Review Editors	Selection by TFB considering expertise and geographical coverage
June 2017	1 <sup>st</sup> Lead Author Meetings	LAM1a (non-AFOLU) and LAM1b (AFOLU) and LAM1c (General Guidance and Reporting). To develop zero order draft
September 2017	2 <sup>nd</sup> Lead Author Meeting	To develop first order draft for review
December 2017– January 2018	Expert Review	8 weeks review by experts
March 2018	Science Meeting	A small meeting of CLAs and some LAs to discuss specific issues that require intensive discussion to reinforce the writing process.
April 2018	3 <sup>rd</sup> Lead Author Meeting	To consider comments and produce second order draft for review
xxx 2018	Literature cut-off date	Only papers published before this date will be considered
July-August 2018	Government & Expert Review	8 weeks review by governments and experts
October 2018	4 <sup>th</sup> Lead Author Meeting	To consider comments and produce final draft
January 2019	Government Review	Distribute to governments for their consideration prior to approval (at least 4 weeks prior to the Panel)
May 2019	Adoption/acceptance by IPCC-49	Final draft submitted to IPCC Panel for adoption/acceptance
xxx 2019	Distribute Report	Distribute to governments and international organizations

## Appendix 1: Types of refinement

The following three refinement types should be indicated in the refined sections of the Methodology Report.

<p><b>1. Update</b></p>	<p>This is to update existing guidance (table, section, or an entire chapter) to address the needs explained in the first or second bullet under paragraph 6 in this TOR. New elements that do not change default approaches in the existing guidance is considered “update”. A typical example is to provide new default values for EFs contained in a table in the <i>2006 IPCC Guidelines</i>, and in this case it is considered “Update of Table X.X (on default EFs)”. Update of section or entire chapter is to rewrite an existing section or chapter including existing information and new information in the case it is difficult to provide only the new information without overlap with existing guidance. From the inventory compiler’s view point, “update” of existing guidance means that they are encouraged to use the table/section/chapter in the new Methodology Report <b><u>instead of</u></b> the corresponding table/section/chapter in the <i>2006 IPCC Guidelines</i>.</p>
<p><b>2. Elaboration</b></p>	<p>This is to elaborate existing guidance to address the needs explained in the first or third bullet under paragraph 6 in this TOR. New elements that may be added to default approaches in the existing guidance is considered “elaboration”. Also, additional or alternative up-to-date information and guidance provided to clarify existing guidance is considered “elaboration”. A typical example is to include the contents in FAQs in TFI website in the new Methodology Report(s). Elaboration of section or entire chapter is NOT to rewrite an existing section or chapter, but to provide a sub-section or section which contains additional or alternative up-to-date information without overlap with existing guidance. From the inventory compiler’s view point, “elaboration” of existing guidance means that they are encouraged to use the table/section/chapter in the new Methodology Report <b><u>in conjunction with</u></b> the corresponding table/section/chapter in the <i>2006 IPCC Guidelines</i>.</p>
<p><b>3. New guidance</b></p>	<p>This is to add completely new guidance on issues for which there is essentially no guidance in the <i>2006 IPCC Guidelines</i> to address the needs explained in the first bullet under paragraph 6 in this TOR. Creation of default approaches to issues that are not well covered in the 2006 IPCC Guidelines is considered “new guidance”. From the inventory compiler’s view point, “new guidance” means that they are encouraged to use the section/chapter in the new Methodology Report <b><u>without reference to</u></b> specific sections/chapters in the <i>2006 IPCC Guidelines</i>, recognizing that there is essentially no corresponding guidance in the <i>2006 IPCC Guidelines</i>.</p>

Besides, “**No refinement**” should indicate that no refinement has been made in that section.

## Appendix: Instructions to Experts and Authors

### Instructions to Experts and Authors

1. Work on a Methodology Report to refine the *2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 IPCC Guidelines)* will be guided by the IPCC procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of the IPCC Reports (Appendix A to the Principles Governing the IPCC Work<sup>4</sup>). This document is consistent with the IPCC procedures, and applies to all experts engaged in the production of a new Methodology Report.
2. In this document the term “experts” covers Co-Chairs, members of the TFI Bureau (TFB), TSU Staff, Coordinating Lead Authors (CLAs), Lead Authors (LAs), and Review Editors (REs) as well as Contributing Authors (CAs) and Expert Reviewers.
3. These notes are intended as guidance to experts contributing to a new Methodology Report. They are intended to ensure a consistent and coherent approach across all the volumes or chapters and to promote common terms used.

### **Confidentiality**

4. Authors meetings are closed meetings. Any discussions are confidential except for any published report of the meeting. This is to ensure that experts participating in the meetings can express themselves and discuss issues freely and openly.
5. The IPCC considers the drafts of a new Methodology Report, prior to acceptance, to be pre-decisional, provided in confidence to reviewers, and not for public distribution, quotation or citation.
6. The TSU will keep drafts of a new Methodology Report sent for the IPCC review, any comments received on them and the responses by authors. All written expert and government review comments will be made available to reviewers on request. These will be made available on the IPCC website as soon as possible after the acceptance by the Panel and the finalisation of the report.

### **Conflict of Interest**

7. It is important that all experts involved in the IPCC activities avoid any conflict of interest or the direct and substantial appearance of a conflict of interest. It is recognised that many experts in Emission Inventories are employed by, or funded by, parties with some interest in the outcome (e.g. most inventory compilers are funded by national governments or industry). It is therefore important to be open and transparent about financial and other interests.
8. The IPCC implements a Conflict of Interest (COI) Policy<sup>5 6</sup> that applies to all individuals directly involved in the preparation of IPCC reports, including senior IPCC leadership (IPCC Chair and Vice-Chairs), other Bureau and Task Force Bureau members, authors with responsibilities for report content (CLAs, LAs), Review Editors and staff of the Technical Support Units. The overall purpose of this policy is to protect the legitimacy, integrity, trust, and credibility of the IPCC and of those directly involved in the preparation of reports, and its activities.
9. Before an individual is appointed as a CLA, LA and RE for a new Methodology Report, the TFB will request the individual to complete a Conflict of Interest Disclosure Form (“the COI Form”) contained in Annex B to the COI Policy which will be submitted to the TFI TSU. The TFB will

---

<sup>4</sup> <http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles-appendix-a-final.pdf>

<sup>5</sup> <http://www.ipcc.ch/pdf/ipcc-principles/ipcc-conflict-of-interest.pdf>

<sup>6</sup> The IPCC COI Policy including the COI Form is currently being reviewed and may be revised at the 44th Session of the IPCC in Bangkok, Thailand, on 17-20 October 2016. If it is revised at that session of the IPCC, paragraphs 8-11 of this document will be revised accordingly.

then evaluate the form to determine whether the individual has a conflict of interest that cannot be resolved.

10. All CLAs, LAs and REs will inform the TFI TSU annually of any changes in the information provided in their previously submitted COI Form. The TFB will evaluate the revised information.
11. All COI Forms and any records of the deliberations of the COI Expert Advisory Group, deliberations and/or decisions of the COI Committee in relation to conflict of interest issues in respect of specific individuals and any information disclosed by individuals for the purposes of the COI Policy will be transferred to the Secretariat after they have been reviewed and will be securely archived by the Secretariat and retained for a period of five years after the end of the assessment cycle during which the relevant individual contributed, after which the information will be destroyed. Subject to requirement to notify the existence of a conflict of interest to others, the information referred to above will be considered confidential and will not be used for any purpose other than consideration of conflict of interest issues under these Implementation Procedures without the express consent of the individual providing the information.

### **Responsibilities of authors and other experts**

12. The role of authors is to impartially assess ALL the available literature and to describe the best methodologies available. Experts should be impartial. Authors should review all literature available up to a cut-off date to be decided by the TFB as part of the agreed work plan.
13. After drafting the report authors will be asked to consider all comments received on the drafts and to adjust and revise the text accordingly. They should document their responses. If they do not accept a comment this should be explained. Review Editors should check whether the accepted changes were fully incorporated in the revised text.
14. Responsibilities and duties of authors and other experts are currently explained in more detail in the IPCC procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of the IPCC Reports (Appendix A to the Principles Governing the IPCC Work).

### **Literature**

15. The use of literature should be open and transparent. In the drafting process, emphasis is to be placed on the assurance of the quality of all cited literature. Priority should be given to peer-reviewed scientific, technical and socio-economic literature if available.
16. It is recognized that other sources provide crucial information for IPCC Reports. These sources may include reports from governments, industry, and research institutions, international and other organizations, or conference proceedings. Use of this literature brings with it an extra responsibility for the author teams to ensure the quality and validity of cited sources and information. In general, newspapers and magazines are not valid sources of scientific information. Blogs, social networking sites, and broadcast media are not acceptable sources of information for IPCC Reports. Personal communications of scientific results are also not acceptable sources.
17. For any sources written in a language other than English, an executive summary or abstract in English is required.
18. All sources will be integrated into a reference section of an IPCC Report.
19. For more details of the procedure on the use of literature in IPCC Reports, see Annex 2 to the IPCC procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of the IPCC Reports (Appendix A to the Principles Governing the IPCC Work).

## Principles of the new Methodology Report

20. Guidance in the **new Methodology Report** should be understandable and easy to implement. Lead authors should make efforts to balance the need to produce a comprehensive self-contained report with reasonable limits to the length and detail of the guidance. In particular:
- The guidance should follow a cookbook approach by providing clear step by step instructions. It should not try to be a textbook. Detailed background information on emission processes, scientific studies, etc. is generally referenced rather than included.
  - Lead authors must consider all recent scientific developments and national methods used by countries in their inventories.
  - Significant changes from the *2006 IPCC Guidelines* will have significant implications for all countries. Parties to the UNFCCC use the IPCC Guidelines to prepare national inventories and national communications. Substantial changes should only be introduced if they can be justified on sound scientific and technical grounds.
  - Authors should bear in mind that the target audience is a diverse group of readers who are primarily concerned with the elaboration of national inventories. For this reason, the emphasis should be on ensuring clear communication of practical and understandable guidance.
21. This work aims to cover all IPCC inventory sectors but only those categories where the science is considered to have sufficiently advanced since the 2006 or where new or additional guidance is required, namely the categories that were selected through technical assessment carried out in 2015 and 2016 and the Scoping Meeting held in August 2016 using the significance and prioritization criteria as shown below. However, authors should also develop modifications for other parts of the *2006 IPCC Guidelines* if deemed necessary to achieve consistency with the refinements mandated by the IPCC Plenary. On the other hand, authors may conclude no refinement should be made even for the categories that were selected through the process mentioned above, after comprehensive review of available literature.

### Significance and prioritization criteria

- Significance of the source/sink and the gas within the sector on a global scale. Sources significant only for a limited number of particular countries, currently or in the foreseeable future, may not meet this criterion. The adequacy of the existing guidance for a particular category should be considered, as should the likelihood that new information would lead to a definite improvement in the IPCC Guidelines.
- Availability of relevant new scientific results.
- Sufficient data availability and maturity of scientific advances since 2006 to provide a basis for methodological development or refinement, including:
  - Ability to develop new or updated default emission/removal factors
  - Feasibility of obtaining the necessary data to implement the methods
- Emergence of new sources or gases meeting these criteria

22. The new Methodology Report will cover the same greenhouse gases and precursors as included in the *2006 IPCC Guidelines*.
23. The general structure, approach and definitions used in the *2006 IPCC Guidelines*, such as tiered approach and decision trees will be followed. Annexes may be used where necessary to contain additional data to support the methodologies, although large numbers of annexes will probably not be necessary. Appendices are not ruled out where scientific knowledge is insufficient for countries to agree full methodologies, but please avoid as far as possible work on

areas that have to be relegated to an appendix. Appendices should be sub-titled by “Basis for future methodological development”.

### **Reporting Tables and worksheets**

24. Refinement of worksheets and reporting tables may be required. Worksheets reflect the application of tier 1 methods only, due to the varied implementation of higher tier methods by countries. Lead authors should stress the importance of documentation and archiving of particular types of information of relevance to each category, although advice may be given of what needs to be reported for transparency at higher Tiers.

### **Emission factors and methods**

25. Authors should provide default emission factors. In doing this work, they should draw on the widest possible range of available literature, including the IPCC Emission Factor Database (EFDB), scientific articles and country reports.
26. All new default data should be evaluated for scientific and technical appropriateness, and their development should be clearly described and referenced. The attached form (Appendix 3) should be used as the means for documenting data and the derivation procedure which will also facilitate future integration of the EFDB and the archiving of the derivation. Lead authors should be familiar with the draft cross-cutting guidance on data collection in Volume 1 and the guidance on cross-cutting issues in this note on terms, data types, data demands of methods and stratification requirements. Default data should also meet the EFDB evaluation criteria – robustness, documentation, and applicability.
27. Authors should develop guidance to provide additional information on rationale, references and background information on parameters used for estimating of default values where such information is available (similar to Annex 3A.3 of Wetland Supplement), with a view to enhancing the transparency and applicability of default values presented in the new Methodology Report.
28. IPCC default factors should in principle be presented as regional factors. In case regional factors are unavailable, single IPCC default factors might be provided, ensuring that the default are representative of typical conditions as far as can be determined. It may be necessary or appropriate to provide a range of default factors along with clear guidance about how countries should select from within the range. Lead authors may also provide multiple default emission factors, disaggregated by region, technology, or another classification scheme (e.g., livestock type),
29. It is important to provide more default emission factors that reflect the unique conditions of developing countries. Default emission factors for Tier 1 should represent emissions without category-specific mitigation measures.
30. Users of the guidelines should be encouraged to develop and use country specific data. Emission factors for higher tiers need not be specified in the *2006 IPCC Guidelines*. Default information is included primarily to provide users with a starting point from which they can develop their own national assumptions and data. Indeed, national assumptions and data are always preferred because the default assumptions and data may not always be appropriate for specific national contexts.
31. The basic principle concerning national methods will continue to apply – countries are encouraged to use national data or methods so long as they are consistent with the IPCC Guidelines.

### **Decision trees**

32. Consistent with the format and structure the *2006 IPCC Guidelines*, the new Methodology Report may contain a decision tree for some sub-categories to assist countries in selecting from

the IPCC methods. These decision trees link the choice of IPCC methods to national circumstances via specific questions about data availability and status as a key source category<sup>7</sup>.

33. To ensure consistency in decision tree logic and format across categories, lead authors should adhere to the following requirements:
- a. The decision trees should be based on a series of questions with clear yes/no answers, and two subsequent branches along yes/no paths.
  - b. The decision trees should start with assessing data availability for the highest tier method, and then direct countries step-wise towards lower tier methods if activity data, emission factors or other parameters are not available.
  - c. The decision tree should indicate the lowest tier method that is judged to be appropriate for estimating emissions/removals from a key category.
  - d. If data are not available for the method referred to in 3, the 'No' response should direct the reader to the question "Is this a key category?" If the answer to this is 'Yes', the decision tree should recommend that the country collect the necessary data to implement a higher tier method. If the answer is 'No', then the decision tree can recommend a lower tier method. There is no need to deal with the case for a key source where a country does not have the resources to gather additional data needed to implement higher Tier methods. This is dealt with in Volume 1 of the *2006 IPCC Guidelines*.
  - e. The branches of the decision trees should end in 'out-boxes' that correspond to specific tiers identified in the guidance for that category and are labelled by Tier. Lead authors may also recommend out-boxes for hybrid tiers.
  - f. Lead authors may develop separate decision trees for different sub-categories. Alternatively, they may include decision tree options for selecting different tiers for different sub-categories. This second option is appropriate if it is advantageous to recommend a higher tier method only for significant sub-categories rather than for the entire category. **Decision trees that use the 'significance' criterion must include the "25-30% rule" (i.e., a significant sub-category is one that makes up more than 25-30% of emissions/removals from a category).**

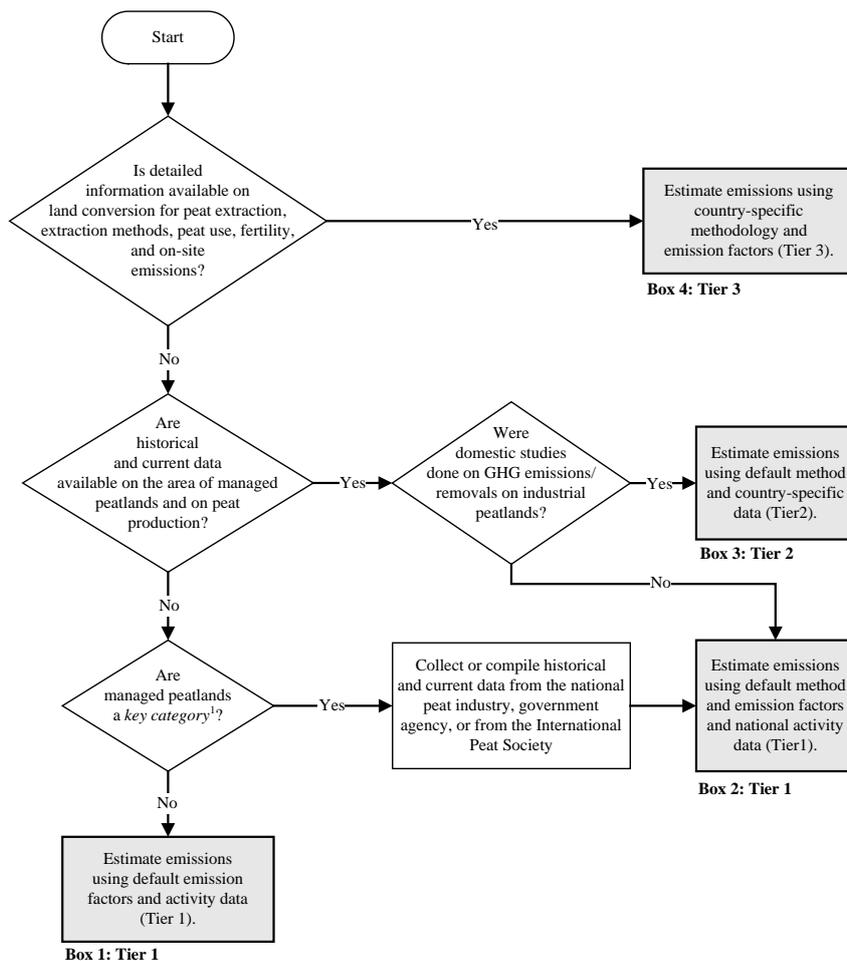
---

<sup>7</sup> The most appropriate choice of estimation method (or tier) may also depend on national circumstances, including the availability of resources and advice on this will be given in the cross-cutting volume.

34. Additional Formatting Guidelines (see example):

- a. Decision trees should be drafted in separate Microsoft Word files. The TSU will integrate these files into the main text at a later date.
- b. Decision trees should NOT ask the question: “Does this source occur in the country?” This is because decision trees will only be used for sources which occur.
- c. There should be a “START” box.
- d. “Diamonds” should be used for questions/decisions.
- e. “Squares” should be used for all other information.
- f. The out-boxes should be individually numbered.
- g. The text font should be Times New Roman 10pt.
- h. Text should be centred within the boxes.

Decision tree to estimate CO<sub>2</sub>-C and N<sub>2</sub>O emissions from *Peatlands Remaining Peatlands*



Note:  
 1: See Volume 1 Chapter 4, "Methodological Choice and Identification of Key Categories" (noting Section 4.1.2 on limited resources), for discussion of *key categories* and use of decision trees.

35. The EFDB is an important resource for this work, both as a source of emission factors for consideration by the LAs and as a repository of emission factors once agreed for use in the guidelines.
36. The new Methodology Report may contain Tier 1 methods and the corresponding default emission factors (once the guidelines are approved by the IPCC, the default emission factors cannot change). These defaults need to be recorded in to the EFDB, either because they are already there, or they will have to be entered as a result of the process of developing the Methodology Report. Preferably the EFDB should be populated with new emission factors as the Methodology Reports are drafted, but if this proves impossible the guideline emission factors should be entered in the EFDB with the underlying documentation information in the property fields as soon as possible, after guidelines completion.
37. The evolving information on peer reviewed emission factors in the EFDB will also be a useful source of information for countries to refer to in applying Tier 2 and 3 methods. In applying these methods (Tier 2 and/or 3) it will remain the country's responsibility to ensure that the choice of emission factors properly reflects national circumstances and is consistent with the requirements of the *2006 IPCC Guidelines*, and to document that this is the case.
38. It should be noted that Methodology Reports go through IPCC reviews, but the EFDB does not. The EFDB is a long(er)-term exercise. The TSU will provide technical advice/information to authors for their consideration.

## Definitions

39. The following terms will be used throughout the new Methodology Report, and it is essential that all Lead Authors have a common understanding of their meaning and relevance:
40. **Tier** A Tier refers to a description of the overall complexity of a methodology and its data requirements. Higher tier methods are generally more complex and data-intensive than lower tier methods. The guidance for each category should contain at least a Tier 1 method, and in many cases there will be a Tier 2 and Tier 3. The general expectation is that Tier 2 and Tier 3 methods will both be consistent with good practice guidance for key sources, although in some cases Tier 3 will be preferred, for example with methane from coal mines where Tier 1 is a global default value, Tier 2 basin specific and Tier 3 mine specific.
41. **Tier 1** approaches are simple methods that can be applied by all countries in all circumstances. Default values for the emission factors and any other parameters needed must be supplied (see below for documentation needed).
42. **Tier 2** methods should in principle follow the same methodological approach as Tier 1, but allow for higher resolution country specific emissions factors and activity data. In some categories, this may not be the case. These methods should better replicate the parameters affecting the emissions. Country specific emission factors are needed and possibly more parameters will also be needed.
43. **Tier 3** methods give flexibility either for country specific methods including modelling or direct measurement approaches, or for a higher level of disaggregation, or both. This is a more complex method, often involving a model. This will replicate many features of nation emissions and require specific parameters for each country.
44. **Default information** is data that is appropriate for use where there is no better detailed, country specific information. If appropriate, authors may specify regional default data. Users of the guidelines should be encouraged to try to find better country specific data. Default data are appropriate for Tier 1 methods and the guidelines should contain all the default values needed. Emission factors for higher tiers need not be specified because it is a function of higher tier methods to find data reflecting national circumstances. Volume 1 of the *2006 IPCC Guidelines* suggests that the EFDB may help identify data reflecting national circumstances, but reference to the EFDB should in no case be used as a device for evading the necessity of finding data for default methods. Default information is included primarily to provide users with a starting point

from which they can develop their own national assumptions and data. Indeed, national assumptions and data are always preferred because the default assumptions and data may not always be appropriate for specific national contexts. In general, therefore, default assumptions and data should be used only when national assumptions and data are not available.

45. **Decision Trees.** A decision tree is a graphical tool to assist countries in selecting from the IPCC methods.
46. **Sector** refers to the four sectors of the guidelines (Energy; Industrial Process and Product Use (IPPU); Agriculture, Forests and Other Land Use (AFOLU) and Waste) these are divided into source/sink categories and sub categories.
  - a. Sector 1
  - b. Category 1.A
  - c. Sub-category 1st order 1.A.1
  - d. Sub-category 2nd order 1.A.1.a
  - e. Sub-category 3rd order, 1.A.1.a.i,
47. **Worksheets.** These will be printed versions of spreadsheet tables, that, when filled in, enable the user to perform the emission estimation. They should contain all the calculations and written text with any formulae. Additional worksheets may be required to compile the results of the worksheets into the reporting tables.
48. **Reporting Tables** are tables that present the calculated emission inventory and sufficient detail of other data used to prepare the inventories for others to understand the emission estimates.
49. Usage:
  - a. **Good Practice**, is defined as a set of procedures intended to ensure that greenhouse gas inventories are accurate in the sense that they are systematically neither over nor underestimates so far as can be judged, and that uncertainties are reduced so far as possible. Inventories consistent with good practice are those which contain neither over nor under-estimates so far as can be judged, and in which uncertainties are reduced as far as is practicable. To say that “It is Good Practice to do x” implies x is part of the good practice procedures.
  - b. **“Shall”** should not be used. Either say “Good Practice is...” or say what needs to be done or what should be done. These all indicate what needs to be done to comply with Good Practice.
  - c. **“Be encouraged to”** indicates a step or activity that will lead to higher quality inventory, but are not required for ensuring consistency with the IPCC Guidelines.
  - d. **“Recommend”** should not be used. In the GPG2000, the word “recommend” was avoided and “Suggested” was used instead.
  - e. **“Inventory agency”** is the body responsible for actually compiling the inventory, perhaps from contributions from a number of other bodies while **“inventory compiler”** is the person actually compiling the inventory,

## Units

50. SI units shall be used throughout: in text, equations, worksheets and tables. Emissions have to be expressed in mass units and units have to be used consistently within the each sector. When similar activity data is used for different sectors same units need to be used (CLAs have to take care about such harmonisation). Conversion factors have to be provided (for example to estimate N<sub>2</sub>O from N). Where input data available may not be in SI units conversions should be provided.
51. Standard abbreviations for units and chemical compounds are given in Appendix 4. (See also a complete discussion available at <http://www.bipm.org/en/publications/si-brochure/>)

52. For the purpose of reporting, the sign convention is positive (+) for emissions, and negative (-) for removals (uptake). Where needed, for estimation of removals and carbon stock increases are counted positive, and the sign reversed for reporting purposes. This is consistent with the *2006 IPCC Guidelines* and other Methodology Reports on national GHG inventories in the past.

### Appendix 3. Data Documentation

This form should be used to document all data used in the new Methodology Report. This gives the minimum information that should be considered by the authors.

Author <sup>1</sup>					
IPCC Source/Sink Category					
Fuel <sup>2</sup> (applicable only in the Energy Sector):					
Gas <sup>3</sup> :	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O		
Value:					
Unit:					
Uncertainty (as +/-% or 2.5 and 97.5 percentiles ) <sup>4</sup>					
<b>Applicability<sup>5</sup></b> – fill in as necessary if data not generally applicable. Describe appropriate Technologies, Practices, Abatement Technologies, Region, and/or Regional Conditions					
Source of data (chose one)	Measurement - Scientific Literature Other Measurement National Inventory Report Calculated Based on fuel quality Expert Judgement				
Method of derivation of the value (e.g., arithmetic mean, weighted mean, adjustment of a literature data by expert judgment etc.					
Reference <sup>6</sup>					

Note:

The author is the LA/CA/CLA who writes the relevant section and proposes the data.

Fuels as defined in the Energy volume

Add additional gases as required

As defined by cross-cutting volume

Only to be completed where it is necessary to specify the applicability of the data

As reference to document, report, calculation or if expert judgement to those involved (Names or group e.g.

“Waste BOG on Solid Waste Disposal Sites”)



Multiplication Factor	Abbreviation	Prefix	Symbol
1 000 000 000 000 000	10 <sup>15</sup>	peta	P
1 000 000 000 000	10 <sup>12</sup>	tera	T
1 000 000 000	10 <sup>9</sup>	giga	G
1 000 000	10 <sup>6</sup>	mega	M
1 000	10 <sup>3</sup>	kilo	k
100	10 <sup>2</sup>	hecto	h
10	10 <sup>1</sup>	deca	da
0.1	10 <sup>-1</sup>	deci	d
0.01	10 <sup>-2</sup>	centi	c
0.001	10 <sup>-3</sup>	milli	m
0.000 001	10 <sup>-6</sup>	micro	μ

### *Standard equivalents*

1 tonne of oil equivalent (toe)	1 x 10 <sup>10</sup> calories
10 <sup>3</sup> toe	41.868 TJ
1 short ton	0.9072 tonne
1 tonne	1.1023 short tons
1 tonne	1 megagram
1 kilotonne	1 gigagram
1 megatonne	1 teragram
1 gigatonne	1 petagram
1 kilogram	2.2046 lbs
1 hectare	10 <sup>4</sup> m <sup>2</sup>
1 calorie <sub>T</sub>	4.1868 joule
1 atmosphere	101.325 kPa

## Draft Table of Contents

## 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

## Draft Table of Contents

Introductory Note

The *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories* (2019 Refinement) will be a single Methodology Report comprising an Overview Chapter and five volumes following the format of the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (2006 IPCC Guidelines).

- Overview Chapter
- Volume 1: General Guidance and Reporting
- Volume 2: Energy
- Volume 3: Industrial Processes and Product Use
- Volume 4: Agriculture, Forestry and Other Land Use
- Volume 5: Waste

The draft table of contents is presented below for each volume. Its structure is the same as that of the *2006 IPCC Guidelines* so as to make it easier for inventory compilers to use this Methodology Report with the *2006 IPCC Guidelines*. For those Chapters/Sections/Subsections where refinement is expected, the following three elements are explained.

- **Issue** (which needs to be addressed)
- **Location in 2006 IPCC Guidelines** (location of relevant guidance in the *2006 IPCC Guidelines*)
- **Type of refinement** (Update, Elaboration or New guidance, as explained in the draft Terms of Reference)

On the other hand, for those Chapters/Sections/Subsections where refinement is NOT expected, “**No refinement**” is indicated.

However, the following two principles need to be noted.

- Authors should develop modifications even for those Chapters/Sections/Subsections where “No refinement” is indicated in this draft table of contents, if deemed necessary to ensure consistency with the refinements made in the other Chapters/Sections/Subsections.
- Authors may conclude no refinement should be made even for the Chapters/Sections/Subsections where refinement is expected in this draft table of contents, after comprehensive review of available literature.

In addition, authors should develop modifications for Annexes (e.g. Worksheets) at the end of each volume as well, if deemed necessary to ensure consistency with the refinements made in Chapters/Sections/Subsections in the same volume, even though those Annexes are not explicitly included in this draft table of contents.

**Overview Chapter**

- Background – Technical Assessment of IPCC Inventory Guidelines
- Fundamental principle (not revising, but refining)
- Relationship with the 2006 IPCC Guidelines
- Policy Relevance

# Volume 1: General Guidance and Reporting

## Chapter 1 Introduction to the 2006 Guidelines

**Issue 1:** Provide a better description on how to implement a national inventory management system that manages all parts of Volume 1, implements continuous improvement and leads to the development of mature inventories.

**Location in 2006 IPCC Guidelines:** New Section in Chapter 1

**Type of refinement:** New guidance

**Issue 2:** Clarify the concept of “anthropogenic emissions and removals”.

**Location in 2006 IPCC Guidelines:** Section 1.1 Concepts, with Guidance contained in the IPCC KP Supplement Chapter 2.3.4 and 2.3.5 and the IPCC Wetlands Supplement

**Type of refinement:** Update

## Chapter 2 Approaches to Data Collection

**Issue 1:** Add guidance for the development of country-specific emission factors, focusing on developing countries.

**Location in 2006 IPCC Guidelines:** New guidance in Chapter 2

**Type of refinement:** New guidance

**Issue 2:** Add guidance for activity data collection; technical survey indicated there is a capacity problem to gather and manage national data which can be addressed by an additional guidance.

**Location in 2006 IPCC Guidelines:** New guidance in Chapter 2

**Type of refinement:** New guidance

**Issue 3:** Add guidance on the integration of GHG emissions reported from facilities into national GHG inventories

**Location in 2006 IPCC Guidelines:** New guidance in Chapter 2

**Type of refinement:** New guidance

## Chapter 3 Uncertainties

**Issue:** Refine guidance on uncertainty based on the latest scientific knowledge and simplification of guidance by providing more default values, calculation examples and best practices.

**Location in 2006 IPCC Guidelines:** Chapter 3

**Type of refinement:** Update

## Chapter 4 Methodological Choice and Identification of Key Categories

**Issue:** Add guidance on key category analysis to address treatment of disaggregation of categories, trend analysis, equations for trend analysis and the need for consistent definition of significant subcategories across the different volumes of the *2006 IPCC Guidelines*.

**Location in 2006 IPCC Guidelines:** Chapter 4 (and relevant guidance in the other Volumes)

**Type of refinement:** Elaboration

## Chapter 5 Time Series Consistency

**Issue:** Provide practical guidance on how to apply existing guidance on time series consistency because this proved to be a problem for many countries.

**Location in 2006 IPCC Guidelines:** Chapter 5

**Type of refinement:** Elaboration

## Chapter 6 Quality Assurance / Quality Control and Verification

**Issue 1:** Add guidance on the use and reporting of models

**Location in 2006 IPCC Guidelines:** New Section in Chapter 6

**Type of refinement:** New guidance

**Issue 2:** Elaborate user-friendly description of verification, validation, audit and QA/QC because users are unclear on their IPCC meanings compared to outer definitions, such as ISO as used by CDM.

**Location in 2006 IPCC Guidelines:** Section 6.1, Box 6.1

**Type of refinement:** Elaboration

**Issue 3:** Update/elaborate verification guidance because the existing guidance is outdated (especially the guidance on comparisons with atmospheric measurements and new datasets).

**Location in 2006 IPCC Guidelines:** Section 6.10

**Type of refinement:** Update/Elaboration

## Chapter 7 Precursors and Indirect Emissions

**Issue:** Elaborate clearer guidance for the calculation of indirect CO<sub>2</sub> emissions.

**Location in 2006 IPCC Guidelines:** Section 7.2.1.5

**Type of refinement:** Elaboration

## Chapter 8 Reporting Guidance and Tables

No refinement

# Volume 2: Energy

## Chapter 1 Introduction

No refinement

## Chapter 2 Stationary Combustion

### 2.1 Overview

No refinement

### 2.2 Description of sources

No refinement

### 2.3 Methodological issues

**Issue:** Link to issue related to biomass combustion and methodologies for Harvested Wood Products (HWP)

**Location in 2006 IPCC Guidelines:** Section 2.3.3.4

**Type of refinement:** Elaboration

### 2.4 Uncertainty assessment

No refinement

### 2.5 Inventory Quality Assurance/Quality Control QA/QC

No refinement

### 2.6 Worksheets

No refinement

## Chapter 3 Mobile Combustion

No refinement

## Chapter 4 Fugitive Emissions

### 4.1 Fugitive emissions from mining, processing, storage and transportation of coal

**Issue1:** Elaborate chapter to include guidance on emissions from exploration and CO<sub>2</sub> emissions (Underground coal mines, Surface coal mining)

**Location in 2006 IPCC Guidelines:** Sections 4.1.3 and 4.1.4 (Sections 4.1.1, 4.1.2 and 4.1.6 are relevant)

**Type of refinement:** Elaboration

**Issue2:** Include new section on abandoned surface coal mines

**Location in 2006 IPCC Guidelines:** Not applicable. (Next to Section 4.1.5. Sections 4.1.1, 4.1.2 and 4.1.6 are relevant)

**Type of refinement:** New guidance

### 4.2 Fugitive emissions from oil and natural gas systems

**Issue:** Update chapter including update/inclusion of EFs representative for current practice. Additional guidance for unconventional oil and gas production and abandoned wells.

**Location in 2006 IPCC Guidelines:** Sections 4.2

**Type of refinement:** Update

### 4.3 Fuel transformation [New]

**Issue:** Include new section on fuel transformation

**Location in 2006 IPCC Guidelines:** New Section in Chapter 4 (Next to Section 4.2)

**Type of refinement:** New guidance

## Chapter 5 Carbon Dioxide Transport, Injection and Geological Storage

No refinement

## Chapter 6 Reference Approach

No refinement

## Volume 3: Industrial Processes and Product Use

### Chapter 1 Introduction

No refinement

### Chapter 2 Mineral Industry Emission

No refinement

### Chapter 3 Chemical Industry Emissions

#### 3.1 Introduction

No refinement

#### 3.2 Ammonia production

No refinement

#### 3.3 Nitric acid production

**Issue:** Update guidance on appropriate emission factors to use for dual pressure technologies for Nitric Acid Production

**Location in 2006 IPCC Guidelines:** Section 3.3.2.2 and Table 3.3

**Type of refinement:** Update

### 3.4 Adipic acid production

No refinement

### 3.5 Caprolactam, glyoxal and glyoxylic acid production

No refinement

### 3.6 Carbide production

No refinement

### 3.7 Titanium dioxide production

No refinement

### 3.8 Soda ash production

No refinement

### 3.9 Petrochemical and carbon black production

No refinement

### 3.10 Fluorochemical production

**Issue:** Update guidance and default Tier 1 emission factors for production of fluorinated compounds other than HCFC-22

**Location in 2006 IPCC Guidelines:** Section 3.10.2.2

**Type of refinement:** Update/Elaboration

### 3.11 Hydrogen production [New]

**Issue:** Develop guidance for estimating GHG emissions from hydrogen production

**Location in 2006 IPCC Guidelines:** New Section in Chapter 3 (Next to Section 3.10)

**Type of refinement:** New guidance

## Chapter 4 Metal Industry Emissions

### 4.1 Introduction

No refinement

### 4.2 Iron & steel and metallurgical coke production

**Issue:** Update emission factors for Iron and Steel Production and elaborate methodological guidance.

**Location in 2006 IPCC Guidelines:** Section 4.2.2

**Type of refinement:** Update/Elaboration

### 4.3 Ferroalloy production

No refinement

### 4.4 Primary aluminium production

**Issue:** Elaborate guidance and emissions factors to incorporate "low-voltage anode effect" PFC emissions and integrate this guidance into the existing methodology on "high-voltage anode effect" PFC emissions. Update of the Tier 1 and Tier 2 defaults.

**Location in 2006 IPCC Guidelines:** Section 4.4

**Type of refinement:** Update/Elaboration

**Issue:** Develop a new methodology for the CO<sub>2</sub> emissions from the alumina production. Ensuring completeness and avoiding double counting

**Location in 2006 IPCC Guidelines:** New guidance in Section 4.4

**Type of refinement:** New guidance

#### 4.5 Magnesium production

No refinement

#### 4.6 Lead production

No refinement

#### 4.7 Zinc production

No refinement

#### 4.8 Rare Earth elements [New]

**Issue:** Develop a new guidance on GHG emissions (PFCs and CO<sub>2</sub>) from production of Rare Earth elements

**Location in 2006 IPCC Guidelines:** New Section in Chapter 4 (Next to Section 4.7)

**Type of refinement:** New guidance

### Chapter 5 Non-Energy Products from Fuels and Solvent use

No refinement

### Chapter 6 Electronics Industry Emissions

**Issue:** Update guidance and default Tier 1 and Tier 2 emission factors for Semiconductor Industry, improvement of the Tier 3 guidance and elaboration of guidance on generation of by-products from abatement technologies (CF<sub>4</sub> from NF<sub>3</sub>)

**Location in 2006 IPCC Guidelines:** Section 6.2.1 and 6.2.2, and 6.3.1 (uncertainty, to the extent necessary)

**Type of refinement:** Update/Elaboration/New guidance

### Chapter 7 Emissions of Fluorinated Substitutes for Ozone Depleting Substances

#### 7.1 Introduction

No refinement

#### 7.2 Solvents (non-aerosol)

No refinement

#### 7.3 Aerosols (propellants and solvents)

No refinement

#### 7.4 Foam blowing agents

No refinement

#### 7.5 Refrigeration and air conditioning

**Issue:** Add examples (collection of activity data, distribution of ODS substitutes by application within countries). Elaborate by adding a box with "recipe-style" guidance on how to launch the ODS substitutes inventory. Elaborate the reference to Montreal Protocol. Update emission factors by further segregating equipment types, regions, and time periods where possible.

**Location in 2006 IPCC Guidelines:** Sections 7.5.2.1 - for the recipe, 7.5.2.2 - for emission factors, 7.5.2.3 - for activity data

**Type of refinement:** Update/Elaboration

#### 7.6 Fire protection

No refinement

#### 7.7 Other applications

No refinement

## Chapter 8 Other Product Manufacture and Use

### 8.1 Introduction

No refinement

### 8.2 Emissions of SF<sub>6</sub> and PFCs from electrical equipment

No refinement

### 8.3 Use of SF<sub>6</sub> and PFCs in other products

Issue 1: Develop guidance for PFCs (GHG) emissions from Textile Industry.

Location in 2006 IPCC Guidelines: New guidance in Section 8.3

Type of refinement: New guidance

Issue 2: Develop guidance for PFCs (GHG) emissions from water-proofing electronic circuit boards

Location in 2006 IPCC Guidelines: New guidance in Section 8.3

Type of refinement: New guidance

### 8.4 N<sub>2</sub>O from product uses

No refinement

## Volume 4: Agriculture, Forestry and Other Land Use

### Chapter 1 Introduction

No refinement

### Chapter 2 Generic Methodologies Applicable to Multiple Land-use Categories

#### 2.1 Introduction

No refinement

#### 2.2 Inventory framework

No refinement

#### 2.3 Generic methods for CO<sub>2</sub> emissions and removals

##### 2.3.1 Change in biomass carbon stocks (above-ground biomass and below-ground biomass)

Issue 1: Develop guidance on the use of allometric equations for biomass estimation

Location in 2006 IPCC Guidelines: New Subsection in Section 2.3.1

Type of refinement: New guidance

Issue 2: Develop guidance on how to use biomass density (amount per unit area) maps generated from remote sensing data for biomass estimation

Location in 2006 IPCC Guidelines: New Subsection in Section 2.3.1

Type of refinement: New guidance

##### 2.3.2 Change in carbon stocks in dead organic matter

Issue 1: Update default values for litter stocks and develop default values for deadwood stocks

Location in 2006 IPCC Guidelines: Section 2.3.2.1, IPCC default values for litter and dead wood (Table 2.2),

Type of refinement: Update/Elaboration

Issue 2: Develop equation 2.18 for estimating DOM<sub>out</sub> and associated default values

Location in 2006 IPCC Guidelines: Section 2.3.2.1, IPCC default values for litter and dead wood (Table 2.2)

Type of refinement: Elaboration

### 2.3.3 Change in carbon stocks in soils

**Issue 1:** Update reference carbon stocks.

**Location in 2006 IPCC Guidelines:** Section 2.3.3.1, Table 2.3

**Type of refinement:** Update

**Issue 2:** Develop new Tier 2 method for mineral soils that requires less activity data than the current default method

**Location in 2006 IPCC Guidelines:** New guidance in Section 2.3.3.1

**Type of refinement:** New guidance

**Issue 3:** Elaborate Tier 3 Methodologies with case study examples for soils.

**Location in 2006 IPCC Guidelines:** Tier 3 methods, Section 2.3.3.1,

**Type of refinement:** Elaboration

## 2.4 Non-CO<sub>2</sub> emissions

**Issue:** Replace defaults for cropland mass of fuel with crop residue estimation method in Chapter 11 for soil N<sub>2</sub>O method to ensure consistency in the calculation of residues between the two categories, and provide a basis to estimate mass of fuel for all crops instead of just the 4 crops listed in Table 2.4.

**Location in 2006 IPCC Guidelines:** Section 2.4, Table 2.4

**Type of refinement:** Update

## 2.5 Additional generic guidance for Tier 3 methods

**Issue 1:** Provide guidance on how to address inter-annual variability

**Location in 2006 IPCC Guidelines:** Chapter 2.5

**Type of refinement:** Elaboration

**Issue 2:** Elaborate guidance on the use of Tier 3 methods

**Location in 2006 IPCC Guidelines:** Sections 2.5.1 and 2.5.2

**Type of refinement:** Elaboration

## Chapter 3 Consistent Representation of Lands

### 3.1 Introduction

No refinement

### 3.2 Land-use categories

No refinement

### 3.3 Representing land-use areas

**Issue:** Develop guidance on how remotely sensed data, ground based data, and ancillary data can be integrated and used to derive consistent time series estimates of land use and land-use change

**Location in 2006 IPCC Guidelines:** Section 3.3 and Annex 3A.1 and 3A.2

**Type of refinement:** Update/Elaboration/New guidance

### 3.4 Matching land areas with factors for estimating greenhouse gas emissions and removals

**Issue:** Provide guidance on how to use methodologies within different methodological tiers in combination with different approaches for land representation

**Location in 2006 IPCC Guidelines:** New Subsection in Section 3.4

**Type of refinement:** New guidance

### 3.5 Uncertainties associated with the Approaches

No refinement

#### Annex 3A.1 Examples of International land cover datasets

(See the above issue under Section 3.3)

#### Annex 3A.2 Development of land-use databases

(See the above issue under Section 3.3)

## Chapter 4 Forest Land

### 4.1 Introduction

No refinement

### 4.2 Forest Land Remaining Forest Land

#### 4.2.1 Biomass

No refinement

#### 4.2.2 Dead organic matter

No refinement

#### 4.2.3 Soil carbon

**Issue:** Provide guidance and develop new Tier 2 method for mineral soils that requires less activity data than the current default method

**Location in 2006 IPCC Guidelines:** New guidance in Section 4.2.3

**Type of refinement:** New guidance

#### 4.2.4 Non-CO<sub>2</sub> greenhouse gas emissions from biomass burning

No refinement

### 4.3 Land Converted to Forest Land

(All issues for Section 4.2 above apply to this Section similarly.)

### 4.4 Completeness, time series, QA/QC, and reporting and documentation

**Issue:** Develop guidance on how to ensure methodological consistency of time series, such as through the use of age class structure data

**Location in 2006 IPCC Guidelines:** Section 4.4.2 on time series consistency

**Type of refinement:** Elaboration

### 4.5 Tables

**Issue:** Update values for BEF/BCEF and root/shoot ratio, average biomass stocks, and average biomass increments

**Location in 2006 IPCC Guidelines:** Tables 4.4, 4.5, 4.7, 4.8, 4.9, 4.10, 4.11A and 4.11B, 4.12

**Type of refinement:** Update/Elaboration

## Chapter 5 Cropland

### 5.1 Introduction

No refinement

## 5.2 Cropland Remaining Cropland

### 5.2.1 Biomass

Issue: Update default biomass carbon parameters.

Location in 2006 IPCC GL: Section 5.2.1.2, Tables 5.1, 5.2, 5.3

Type of refinement: Update

### 5.2.2 Dead organic matter

No refinement

### 5.2.3 Soil carbon

Issue 1: Update carbon stock change factors.

Location in 2006 IPCC Guidelines: Section 5.2.3.2, Table 5.5

Type of refinement: Update

Issue 2: Develop new Tier 2 method for mineral soils that requires less activity data than the current default method

Location in 2006 IPCC Guidelines: New guidance in Section 5.2.3

Type of refinement: New guidance

### 5.2.4 Non-CO<sub>2</sub> greenhouse gas emissions from biomass burning

No refinement

## 5.3 Land Converted to Cropland

(All issues for Section 5.2 above apply to this Section similarly.)

## 5.4 Completeness, time series, QA/QC, and reporting

No refinement

## 5.5 Methane emissions from rice cultivation

Issue: - Develop regionally specific default EFs

Location in 2006 IPCC Guidelines: Section 5.5.2, Tables 5.11 to 5.14,

Type of refinement: Update

## Annex 5A.1 Estimation of default stock change factors for mineral soil C emissions/removals for cropland

(See the above issues under Section 5.2.3.)

## Chapter 6 Grassland

### 6.1 Introduction

No refinement

## 6.2 Grassland Remaining Grassland

### 6.2.1 Biomass

Issue: Update default biomass carbon parameters.

Location in 2006 IPCC Guidelines: Section 6.2.1.2, Table 6.1

Type of refinement: Update

### 6.2.2 Dead organic matter

No refinement

### 6.2.3 Soil carbon

**Issue 1:** Update carbon stock change factors.

**Location in 2006 IPCC Guidelines:** Section 6.2.3.2, Table 6.2

**Type of refinement:** Update

**Issue 2:** Develop new Tier 2 method for mineral soils that requires less activity data than the current default method

**Location in 2006 IPCC Guidelines:** New guidance in Section 6.2.3

**Type of refinement:** New guidance

### 6.2.4 Non-CO<sub>2</sub> greenhouse gas emissions from biomass burning

No refinement

## 6.3 Land Converted to Grassland

(All Issues for section 6.2 above apply to this Section similarly.)

## 6.4 Completeness, time series, QA/QC, and reporting

No refinement

### Annex 6A.1 Estimation of default stock change factors for mineral soil C emissions/removals for grassland

(See the above issues under Section 6.2.3.)

## Chapter 7 Wetlands

### 7.1 Introduction

No refinement

### 7.2 Managed peatlands

No refinement

### 7.3 Flooded Land

**Issue:** Update CO<sub>2</sub> emission factors for land converted to flooded land (Wetlands) and to develop, on the basis of comprehensive review of available literature, consistent methodologies that take into account factoring out of emissions and removals that would otherwise occur in the absence of the flooded area for estimating CO<sub>2</sub> and CH<sub>4</sub> emissions from flooded lands (both land converted to flooded land and flooded land remaining flooded land).

**Location in 2006 IPCC Guidelines:** Section 7.3 and associated good practice guidance in Section 7.4, and Appendices 2 and 3; also relevant to Chapter 2, Section 2.3 (Generic Methodologies for CO<sub>2</sub> emissions and removals).

**Type of refinement:** New guidance/Update

### 7.4 Completeness, time series consistency, and QA/QC

No refinement

### 7.5 Future methodological development

**Issue:** Clarify that this section of the 2006 IPCC Guidelines is no longer relevant

**Location in the 2006 Guidelines:** Section 7.5

**Type of refinement:** Elaboration

### 7.X. Additional guidance on Tier 2 method for mineral soils [New]

**Issue:** Develop guidance to implement new Tier 2 method for mineral soils that requires less activity data than the current default method, taking into consideration Chapter 5 of the *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*.

Location in 2006 IPCC Guidelines: New Section in Chapter 7 (Between Sections 7.3 and 7.4)

Type of refinement: New guidance

## Chapter 8 Settlements

### 8.1 Introduction

No refinement

### 8.2 Settlements Remaining Settlements

#### 8.2.1 Biomass

Issue: Update default biomass carbon parameters.

Location in 2006 IPCC Guidelines: Section 8.2.1.2,

Type of refinement: Update

#### 8.2.2 Dead organic matter

No refinement

#### 8.2.3 Soil carbon

Issue: Develop new Tier 2 method for mineral soils that requires less activity data than the current default method

Location in 2006 IPCC Guidelines: New guidance in Section 8.2.3

Type of refinement: New guidance

### 8.3 Land Converted to Settlements

(All Issues for section 8.2 above apply to this Section similarly.)

### 8.4 Completeness, time series consistency, QA/QC and reporting

No refinement

### 8.5 Basis for future methodological development

Issue: Clarify the elements in this section of the 2006 IPCC Guidelines that are no longer relevant

Location in the 2006 Guidelines: Section 8.5

Type of refinement: Elaboration

## Chapter 9 Other Land

### 9.1 Introduction

No refinement

### 9.2 Other Land Remaining Other Land

No refinement

### 9.3 Land Converted to Other Land

#### 9.3.1 Biomass

No refinement

#### 9.3.2 Dead organic matter

No refinement

### 9.3.3 Soil carbon

**Issue:** Develop new Tier 2 method for mineral soils that requires less activity data than the current default method

**Location in 2006 IPCC Guidelines:** New guidance in Section 9.3.3

**Type of refinement:** New guidance

## 9.4 Completeness, time series, QA/QC and reporting

No refinement

## Chapter 10 Emissions from Livestock and Manure Management

### 10.1 Introduction

No refinement

### 10.2 Livestock population and feed characterisation

**Issue 1:** Update Section 10.2.2 to include guidance on improved description of feeding systems

**Location in 2006 IPCC Guidelines:** Section 10.2.2

**Type of refinement:** Update

**Issue 2:** Develop consistent system descriptions for manure management between source categories (regionally/climatically stratified) for basic and enhanced characterisation for livestock populations

**Location in 2006 IPCC Guidelines:** Section 10.2.2

**Type of refinement:** Update

### 10.3 Methane emissions from enteric fermentation

**Issue:** Improve parameters based on different feeding strategies for cattle and sheep.

**Location in 2006 IPCC Guidelines:** Section 10.3.2, Table 10.11 and Table 10.12

**Type of refinement:** Update

### 10.4 Methane emissions from manure management

**Issue 1:** Update methodology, temperature relationships, Tier 1 Emission Factors and Tier 2 parameters for different manure management systems

**Location in 2006 IPCC Guidelines:** Section 10.4.2

**Type of refinement:** Update

**Issue 2:** Update guidance on how to deal with non-CO<sub>2</sub> emissions due to biogas production.

**Location in 2006 IPCC Guidelines:** Section 10.4.2, Table 10.17

**Type of refinement:** Update

### 10.5 N<sub>2</sub>O emissions from manure management

**Issue 1:** Update N excretion parameters for all livestock categories considering updated livestock characterization in Section 10.2.

**Location in 2006 IPCC Guidelines:** Section 10.5.2

**Type of refinement:** Update

**Issue 2:** Update emission factors for N<sub>2</sub>O for manure management system descriptions.

**Location in 2006 IPCC Guidelines:** Section 10.5.2, Table 10.21

**Type of refinement:** Update

**Issue 3:** Update manure management volatilization and leaching factors with manure management systems identified in Section 10.2.

**Location in 2006 IPCC Guidelines:** Section 10.5.4, Tables 10.22 and 10.23,

Type of refinement: Update

Issue 4: Provide text on quality control procedures that use a mass balance approach to evaluate C and N flows through animal management systems.

Location in 2006 IPCC Guidelines: Section 10.5.6

Type of refinement: Elaboration

## Chapter 11 N<sub>2</sub>O Emissions from Managed Soils, and CO<sub>2</sub> Emissions from Lime and Urea Application

### 11.1 Introduction

No refinement

### 11.2 N<sub>2</sub>O emissions from managed soils

#### 11.2.1 Direct N<sub>2</sub>O emissions

Issue 1: Update N<sub>2</sub>O EF1, stratification by climate

Location in 2006 IPCC Guidelines: Section 11.2.1.2, Table 11.1

Type of refinement: Update

Issue 2: Update crop parameters for calculating residue quantity and N.

Location in 2006 IPCC Guidelines: Section 11.2.1.4, Table 11.2

Type of refinement: Update

Issue 3: Update the EF3 for N applied to soils, pasture, range and paddock by grazing animals.

Location in 2006 IPCC Guidelines: Section 11.2.1, Table 11.1

Type of refinement: Update

Issue 4: Update emission factor for rice production (N<sub>2</sub>O)

Location in 2006 IPCC Guidelines: Section 11.2, Table 11.1

Type of refinement: Update

#### 11.2.2 Indirect N<sub>2</sub>O emissions

Issue: Evaluate emissions factors for indirect N<sub>2</sub>O, both the amount of leaching/runoff and volatilization, as well as the indirect emission factor.

Location in 2006 IPCC Guidelines: Section 11.2.2, Table 11.3

Type of refinement: Update

#### 11.2.3 Completeness, Time series, QA/QC

No refinement

### 11.3 CO<sub>2</sub> emissions from liming

No refinement

### 11.4 CO<sub>2</sub> emissions from urea fertilization

No refinement

#### Annex 11A.1 References for crop residue data in Table 11.2

No refinement

## Chapter 12 Harvested Wood Products (HWP)

Issue 1: Update the relevant technical parameters, maintaining the existing approaches in the 2006 IPCC Guidelines

Location in 2006 IPCC Guidelines: Chapter 12

Type of refinement: Update

## Volume 5: Waste

### Chapter 1 Introduction

No refinement

### Chapter 2 Waste Generation, Composition and Management Data

#### 2.1 Introduction

No refinement

#### 2.2 Waste generation and management data

Issue: Update default data on Municipal Solid Waste (MSW) generation and management

Location in 2006 IPCC Guidelines: Section 2.2.1, Table 2.1

Type of refinement: Update

#### 2.3 Waste composition

Issue 1: Update default data on MSW composition data

Location in 2006 IPCC Guidelines: Section 2.3.1, Table 2.3

Type of refinement: Update

Issue 2: Add information on nitrogen (N) content, Biochemical Oxygen Demand (BOD) or Chemical Oxygen Demand (COD) of sludge

Location in 2006 IPCC Guidelines: New guidance in Section 2.3.2

Type of refinement: New guidance

#### Annex 2A.1 Waste Generation and Management Data - by country and regional averages

Issue: Update default data on MSW generation and management

Location in 2006 IPCC Guidelines: Table 2A.1

Type of refinement: Update

### Chapter 3 Solid Waste Disposal

#### 3.1 Introduction

#### 3.2 Methodological issues

Issue 1: Elaborate on the First Order Decay (FOD) method taking into account active aeration of landfills

Location in 2006 IPCC Guidelines: New guidance in Section 3.2.1.1

Type of refinement: New guidance

Issue 2: Elaborate on default DOC which decomposes ( $DOC_i$ ) values for different waste components

Location in 2006 IPCC Guidelines: Section 3.2.3 (Fraction of degradable organic carbon which decomposes ( $DOC_i$ ))

Type of refinement: Elaboration

#### 3.3 Use of measurement in the estimation of $CH_4$ emissions from solid waste disposal site (SWDS)

No refinement

#### 3.4 Carbon stored in SWDS

No refinement

#### 3.5 Completeness

No refinement

#### 3.6 Developing a consistent time series

No refinement

### 3.7 Uncertainty assessment

Issue: Update uncertainty for  $DOC_f$  values

Location in 2006 IPCC Guidelines: Section 3.7.2

Type of refinement: Update

### 3.8 QA/QC, reporting and documentation

No refinement

#### Annex 3A.1 First Order Decay Model

No refinement

## Chapter 4 Biological Treatment of Solid Waste

No refinement

## Chapter 5 Incineration and Open Burning of Waste

### 5.1 Introduction

No refinement

### 5.2 Methodological issues

No refinement

### 5.3 Choice of activity data

No refinement

### 5.4 Choice of emission factors

Issue 1: Update oxidation factors for open burning of MSW

Location in 2006 IPCC Guidelines: Section 5.4.1, Table 5.2 (Oxidation factor for open burning of MSW)

Type of refinement: Update/Elaboration

Issue 2: Elaborate on EF for  $CH_4$  from incineration related to new technologies (gasification, pyrolysis, and plasma technology)

Location in 2006 IPCC Guidelines: Section 5.4.2, Table 5.3

Type of refinement: Elaboration

Issue 3: Elaborate on EF for  $N_2O$  from incineration related to new technologies (e.g. gasification, pyrolysis, and plasma technology)

Location in 2006 IPCC Guidelines: Section, 5.4.3, Table 5.4

Type of refinement: Elaboration

### 5.5 Completeness

No refinement

### 5.6 Developing a consistent time series

No refinement

### 5.7 Uncertainty assessment

No refinement

## 5.8 QA/QC, reporting and documentation

No refinement

## Chapter 6 Wastewater Treatment and Discharge

### 6.1 Introduction

**Issue 1:** Update introduction language to reflect current understanding of CH<sub>4</sub> and N<sub>2</sub>O emissions from wastewater treatment.

**Location in 2006 IPCC Guidelines:** Section 6.1

**Type of refinement:** Elaboration

**Issue 2:** Update Figure 6.1 and Table 6.1 to reflect additional types of treatment and disposal systems, such as aerobic/anaerobic treatment systems (e.g., anaerobic/anoxic/oxic (A2O), nitrification/denitrification, etc.) and constructed wetlands, as well as various types of septic systems (e.g., bottomless systems).

**Location in 2006 IPCC Guidelines:** Section 6.1

**Type of refinement:** Elaboration

**Issue 3:** Discuss updates/changes from 2006 IPCC Guidelines.

**Location in 2006 IPCC Guidelines:** Section 6.1.1

**Type of refinement:** Elaboration

### 6.2 Methane emissions from wastewater

#### 6.2.1 Methodological issues

#### 6.2.2 Domestic wastewater

**Issue 1:** Update Section 6.2.2.1. Some inventory compilers are misinterpreting Equation 6.1 and combining zero emissions from aerobic systems with recovered methane from sludge digestion, but missing the step of calculating emissions from sludge digestion.

**Location in 2006 IPCC Guidelines:** Section 6.2.2.1

**Type of refinement:** Update

**Issue 2:** Develop new Methane Correction Factors (MCFs) to reflect treatment processes that may be a combination of aerobic and anaerobic or anoxic zones (e.g., anaerobic/anoxic/oxic (A2O), modified Ludzack-Ettinger (MLE), etc.).

**Location in 2006 IPCC Guidelines:** Section 6.2.2.2

**Type of refinement:** Update

**Issue 3:** Consider the development of new MCFs to reflect different types of septic system (e.g., bottomless) and also to consider the effect of temperature on the MCF.

**Location in 2006 IPCC Guidelines:** Section 6.2.2.2

**Type of refinement:** Potential update

**Issue 4:** Elaborate guidance on what systems are classified as “not well managed”/overloaded for centralized aerobic treatment plants.

**Location in 2006 IPCC Guidelines:** Section 6.2.2.2

**Type of refinement:** Elaboration

**Issue 5:** Provide guidance on estimating emissions from septic systems that are connected to larger centralized treatment plants.

**Location in 2006 IPCC Guidelines:** Section 6.2.2.2

**Type of refinement:** Elaboration

**Issue 6:** Determine whether methane emissions from treated effluent should be included, particularly that discharged to stagnant water or overloaded receiving waters.

**Location in 2006 IPCC Guidelines:** Section 6.2.2.2

**Type of refinement:** Update

**Issue 7:** Provide guidance on the origin of the (maximum CH<sub>4</sub> producing capacity) Bo values presented in the chapter.

**Location in 2006 IPCC Guidelines:** Section 6.2.2.2

**Type of refinement:** Update

### 6.2.3 Industrial wastewater

**Issue 1:** Develop new MCFs to reflect treatment processes that may be a combination of aerobic and anaerobic or anoxic zones (e.g., anaerobic/anoxic/oxic (A2O), modified Ludzack-Ettinger (MLE), etc.).

**Location in 2006 IPCC Guidelines:** Section 6.2.3.2

**Type of refinement:** Update

**Issue 2:** Elaborate guidance on what systems are classified as “not well managed”/overloaded for centralized aerobic treatment plants

**Location in 2006 IPCC Guidelines:** Section 6.2.3.2

**Type of refinement:** Elaboration

**Issue 3:** Determine whether methane emissions from treated effluent should be included, particularly that discharged to stagnant water or overloaded receiving waters.

**Location in 2006 IPCC GL:** Section 6.2.3.2

**Type of refinement:** Update

**Issue 4:** Update uncertainty tables to include new EFs and AD

**Location in 2006 IPCC Guidelines:** Section 6.2.3.5

**Type of refinement:** Update/Elaboration

## 6.3 Nitrous oxide emissions from wastewater

### 6.3.1 Methodological issues

**Issue 1:** Address “indirect” emissions and how this terminology interacts with Chapter 7.3, Volume 1 of the 2006 IPCC Guidelines.

**Location in 2006 IPCC Guidelines:** Section 6.3.1.1

**Type of refinement:** Elaboration

**Issue 2:** Add discussion on the latest research related to how N<sub>2</sub>O is formed and emitted in treatment system

**Location in 2006 IPCC Guidelines:** Section 6.3.1.1

**Type of refinement:** Elaboration

**Issue 3:** Consider introducing Tier 1 and Tier 2 methods, similar to the CH<sub>4</sub> section.

**Location in 2006 IPCC Guidelines:** Section 6.3.1.1

**Type of refinement:** Update

**Issue 4:** Correct EF for nitrification/denitrification and develop N<sub>2</sub>O emission factors for additional treatment system configurations (aerobic/anaerobic/anoxic systems) as well as activated sludge systems.

**Location in 2006 IPCC Guidelines:** Section 6.3.1.2

**Type of refinement:** Update/Elaboration

**Issue 5:** Add EF for septic systems.

**Location in 2006 IPCC Guidelines:** New guidance in Section 6.3.1.2

**Type of refinement:** New guidance

**Issue 6:** Update text regarding N (influent) to make consistent with Table 6.11.

**Location in 2006 IPCC Guidelines:** Section 6.3.1.3

**Type of refinement:** Elaboration

**Issue 7:** Clarify Food and Agriculture Organization (FAO) data in relation to protein supplied vs protein consumed

**Location in 2006 IPCC Guidelines:** Section 6.3.1.3

**Type of refinement:** Elaboration/Update

**Issue 8:** Addition of N<sub>2</sub>O emission calculation for centralized plants and septic systems

**Location in 2006 IPCC Guidelines:** Sections 6.3.1.3/6.3.1.1

**Type of refinement:** Update

**Issue 9:** Improve the calculation of Neffluent

**Location in 2006 IPCC Guidelines:** Section 6.3.1.3

**Type of refinement:** Update/Elaboration

**Issue 10:** Addition of N<sub>2</sub>O from industrial wastewater

**Location in 2006 IPCC Guidelines:** New guidance in Sections 6.3.1.1 and 6.3.1.3

**Type of refinement:** New guidance

### 6.3.2 Time series consistency

No refinement

### 6.3.3 Uncertainties

**Issue:** Update uncertainty tables to include new EFs and AD

**Location in 2006 IPCC Guidelines:** Section 6.3.3

**Type of refinement:** Update/Elaboration

### 6.3.4 QA/QC, completeness, reporting and documentation

No refinement

## **Decision IPCC/XLIV-6. Workshop on Climate Change and the Cities**

*The Intergovernmental Panel on Climate Change decides,*

1. To approve the proposal for an International Conference on Climate Change and Cities contained in Annex 1. This is a co-sponsored workshop in line with Rule 7.2 on co-sponsored workshops.
2. To thank 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) for their offer to co-sponsor this workshop.

## Proposal for an International Conference on Climate Change and Cities

### 1. Background

At the 43<sup>rd</sup> 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. One Working Group II Co-Chair and Working Group III Vice-Chair were consulted in the preparation of the proposal which was thereafter reviewed by the Working Group I Co-Chairs and the Secretariat.

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 2013<sup>9</sup>) 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 21<sup>st</sup> 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 <sup>10</sup>.

<sup>9</sup> 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

- 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 stakeholders<sup>11</sup> 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.

---

<sup>10</sup> Decision IPCC/XLIII-6 # 6 “AR7 cycle will include a Special Report on climate change and cities.”

<sup>11</sup> 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 CO<sub>2</sub> 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. The conference will therefore prioritise regional issues and consider cities of all sizes.

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 Organizations

The conference will include contributions from a set of five primary partners. Additional partners may be incorporated at a later stage.

1. IPCC through its scientific guidance and co-sponsorship;
2. UN-Habitat and UNEP (via Cities Alliance), co-organizers, representing the United Nations system;
3. 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;
4. 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 countries; and
5. 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).

## 7. Timing and Duration

The conference is expected to be held early in 2018, synchronized with other ongoing international conferences and IPCC events and consultations around complimentary themes. This timing is critical in order to allow sufficient time for the research to be undertaken and published in order to inform the Special Report on Climate Change and Cities which was approved by the Panel for AR7 (paragraph 7 of Decision IPCC/XLII-6).

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 including from the IPCC Trust Fund in the scale indicated in Decision (IPCC/XLIV-XX) on the IPCC Trust Fund Programme and Budget.

## 10. Scientific Steering Committee, Organizing Committee and Management arrangements

A Scientific Steering Committee (SSC) will manage the conference and its proceedings. The SSC will be co-chaired by the IPCC and all three working group bureaux will be involved in providing scientific input into the preparations for the conference. Members of the SSC will be drawn from partner organisations and key stakeholder groups and will strive to maintain a balance across regions, gender and scientific themes, with the IPCC playing a prominent role.

The conference will be administered by an Organizing Committee, including representatives from the IPCC Secretariat and at least one Working Group Technical Support Unit as appropriate, and the Head of the local Conference Secretariat. The bulk of the logistical organization will be overseen and implemented by the partner organizations.

## 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 4,000 per participant is expected to be roughly USD 1 million.

**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.**

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. The financial contribution of the IPCC will be of the scale indicated in Decision (IPCC/XLIV-XX) on the IPCC Trust Fund Programme and Budget.

### **13. References:**

Revi, A., D.E. Satterthwaite, F. Aragón-Durand, J. Corfee-Morlot, R.B.R. Kiunsi, M. Pelling, D.C. Roberts, and W. Solecki, 2014: Urban areas. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Seto K. C., S. Dhakal, A. Bigio, H. Blanco, G. C. Delgado, D. Dewar, L. Huang, A. Inaba, A. Kansal, S. Lwasa, J. E. McMahon, D. B. Müller, J. Murakami, H. Nagendra, and A. Ramaswami, 2014: Human Settlements, Infrastructure and Spatial Planning. In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

**Decision IPCC/XLIV-7. Expert meeting on mitigation, Sustainability and Climate Stabilization Scenarios**

*The Intergovernmental Panel on Climate Change decides,*

To adopt the proposal for the Expert Meeting on Mitigation, Sustainability and Stabilization Scenarios as contained in Annex 1.

## **Proposal for an IPCC Expert Meeting on Mitigation, Sustainability and Stabilization Scenarios**

(Prepared by the Co-chairs of Working Group III)

### **1. Context**

Two of the central challenges facing IPCC, and Working Group III (WG III) in particular, in the Sixth Assessment Report (AR6) are:

a) the need to assess the linkages between high-level climate stabilization goals and scenarios on the one hand and the practical steps needed in the short- and medium-term to make the realization of these goals possible; and

b) the need to anchor climate responses firmly in the context of development needs. Practical steps need to be articulated in ways that are meaningful to stakeholders, in government, business and civil society, as they formulate their responses to climate change. The Sustainable Development Goals (SDGs) now provide an internationally agreed framework for exploring climate response-sustainability linkages.

These twin challenges have been recognised by governments and IPCC observer organizations in proposals for the AR6 Special Reports notably the proposal from the Government of Norway on *Mitigation, climate stabilization scenarios and sustainability* (IPCC-XLII/INF.13,Corr.1, Add.2) and from CAN International on *Decarbonisation and low carbon development* (IPCC-XLII/INF. 13, Corr. 1). The premise underlying this proposal for an Expert Meeting is that stronger links between the scientific communities that will contribute to AR6 need to be forged if these challenges are to be met.

### **2. What was achieved in the Fifth Assessment Report (AR5) and science gaps**

AR5 made some progress in addressing these challenges. The WG III report compared high-level scenarios developed using Integrated Assessment Models (IAMs) with sectoral approaches. It also interpreted high-level scenarios and derived implied indicators of change, especially in the energy supply system and energy demand sectors. However the flow of information was largely one-way. A two-way exchange of information and insights between those with detailed knowledge of specific sectors and technologies with those developing high-level scenarios. Greater transparency about assumptions underlying IAMs will facilitate this dialogue.

The AR5 also started to open up the linkage between the SDGs and climate responses by addressing co-benefits, specifically in terms of air quality and energy security as measured by import dependence. However more effort is needed to explore these linkages in a coherent and comprehensive manner. A fuller range of SDGs, notably that relating to energy access, need to be explored more systematically.

Furthermore, more effort is need to understand how climate responses that jointly address mitigation and adaptation challenges can be formulated, especially in human settlements, agriculture, forestry and land use. This requires communication, to a far greater extent than achieved in the AR5, between the mitigation research communities and those concerned with impacts, adaptation and vulnerability.

A final gap relates to the sustainability implications, not only of climate change itself, but also the mitigation measures required to achieve ambitious stabilization pathways involving negative emission technologies (NETs).

### 3. Recent initiatives

The science gaps have been recognised by the research community and have begun to be addressed through IPCC meetings and workshops and initiatives from third parties. Relevant IPCC meetings include: the IPCC Expert Meeting on Scenarios, held on 18-20 May 2015 in Laxenburg, Austria; and the IPCC Workshop on Regional Climate Projections and their Use in Impacts and Risk analysis Studies, held on 15-18 September 2015 in Sao Jose dos Campos, Brazil. In addition, the International Institute for Applied Systems Analysis (IIASA) is undertaking the project “the world in 2050” (TWI2050) using scenarios to address the linkage between climate responses and the Sustainable Development Goals (SDGs), the Integrated Assessment Modelling Consortium (IAMC) continues to foster modelling comparison exercises, including those that implement the Shared Socio-Economic Pathways (SSPs) and the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP) project which takes a scenario-based approach to impact assessment.

The aim of this Expert Meeting is to build on rather than duplicate these activities, specifically by developing engagement between scenario-builders and modellers and those with a more sectoral, bottom-up perspective.

### 4. Goals of the Expert Meeting

The expert meeting would have the following aims:

- To develop dialogue between different research communities that can be advanced later through cross-cutting groups linking different chapters of the AR6 reports.

*What forms of data could be used to underpin dialogue between scenario builders and others, including those concerned with mitigation at the sectoral level and those primarily concerned with sustainable development? How can scenarios, models and their input assumptions build plausibly on the insights derived from sectoral or regional perspectives? Conversely, what are the implications do top-down stabilization scenarios hold for the pace of change in specific sectors?*

- To stimulate interdisciplinary research activity that will lead to new literature that can be assessed during the AR6 cycle.

### 5. Participation

The Expert Meeting would primarily engage research communities and stakeholders concerned with mitigation but would also need to include representatives of WGI and WGII science. Relevant communities include:

- Integrated assessment modellers and scenario builders
- Sectoral experts (energy supply, AFOLU, energy demand sectors)
- Policy scientists
- Risk assessment experts
- Development experts
- Impacts, adaptation and vulnerability experts
- Climate modellers

### 6. Timing

In order to inform the Scoping Meeting for the AR6, we propose that the meeting take place in late March 2017. In the event that this deadline proves infeasible, a second option is July 2017 in time to inform the 46<sup>th</sup> Session of the IPCC which will approve the outline of the AR6.

## **7. Hosting**

Norway has indicated its willingness to host such an Expert Meeting.

**Decision IPCC/XLIV-8. Future on the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)**

*The Intergovernmental panel on Climate Change decides,*

1. To establish an Ad Hoc Task Force to design a strategic plan and revised mandate and terms of reference for the transformation of TGICA functions to serve the needs of IPCC during and beyond the Sixth Assessment. The membership and Terms of Reference of this Task Force are defined in Annex 1 to this decision. The Task Force will conclude its work in time for its proposals to be considered at the 46<sup>th</sup> Session of the IPCC.
2. To request TGICA to continue its activities until the revised mandate and terms of reference are approved by the Panel, but no later than the time of the 46<sup>th</sup> Session of the IPCC. In doing so to proceed with the activities already in progress, undertake additional tasks as may be required by the IPCC in the course of Sixth Assessment Report (AR6) preparations, and continue oversight and operations of Data Distribution Centre (DDC) functions, mindful of existing resource constraints.
3. To request the Secretary of the IPCC to explore with governments, observer organizations and other entities ways of providing administrative support to TGICA in this interim period, including through the provision of a secondment arrangement or through direct financial support to the Secretariat.

## **Future of the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)**

### **Terms of Reference for the Ad Hoc Task Force on the Future of the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)**

#### **1. PURPOSE**

The purpose of the Ad Hoc Task Force (Task Force) on the future of the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) is to design a strategic plan as well as a mandate and terms of reference for the transformation of TGICA functions to serve the needs of IPCC during and beyond the sixth assessment cycle, to be considered by the IPCC at its 46<sup>th</sup> session. This plan and the related ToRs and mandate should take into consideration identified priority objectives of the Task Group and the IPCC Data Distribution Centre (DDC) it oversees, including emerging needs in relation to regional data and scenarios and results from a mapping exercise of other organizations and stakeholders, paying due attention to constraints on both human and financial resources.

#### **2. TERM**

The Task Force will initiate its work immediately after the 44<sup>th</sup> Session of the IPCC and continue its activities until the revised mandate and terms of reference are approved by the Panel, but no later than the time of the 46<sup>th</sup> Session of the IPCC, which is provisionally scheduled for September 2017.

#### **3. MEMBERSHIP**

The Task Force will comprise of at least:

- Two Vice-Chairs from each of the three Working Groups, one from a developed country and the other from a developing or economy in transition (EIT) country;
- Current TGICA Co-Chairs;
- Six Government representatives, three each from developed and developing/EIT countries. DDC host countries will be given priority if they are willing to participate;
- One representative from each of the Working Group technical support units; and
- A representative of the IPCC Secretariat.

The Task Force will be Co-Chaired by two Working Group Vice-Chairs from different Working Groups, one from a developed country and another from a developing country/EIT. At least one of the Co-Chairs should preferably be female. The Task Force may consider inviting DDC managers and relevant TSU staff from the AR5 cycle to share their views and experiences. This Task Force will be open to government representatives and Bureau members who may be co-opted for supporting specific tasks, as required.

#### **4. ROLES AND RESPONSIBILITIES**

The Task Force will be responsible for:

- i. Reviewing options and identifying priority objectives for the future of TGICA, including those presented to the Panel at the 43<sup>rd</sup> Session and to the Bureau at its 52<sup>nd</sup> Session;
- ii. Reviewing options and identifying priority objectives for the DDC including those presented to the Panel at the 43<sup>rd</sup> Session and to the Bureau at its 52<sup>nd</sup> Session;
- iii. Scoping, implementing and overseeing a mapping exercise of activities undertaken by external organizations that are similar or related to TGICA or the DDC, including but not

limited to what is presented in the documents listed in (i) and (ii) above. The objective of this exercise is to evaluate the potential overlap, sustainability, and relevance of other products and services compared to TGICA and DDC functions, so as to identify remaining gaps and help refine priorities, and to explore potential partnerships;

- iv. Developing, based upon the information and findings from the above activities, a proposal for a longer-term vision, and a short-term strategy, which will enable the transformation of existing TGICA functionalities and to identify priority objectives of the DDC. This strategy should ensure continuity, transparency, accessibility, and integration across Working Groups of existing and emerging support needs for data and scenarios by the IPCC; mindful of human and financial resource constraints;
- v. Proposing a new mandate and ToRs for the transformed TGICA functionality and for the core functions of the DDC;
- vi. Proposing options for sustainable resourcing to support the needs of the transformed functions, including possible ways to expand country contributions; and
- vii. Providing a progress report about its activities to the IPCC at its 45<sup>th</sup> Session.

## **5. MEETINGS**

All meetings will be held through teleconferencing and/or in combination with existing IPCC meetings where Task Force members will be present. They will be chaired by the Ad Hoc Task Force Co-Chairs who will be responsible for preparing meeting agendas. Teleconferencing arrangements and meeting minutes will be prepared by the Secretariat.

## **Decision IPCC/XLIV-9. Communications for the Sixth Assessment Report (AR6) - Communications and the scoping processes**

*The Intergovernmental Panel on Climate Change,*

*Recalling* the first indent of paragraph 1 of Decision IPCC/XLIII-10 on Communications for the Sixth Assessment Report (AR6) “to engage with governments and a wide range of stakeholders in the scoping process, seek greater input from stakeholder groups in the scoping process, and identify, with the help of governments and observer organizations, audiences and stakeholders who can provide input”;

*Recalling* the second indent of paragraph 1 of the same Decision IPCC/XLIII-10 on Communications for the Sixth Assessment Report (AR6) “to consider different options to enable stakeholders to contribute to the scoping process”;

*Decides:*

1. That when preparing scoping meetings, in addition to consulting governments, the relevant bureaux should consider the following options in order to obtain contributions from other relevant stakeholders in advance of the meeting:
  - Circulating a pre-scoping questionnaire to observer organizations to identify issues and questions that could be addressed in the scoping meeting, keeping in mind the necessary transparency around comments and suggestions received by the IPCC;
  - Working with National Focal Points and observer organizations to identify actors from the wide range of stakeholders that can contribute to the scoping process, and to promote possible consultations with them, including through virtual means, in order to inform the scoping process.
2. That such pre-scoping activities are to be undertaken in a balanced and transparent way.

## **Decision IPCC/XLIV-10. Communications for the Sixth Assessment Report (AR6) - Review of the IPCC Communications Strategy**

*The Intergovernmental Panel on Climate Change,*

*Recalling* the recommendation of the InterAcademy Council on IPCC communications that the IPCC “should complete and implement a communications strategy that emphasizes transparency, rapid and thoughtful responses, and relevance to stakeholders, and which includes guidelines about who can speak on behalf of IPCC and how to represent the organization appropriately”;

*Recalling* its decision taken at the 35<sup>th</sup> Session of the IPCC to adopt the “*IPCC Communications Strategy*”;

*Recalling* Decision IPCC/XLIII-10 which requests the Secretary of the IPCC, in consultation with the Communications Action Team, to update the Communications Strategy in the light of the experience of communication and outreach around the Fifth Assessment Report and the recommendations of the Expert Meeting on Communication, and to submit these proposals to the 44<sup>th</sup> Session of the IPCC;

*Decides:*

1. *To adopt* the update of the “*IPCC Communications Strategy*” as provided in Annex 1 to this decision;
2. *To request* the Executive Committee to update the Implementation Plan in line with this revised Communications Strategy, and to report upon its completion to the Bureau and National Focal points by 1 February 2017;
3. *To request* the Executive Committee, in updating the Implementation Plan, to consider the set of procedures, including the role, tasks and responsibilities of the involved individuals, to allow the IPCC to make effective rapid responses to urgent enquiries. These procedures should include a contingency plan for managing rapidly escalating communications needs; and
4. *To request* the Executive Committee to keep the Implementation Plan under review and develop it further, as circumstances require, if necessary before completion of the Sixth Assessment Report.

## IPCC COMMUNICATIONS STRATEGY

### Introduction

The IPCC at its 33<sup>rd</sup> Session in Abu Dhabi in May 2011 approved the *Guidance on IPCC Communications Strategy*<sup>12</sup> following the recommendations of the InterAcademy Council (IAC) in August 2010 to develop a communications strategy. This Guidance continues to serve as a framework for IPCC communications and relevant parts of it have been taken up in this document.

The 35<sup>th</sup> Session of the IPCC in Geneva in June 2012 adopted the “*IPCC Communications Strategy*” and requested the Executive Committee to elaborate an Implementation Plan for the Strategy. At its 43<sup>rd</sup> Session in Nairobi in April 2016, in Decision IPCC/XLIII-10, the Panel requested the Secretary of the IPCC, in consultation with the Communications Action Team, to update the Communications Strategy and its Implementation Plan in the light of the experience of communication and outreach around the Fifth Assessment Report and the recommendations of the Expert Meeting on Communication, held in Oslo in February 2016<sup>13</sup>. The Communications Strategy supports the IPCC in its work of providing robust assessments of climate-related science for sound policymaking.

### Goals

- 1) The IPCC has two main communications goals:
  - to communicate its assessment findings and methodologies, by providing clear and balanced information on climate change<sup>14</sup>, including scientific uncertainties, without compromising accuracy;
  - to explain the way the IPCC works, selects its authors and reviewers and produces its reports and other products. This will promote the understanding of the reports and underpin its reputation as a credible, transparent, balanced and authoritative scientific body.

### Principles

- 2) IPCC communications are based on the Principles Governing IPCC Work<sup>2</sup>.

Communications are an important aspect of the work of the IPCC, essential to its mission of providing decision-makers and other stakeholders with rigorous and balanced scientific information on climate change<sup>2</sup> and its impacts. The following set of principles should guide the IPCC’s approach:

- **Objective and transparent.** The IPCC’s communications approach and activities should, at all times, be consistent with the IPCC’s overarching principles of objectivity, openness and transparency.
- **Policy-relevant but not policy-prescriptive.** It is an essential quality of the IPCC’s work that it is policy-relevant but not policy-prescriptive. The presentation of its assessments and reports should remain policy-neutral and maintain scientific balance. The IPCC’s communications approach and activities should be consistent with these qualities.

<sup>12</sup> [http://www.ipcc.ch/meetings/session33/ipcc\\_p33\\_decisions\\_taken\\_comm\\_strategy.pdf](http://www.ipcc.ch/meetings/session33/ipcc_p33_decisions_taken_comm_strategy.pdf)

<sup>13</sup> [http://www.ipcc.ch/pdf/supporting-material/EMR\\_COM\\_full\\_report.pdf](http://www.ipcc.ch/pdf/supporting-material/EMR_COM_full_report.pdf)

<sup>14</sup> “The role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation. IPCC reports should be neutral with respect to policy, although they may need to deal objectively with scientific, technical and socio-economic factors relevant to the application of particular policies.” (Principles Governing IPCC Work, paragraph 2). (<http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles.pdf>)

- **Drawn from IPCC Reports.** While the IPCC's work and process of preparing reports aim to reflect a range of views and expertise addressing some highly specialized scientific matters, its communications should reflect the language that has been subject to the IPCC's review process and has been accepted, adopted or approved by the members of the Panel.
- **Aiming to establish the IPCC as the key science/policy interface organization for climate change.** The IPCC's process of international assessment by scientists and review by the scientific community, governments and stakeholders is central to the authority and quality of IPCC reports. The IPCC should always seek to be clear in its communications about what the organization is and what it does – providing up to date assessments of the latest authoritative science. The objective is to ensure that the IPCC provides a context to guide the interpretation of its reports and to ensure that the public has unbiased information about the IPCC.
- **Timely and audience-appropriate.** In order to be effective, the IPCC communications approach and activities should be aimed at ensuring that timely and appropriate information enters the public domain – both proactively to communicate reports, and reactively in response to questions or criticism.
- **Consistent messages.** To ensure that the IPCC delivers consistent messages externally, it is essential that internal communications and decision-making are disciplined and well coordinated.

### Activities

- 3) IPCC communications address four main groups of activities:
- Day-to-day communications, both proactive and reactive;
  - Planned activities including:
    - the launch of reports,
    - outreach activities to present the work of the IPCC to the audiences described below, and
    - participation in major international conferences;
  - Rapid responses, which require particular procedures to ensure they are handled in a timely manner that is representative of the whole Panel, and
  - Contributing to better communication of scientific and technical advice and guidelines to the UNFCCC and other relevant UN intergovernmental processes.

### Audiences

- 4) The primary target audiences of the communications efforts of the IPCC are governments and policy-makers at all levels, the UNFCCC, and the UN-wide system intergovernmental processes more broadly.
- 5) Broader audiences, such as IPCC observer organizations, the scientific community, the education sector, non-governmental organizations (NGOs), the business sector and the wider public also have an interest in the work and assessments of the IPCC. While these are not the primary audiences of the IPCC communications efforts, the IPCC should look for ways to ensure that information is available and accessible for these audiences.

- 6) Third parties can play an additional valuable role taking elements of IPCC assessments to create accessible products aimed at specific audiences. The IPCC takes note of such derivative products, and may engage with relevant organizations that produce them. However, such products must not be considered joint productions or in any way products of the IPCC.
- 7) Engaging and building relationships with the media is an important way in which the IPCC can communicate the information contained in its reports, as well as its processes and procedures.
- 8) IPCC audiences are truly global in extent and are therefore very diverse. In its communications and outreach activities, the IPCC will take the specific context of different countries into account, which may require tailor-made outreach activities. For instance, communications needs of developing countries may be different to those of developed countries.

### **Governance and management**

- 9) The Plenary is ultimately responsible for ensuring that the Communications Strategy is appropriate, that it meets the expectations and needs of the Panel and is being delivered suitably. Between Plenary sessions, the Bureau and the Executive Committee will act on the Panel's behalf, in accordance with the Communications Strategy, as appropriate. Decisions regarding fundamental communications issues, according to their importance, should be debated and approved within the framework of the IPCC and/or the IPCC Bureau, as appropriate.
- 10) The Working Group/Task Force Co-Chairs are responsible for the substantive aspects of communications activities around reports in their areas of responsibility, while the IPCC Chair is responsible for the substantive aspects of communications on the Synthesis Report. The Executive Committee oversees the implementation of the Communication Strategy.
- 11) The IPCC Chair, IPCC Vice-Chairs, Working Groups/Task Force Co-Chairs, members of the Bureau and National Focal Points will rely on the Secretariat, for expert advice related to communication as necessary. The Senior Communications Manager at the Secretariat is responsible for the day-to-day coordination and coherence of IPCC communications.
- 12) The Executive Committee will maintain an Implementation Plan that gives effect to this Strategy. This Plan will identify, in accordance with this Communications Strategy, those groups or individuals that can approve different types of communications materials and activities in different situations, including rapid response. The Executive Committee will update and develop this Plan as circumstances require and report to the Panel on any updates.
- 13) The Secretary of the IPCC will evaluate IPCC communications and report to the Panel, including the type and extent of outreach and media coverage. Evaluation reports should also be made to the Bureau and Executive Committee at regular intervals. The Secretary will investigate the use of metrics to support evaluation.
- 14) The Executive Committee should consider how to ensure continuity of outreach and the website between assessment cycles, and elaborate this in the Implementation Plan.

## **Methods and tools**

- 15) Consistent with its status as a UN body, the IPCC's reports should be made available in the six UN languages to the extent possible according to IPCC Principles. IPCC communication practices should follow this model where possible, and communications products, including brochures and press releases, should be translated and made available.
- 16) The Secretariat will support National Focal Points in communications activities in their countries, and will encourage the translation of texts into local languages, by providing IPCC materials, where practical. The National Focal Points will receive communications materials and information about events in a timely manner, and may seek advice from the Secretariat on IPCC communications-related matters.
- 17) Approved IPCC reports and other products form the basis for communications materials. These materials should be developed to facilitate greater understanding of the IPCC's work among governments, media and other non-specialists unfamiliar with scientific terminology<sup>15</sup>. When preparing the final draft of the Summary for Policymakers, Overview Chapters of Methodology Reports and the Synthesis Report, Working Group/Task Force Co-Chairs, the IPCC Chair and authors should be aware of the need to produce clear, comprehensible, accessible and user-friendly texts and graphics that support the key findings in the report.
- 18) The IPCC website serves its target audiences (see 'Audiences' above) by providing access to all public IPCC material in a consistent and user-friendly manner. The Secretariat is responsible for ensuring that the IPCC website is reviewed regularly to ensure content is up to date, to improve user-friendliness and navigability and to benefit where useful from the latest technology and practices, including access on different platforms.
- 19) Social media provide important tools to reinforce the communications activities of the IPCC and to reach civil society, the scientific community and other audiences directly. The secretariat will keep the appropriate use of social media under review, bearing in mind the specific scientific and intergovernmental nature of the IPCC and the accessibility of some tools in some groups of countries. It will monitor the evolution of new technology and media, including video and infographics, and take advantage of these for IPCC communications as appropriate. In consultation with the Communications Action Team, it will prepare guidelines on the use of social media for the use of all those working for the IPCC.

## **IPCC spokespeople**

- 20) To ensure objectivity and scientific accuracy, as well as efficiency and timeliness, authorized spokespeople must be designated for various situations. The Chair of the IPCC and IPCC Vice-Chairs are the lead spokespeople for the organization as a whole; the Working Group/Task Force Co-Chairs are the lead spokespeople for the activities of their Working Group/Task Force; the Secretary and Senior Communications Manager may speak on activities and the procedures of the IPCC as well as on institutional matters.
- 21) Besides these designated spokespeople, authors or Working Group Vice-Chairs will often be the most appropriate people to speak on their area of science or provide regional perspectives and may be delegated by the Working Group/Task Force Co-Chairs, the IPCC Chair or the Secretary to talk to the media or represent the IPCC at conferences.

---

<sup>15</sup> Decision IPCC/XLI-4, §10: "To enhance the readability of IPCC products, advice from various specialists should be sought."

- 22) People speaking on behalf of the IPCC in an official capacity must focus on communicating a factual, objective presentation of information from the approved IPCC reports and refrain from public statements that could be interpreted as advocacy and compromise the IPCC's reputation for neutrality.
- 23) Those who represent the IPCC in an official capacity are strongly encouraged to undergo media training. Such training should include specific guidance on how to approach speaking on behalf of the IPCC versus speaking in other capacities. The Secretariat will arrange this training as opportunities allow, subject to available resources, and will provide guidelines on communicating with the media and public. Outreach activities may benefit from training on presentations.

### **Resources**

- 24) Communications activities must operate with the resources available in the IPCC. These may be augmented by additional funding or support from external communications experts, in coordination with the Secretariat, including for specific communications activities at times of heightened media activity, such as around the release of a report or in rapid response. This must not compromise the independence of the IPCC or cause a conflict of interest. External human and financial resources must be reported to the Panel at the earliest session following the provision of these resources.

## **Decision IPCC/XLIV-11. IPCC Scholarship Programme**

*The Intergovernmental Panel on Climate Change,*

Recalling its strong support to the continued use of the Nobel Peace Prize funds to build capacity in the understanding and management of climate change in developing countries through providing opportunities for young scientists from developing countries to undertake studies that would not be possible without the intervention of the Funds;

*Decides,*

To request the Science Board to consider options for the future of the IPCC Scholarship Programme in the light of the findings of the review of this Programme, the views expressed by the members of the Panel and consultations with partner organizations; and to submit proposals for consideration by the Panel at its 45<sup>th</sup> Session.





**FORTY-FOURTH SESSION OF THE IPCC  
Bangkok, Thailand, 17-20 October 2016**

IPCC-XLIV/INF. 3, Rev. 1  
(20.X.2016)  
Agenda Item: 11  
ENGLISH ONLY

**ROLES OF MEMBERS OF THE BUREAU**

**Participation of Members of the Bureau in intersessional activities**

(Submitted by the Secretary of the IPCC)

## **ROLES OF MEMBERS OF THE BUREAU**

### **Participation of Members of the Bureau in intersessional activities**

The Terms of Reference of the IPCC Bureau ( IPCC-XLIV/INF. 3, Rev. 1) were agreed at the 33<sup>rd</sup> Session of the IPCC (Abu Dhabi, United Arab Emirates, 10 - 13 May 2011).

- Paragraphs 1-6 of these Terms of Reference address the Bureau as a collegiate body while paragraphs 7-9 address the “roles, responsibilities and qualifications of the IPCC Bureau Members”.
- Paragraph 7 defines the roles of the Members of the Bureau as to “provide scientific and technical support to the Chair of the IPCC and the Co-Chairs of the Working Groups and the Task Force on National Greenhouse Gas Inventories in accordance with the Terms of Reference of the Bureau”.
- Paragraph 8 includes, among the responsibilities of the Members of the Bureau to “b. advise the Panel and its Chair on scientific and technical matters;” and “e. advise IPCC Coordinating Lead Authors, Lead Authors and Review Editors”.

The IPCC Bureau is to provide guidance to the Panel between Sessions and the current practice is that Bureau members can participate in the IPCC process at their own discretion and, as appropriate, travel costs of delegates from developing countries and countries with economies in transition will be covered by the IPCC Trust Fund.

**INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE**

**44<sup>th</sup> SESSION OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE  
Bangkok, Thailand, 17 – 20 October 2016**

**LIST OF PARTICIPANTS**

## CHAIR OF THE IPCC

Hoesung LEE  
c/o Korea Meteorological Administration  
Yeouidaedaebang-ro 16-gil 61  
Dongjak-gu  
Seoul 07062  
Republic of Korea  
Tel.: +822 835 1363  
E-mail: [hoesung@korea.ac.kr](mailto:hoesung@korea.ac.kr)

## BUREAU MEMBERS

Edvin ALDRIAN  
Center for Climate Change and Air Quality of  
BMKG  
Jl. Angkasa I No. 2, Kemayoran  
Jakarta Pusat 10720  
Indonesia  
Tel.: +62 21 4246321  
E-mail: [e\\_aldrrian@yahoo.com](mailto:e_aldrrian@yahoo.com)

Ko BARRETT  
IPCC Vice-Chair  
National Oceanographic and Atmospheric  
Administration  
Climate Program Office  
Silver Spring, MD  
United States of America  
Tel.: +1 301 734 1204  
E-mail: [ko.barrett@noaa.gov](mailto:ko.barrett@noaa.gov)

Eduardo CALVO  
Co-Chair TFI  
UNMSM  
Jr. Nicanor Arteaga 549 San Borja  
Lima 41  
Peru  
Tel.: +51 1 346 2299 Mobile + 51 98 69 19 539  
E-mail: [e13calvo@gmail.com](mailto:e13calvo@gmail.com)

Diriba DADI  
National Meteorological Agency  
P.O. Box 1090  
Addis Ababa  
Ethiopia  
Tel.: +116615528  
E-mail: [dkorecha@yahoo.com](mailto:dkorecha@yahoo.com)

Fatima DRIOUECH  
Direction de la Météorologie Nationale of Morocco  
Bd du complexe administratif Hay Hassani BP  
8106 Casa Oasis  
Casablanca  
Morocco  
Tel.: 00212522654872  
E-mail: [driouechfatima@yahoo.fr](mailto:driouechfatima@yahoo.fr)

Nagmeldin Goutbi ELHASSAN MAHMOUD  
Higher Council for Environment & Natural  
Resources  
P.O. Box: 10488- Khartoum  
Khartoum  
Sudan  
Tel.: +249 183 784279  
E-mail: [goutbi@yahoo.com](mailto:goutbi@yahoo.com)

Andreas FISCHLIN  
ETH Zurich  
Systems Ecology - Institute of Integrative Biology  
CHN E 24, Universitaetstrasse 16  
Zurich  
Switzerland  
Tel.: +41 44 633 6090  
E-mail: [andreas.fischlin@env.ethz.ch](mailto:andreas.fischlin@env.ethz.ch)

Gregory FLATO  
Environment and Climate Change Canada  
University of Victoria, Canadian Centre for  
Climate Modelling and Analysis, 3800 Finnerty  
Road  
Victoria  
Canada  
Tel.: +1 250 363-8233  
E-mail: [greg.flato@canada.ca](mailto:greg.flato@canada.ca)

Jan FUGLESTVEDT  
CICERO  
Gaustadall en 21, 0349 OSLO, NORWAY  
Oslo  
Norway  
Tel.: +47 22 85 87 64  
E-mail: [j.s.fuglestvedt@cicero.oslo.no](mailto:j.s.fuglestvedt@cicero.oslo.no)

Mark HOWDEN  
Australian National University  
Acton  
Canberra ACT 2601  
Australia  
Tel.: +61 2 6125 7266  
E-mail: [Mark.Howden@anu.edu.au](mailto:Mark.Howden@anu.edu.au)

Thelma KRUG  
IPCC Vice-Chair  
Ministry of Environment  
Esplanada dos Ministerios, Bloco B, Sala 938  
Brasilia D.F.  
Brazil  
Tel.: +55 61 20282140  
E-mail: [thelma.krug@mma.gov.br](mailto:thelma.krug@mma.gov.br)

Valerie MASSON DELMOTTE  
Co-Chair WG I  
LSCE  
Route de l'Orme des Merisiers  
Gif sur Yvette  
France  
Tel.: +33 6 79 08 21 22  
E-mail: [valerie.masson@lsce.ipsl.fr](mailto:valerie.masson@lsce.ipsl.fr)

Carlos MENDEZ  
Science Minister  
Kilometro 11, carretera Panamericana  
Caracas  
Venezuela  
Tel.: +582125041246  
E-mail: [cmendez@ivic.gov.ve](mailto:cmendez@ivic.gov.ve)

Joy PEREIRA  
Universiti Kebangsaan Malaysia  
SEADPRI-UKM, Institute for Environment and  
Development  
Bangi  
Malaysia  
Tel.: +60389214852  
E-mail: [pereirajoy@yahoo.com](mailto:pereirajoy@yahoo.com)

Ramon PICHES MADRUGA  
CIEM  
Havana  
Cuba  
Tel.: +5372042507  
E-mail: [rpichs@ciem.cu](mailto:rpichs@ciem.cu)

Hans-otto PÖRTNER  
Co-Chair WG III  
Alfred-Wegener-Institut  
Marktstraße 3  
28195 Bremen  
Germany  
Tel.: +49(0)471 4831 2440  
E-mail: [hans.poertner@awi.de](mailto:hans.poertner@awi.de)

Andy REISINGER  
New Zealand Agricultural Greenhouse Gas  
Research Centre  
PO Box 5290  
Wellington  
New Zealand  
Tel.: +64 4 472 3292  
E-mail: [Andy.Reisinger@nzagrc.org.nz](mailto:Andy.Reisinger@nzagrc.org.nz)

Debra ROBERTS  
Co-Chair WG III  
Sustainable and Resilient City Initiatives Unit  
EtheKwini Municipality  
Durban  
South Africa  
Tel.: +27 31 311 7527  
E-mail: [Debra.Roberts@DURBAN.GOV.ZA](mailto:Debra.Roberts@DURBAN.GOV.ZA)

Sergey SEMENOV  
Institute of Global Climate and Ecology  
Glebovskaya Street, 20B  
Moscow  
Russian Federation  
Tel.: +7 4991692411  
E-mail: [SergeySemenov1@yandex.ru](mailto:SergeySemenov1@yandex.ru)

Priyadarshi SHUKLA  
Co-Chair WG III  
Indian Institute of Management, Ahmedabad  
(IIMA)  
Vastrapur  
Ahmedabad 380015  
India  
E-mail: [shukla@iimahd.ernet.in](mailto:shukla@iimahd.ernet.in)

Jim SKEA  
Co-chair WG III  
Imperial College London  
14 Princes Gardens  
London  
United Kingdom  
Tel.: +44 207594 9294  
E-mail: [j.skea@imperial.ac.uk](mailto:j.skea@imperial.ac.uk)

Youba SOKONA  
IPCC Vice-Chair  
South Centre  
Chemin du Champ d'Anier  
Geneva  
Switzerland/Mali  
Tel.: +41 227918046  
E-mail: [ysokona@gmail.com](mailto:ysokona@gmail.com)

Kiyoto TANABE  
Co-Chair TFI  
C/o Institute for Global Environmental Strategies  
(IGES)  
2108-11 Kamiyamaguchi  
Hayama, 240-0115  
Japan  
Tel.: +81 46 855 3752  
E-mail: tanabe@iges.or.jp

Carolina VERA  
Murillo 1121 5 H  
CIMA,  
Buenos Aires  
Argentina  
Tel.: + 47872650  
E-mail: [carolina@cima.fcen.uba.ar](mailto:carolina@cima.fcen.uba.ar)

Diana URGE-VORSATZ  
Central European University  
Nájdor street 9.  
Budapest  
Hungary  
Tel.: +3613273095  
E-mail: vorsatzd@ceu.hu

Pius YANDA  
University of Dar-es-Salaam  
P.O. Box 33453  
Dar-es-Salaam  
United Republic of Tanzania  
Tel.: + 2410474  
E-mail: pyanda@gmail.com

Noureddine YASSAA  
Centre de Developpement des Energies  
Renouvelables  
Route de l'Observatoire, B.P. 62, Bouzareah,  
16340  
Algiers  
Algeria  
Tel.: +21321901561  
E-mail: n.yassaa@cder.dz

Panmao ZHAI  
Co-Chair WG I  
Chinese Academy of Meteorological Sciences  
No. 46, Zhongguancun South Street Haidian  
District  
Beijing  
China  
Tel.: +86 10 68409421  
E-mail: pmzhai@cma.gov.cn

## MEMBER COUNTRIES

### AFGHANISTAN

Ghulam Mohd MALIKYAR  
National Environment Protection Agency  
6 part, sanatorium street, Darul Aman Road,  
Kabul, Afghanistan  
Kabul  
Afghanistan  
Tel.: +93 700 202 719  
E-mail: malikyargh@gmail.com

### ALGERIA

Rachid BESSAOUD  
Ministere des Ressources en Eau et de  
l'Environnement  
'03 Rue Caire, Kouba  
Algiers  
Algeria  
Tel.: +213 41 530 738  
E-mail: bessarachid@gmail.com

### ANGOLA

Gualberto JOÃO  
National Institute of Meteorology  
INAMET, Gamek a Direita, Morro Bento  
Luanda  
Angola  
Tel.: +244917027960  
E-mail: gualbertohj@gmail.com

### ARGENTINA

Martin RABBIA  
Ministerio de Ambiente y Desarrollo Sustentable  
Reconquista 555  
Buenos Aires City  
Argentina  
Tel.: +541143488330  
E-mail: mrabbia@ambiente.gob.ar

### ARMENIA

Asya MURADYAN  
Ministry of Nature Protection  
Gov. Bld 3, Republic sq.  
Yerevan  
Armenia  
Tel.: +374011818535  
E-mail: interdpt@yahoo.com

## **AUSTRALIA**

Maggie BAILEY  
Department of the Environment and Energy  
John Gorton Building, Kind Edward Terrace  
Canberra  
Australia  
Tel.: +61 6159 7161  
E-mail: maggie.bailey@environment.gov.au

Rob STURGISS  
Department of the Environment and Energy  
John Gorton Building, King Edward Terrace  
Canberra ACT 2600  
Australia  
Tel.: +61 02 6159 7388

## **AUSTRIA**

Manfred OGRIS  
Fed. Ministry for Agriculture, Forestry,  
Environment and Water  
Stubenbastei 5  
A-1010 Wien  
Austria  
Tel.: +431 51522 1741  
E-mail: manfredogris@gmx.at

## **AZERBAIJAN**

Jeyhun HASANOV  
Ministry of Ecology and Natural Resources of  
Republic of Azerbaijan  
H.Aliyev ave 10  
Baku  
Azerbaijan  
Tel.: +99412)5662794  
E-mail: jeyhun360@gmail.com

## **BAHAMAS**

Arthur ROLLE  
Ministry of the Environment and Housing  
West Bay Street  
Nassau  
Bahamas  
Tel.: +1 242 3275665  
E-mail: rollearthur@gmail.com

## **BANGLADESH**

Mohammad Azizul HAQUE  
Ministry of Environment and Forests  
Bangladesh Secretariat  
Dhaka-1000  
Bangladesh  
Tel.: +88029577240  
E-mail: azizulhaque06@gmail.com

## **BELARUS**

Kristina GONCHAR  
Rue "BRC "Ecology"  
220095 Yakubova str. 76  
Minsk  
Belarus  
Tel.: +375173675881  
E-mail: gonchar.kristina@mail.ru

## **BELGIUM**

Jean- Pascal van YPERSELE  
Universite catholique de Louvain (UCL) - Georges  
Lemaître Centre for Earth and Climate Research  
(TECLIM)  
Place Louis Pasteur 3, (bte L4.03.08)  
1348 Louvain-la-Neuve  
Belgium  
Tel.: +32 (0) 10 47 32 96  
E-mail: vanyp@climate.be

Martine VANDERSTRAETEN  
BELSPO - Belgian Federal Science Policy Office  
Louizalaan 231 - Avenue Louise1050  
1050 Brussels  
Belgium  
Tel.: +32 (0) 2 238 36 10  
E-mail: vdst@belspo.be

## **BELIZE**

Dennis GONGUEZ  
National Meteorological Service of Belize  
Philip Goldson International Airport  
Ladyville  
Belize  
Tel.: +501 225 2012  
E-mail: dgonguez@hydromet.gov.bz

## **BENIN**

Kokou Marcellin NAKPON  
Meteo Benin  
BP 379  
Cotonou  
Benin  
Tel.: +22994174151  
E-mail: nakponmarcellin@yahoo.fr

## **BHUTAN**

Tayba Buddha TAMANG  
Department of Hydro Met Services  
Meteorology Division, DHMS, MoEA,  
Thimphu  
Bhutan  
Tel.: +975 2 324999  
E-mail: tbtamang@moea.gov.bt

## **BOSNIA AND HERZEGOVINA**

Sinisa STOJKOVIC  
Center for Climate Research  
Mladena Stojanovica 2  
78 000 Banja Luka  
Bosnia and Herzegovina  
Tel.: +66716407  
E-mail: stojkovic@blic.net

Srdjan TODOROVIC  
Fund for Environmental Protection and Energy  
Efficiency RS  
King Alfons XIII, No. 21  
Banja Luka  
Bosnia and Herzegovina  
Tel.: 38180  
E-mail: srdjan.todorovic@ekofondrs.org

Goran TRBIC  
University of Banja Luka  
Mladena Stojanovica 2,  
Majke Knezopoljke 7  
Banja Luka  
Bosnia and Herzegovina  
Tel.: +38751311178  
E-mail: trbicg@pmfbl.org

## **BOTSWANA**

Chandapiwa SEBEELA  
Botswana Meteorological Services  
P.O.Box 10100  
Gaborone  
Botswana  
Tel.: 267 3612201  
E-mail: cmacheke@gov.bw

## **BRAZIL**

Guiherme LIMA  
Ministry of Foreign Affairs, Division of Climate  
Change  
Esplanada dos Ministerios - Bloc H - Annex II -  
Room 204  
Brasilia  
Brazil  
Tel.: +55 61 2030 9292  
E-mail: guilherme.lima@itamaraty.gov.br

José Domingos Gonzalez MIGUEZ  
Ministry of Environment  
Esplanada dos Ministerios - Bloco B  
Brasilia  
Brazil  
Tel.: +556120282170  
E-mail: cdm\_miguez@yahoo.com.br

Andréa NASCIMENTO DE ARAÚJO  
Ministry of Science, Technology and Innovation  
Esplanada dos Ministerios, Bloco E, s. 268 - CEP  
70067-900  
Brasilia  
Brazil  
Tel.: +55 61 2033 8074  
E-mail: anaraujo@mcti.gov.br

## **BULGARIA**

Rayna ANGELOVA  
Ministry of Environment and Water  
22 Maria Luiza Blvd., complex Suhata reka, bl.15,  
entr.2, ap.2  
Sofia  
Bulgaria  
Tel.: +35929406133  
E-mail: rkangelova@moew.government.bg

## **BURUNDI**

Maurice SHIRAMANGA  
IGEBU  
B.P. 331  
Bujumbura  
Burundi  
Tel.: +25777735820  
E-mail: mshiramanga@yahoo.com

## **CAMBODIA**

Sum THY  
Climate Change Department, Ministry of  
Environment, No. 48, Samdech Preah Sihanouk  
Blvd. Chamkarmon  
#48, Samdech Preah Sihanouk, Chamkarmon  
Phnom Penh  
Cambodia  
Tel.: +855-23-218370  
E-mail: cceap@online.com.kh

## **CANADA**

George ENEI  
Environment and Climate Change Canada  
200 Boul. Sacre-Coeur, 11th Floor  
Gatineau  
Canada  
Tel.: +819-938-3435  
E-mail: george.enei@canada.ca

Marjorie SHEPHERD  
Environment and Climate Change Canada  
4905 Dufferin Street  
Toronto  
Canada  
Tel.: +1 (416) 739-4230  
E-mail: marjorie.shepherd@canada.ca

Lauren WALSHE ROUSSEL  
Environment and Climate Change Canada  
200 Sacre Coeur Blvd., 11th Floor  
Gatineau  
Canada  
Tel.: +1 819 938 3473  
E-mail: lauren.walsh-rousseau@canada.ca

## **CENTRAL AFRICAN EPUBLIC**

Joel-urbain TETEYA  
National Met Service - Independance Avenue  
Meteo B.P. 941 Civil Aviation and Meteorology  
Bangui  
Central African Republic  
Tel.: +23672760747  
E-mail: JUTETEYA@YAHOO.FR

## **CHAD**

Hamid ABAKAR SOULEYMANE  
Ministry of the Aeronautic Developpement and of  
the National Meteorology  
Direction General of the National Meteorology  
N'Djamena  
Chad  
Tel.: +23562000047  
E-mail: chogara11@yahoo.fr

## **CHILE**

Maritza JADRIJEVIC  
Climate Change Office, Environmental Ministry  
San Marta-n 73, 8° piso  
Santiago  
Chile  
Tel.: +56 2 25735688  
E-mail: mjadrijevic@mma.gob.cl

## **CHINA**

Qingchen CHAO  
China Meteorological Administration  
No. 46, Zhongguancun Nandajie  
Beijing  
China  
Tel.: +86 10 68406681  
E-mail: chaoqc@cma.gov.cn

Sha FU  
National Development and Reform Commission  
1 Yuyuantan Nanlu  
Beijing  
China  
Tel.: +86 1068781322  
E-mail: fusha216@gmail.com

Xiaolei HAN  
Ministry of Foreign Affairs  
2 Chaoyangmen South Road  
Beijing  
China  
Tel.: +861065963279  
E-mail: han\_xiaolei@mfa.gov.cn

Lei HUANG  
China Meteorological Administration  
46 Zhongguancun Nandajie  
Beijing,100081  
China  
Tel.: +86 10 68409594  
E-mail: huanglei@cma.gov.cn

Xianghua XU  
China Meteorological Administration  
46 Zhongguancun Nandajie  
Beijing,100081  
China  
Tel.: +86 10 68406662  
E-mail: xianghua@cma.gov.cn

Wei YAO  
National Development and Reform Commission  
38 Yuetan Nanjie  
Beijing  
China  
Tel.: +861068505887  
E-mail: yaowei.yw@foxmail.com

Yubin YU  
China Meteorological Administration  
46 Zhongguancun Nandajie  
Beijing  
China  
Tel.: +861068406528  
E-mail: yuyb@cma.gov.cn

Rucong YU  
China Meteorological Administration  
46 Zhongguancun Nandajie  
Beijing  
China  
Tel.: +86 10 62172957  
E-mail: yurc@cma.gov.cn

Jiashuang YUAN  
China Meteorological Administration  
46 Zhongguancun Nandajie  
Beijing, 100081  
China  
Tel.: +86 10 68406732  
E-mail: yuanjs@cma.gov.cn

Ningning ZHANG  
Chinese Academy of Sciences  
52, Sanlihe Road  
Beijing  
China  
Tel.: +8610 68597580  
E-mail: nnzhang@cashq.ac.cn

Tianjun ZHOU  
Institute of Atmospheric Physics, Chinese  
Academy of Sciences  
40 Beichenxilu Huayanli,  
Beijing, 100029  
China  
Tel.: +86 10 82995279  
E-mail: zhoutj@lasg.iap.ac.cn

#### **COLOMBIA**

Jose Franklin RUIZ MURCIA  
Institute of Hydrology, Meteorology and  
Environmental Studies -IDEAM  
Calle 25 d No 96b - 70  
Bogota  
Colombia  
Tel.: +5713527160  
E-mail: fruiz@ideam.gov.co

#### **COMOROS**

Said DJAMAL-DINE  
Ministère de l'Environnement  
Moroni  
Zilimadjou  
Comoros  
Tel.: +269 7731602  
E-mail: djasaid001@gmail.com

**CONGO**

Gervais Ludovic ITSOUA MADZOUS  
Ministère du Tourisme et de l'Environnement  
Direction Générale de l'Environnement, Cité  
Cardinale Emile Biayenda  
Brazaville  
Congo  
Tel.: +242055317411  
E-mail: imadzous2@gmail.com

**COOK ISLANDS**

Arona NGARI  
Cook Islands Meteorological Service  
P O Box 127  
Avarua  
Cook Islands  
Tel.: 00 682 20603  
E-mail: arona.ngari@cookislands.gov.ck

**COSTA RICA**

Roberto VILLALOBOS  
National Meteorological Institute  
Aranjuez  
San Jose  
Costa Rica  
Tel.: (506) 2222 5616 ext 201  
E-mail: rvilla@imn.ac.cr

**COTE D'IVOIRE**

Kouakou Bernard DJE  
Meteorology Office  
15 BP 990  
Abidjan  
Côte d'Ivoire  
Tel.: +225 05817721  
E-mail: dkouakou\_b@yahoo.fr

**CROATIA**

Kreso PANDZIC  
Meteorological and Hydrological Service  
Gric 3  
Zagreb  
Croatia  
Tel.: +385 1 45 65 684  
E-mail: pandzic@cirus.dhz.hr

**DENMARK**

Tina CHRISTENSEN  
Danish Meteorological Institute  
Lyngbyvej 100  
Copenhagen  
Denmark  
Tel.: +45 3915 7496  
E-mail: tic@dmi.dk

**DJIBOUTI**

Dini Abdallah OMAR  
Ministère de l'Habitat, de l'Urbanisme et de  
l'Environnement  
Commune de Boualos  
Djibouti  
Djibouti  
Tel.: +253 21 35 85 22  
E-mail: dini.omar12@gmail.com

**DOMINICA**

Lloyd PASCAL  
Environmental Coordinating Unit  
Roseau Fisheries Complex Building  
Roseau  
Dominica  
Tel.: +17672665256  
E-mail: pascallloyd@gmail.com

**DOMINICAN REPUBLIC**

Pedro GARCIA BRITO  
Ministry of Environment and Natural Resources  
Ave. Cayetano Germosen, Esq. Ave. Gregorio  
Luperon, El Pedregal  
Santo Domingo  
Dominican Republic  
Tel.: +809 567 4300 - 6250  
E-mail: cambio.climatico@ambiente.gob.do

**ECUADOR**

Carlos Nicolas ZAMBRANO SANCHEZ  
Ministry of Environment of Ecuador  
Calle Madrid 1159 y Andaluc a  
Quito  
Ecuador  
Tel.: +59323987600  
E-mail: carlos.zambrano@ambiente.gob.ec

## **EGYPT**

Tarek SHALABY  
EEAA  
30 misr hekwan agr Rd. Maadi  
Cairo  
Egypt  
Tel.: 002 022546162  
E-mail: Trkshlby@hotmail.com

## **EL SALVADOR**

Antonio CANAS CALDERON  
Ministry of Environment and Natural Resources  
Calle y Colonia Las Mercedes, Km 5.5 carretera a  
Santa Tecla, Edificio MARN  
San Salvador  
El Salvador  
Tel.: '50321329418  
E-mail: acanas@marn.gob.sv

## **ETHIOPIA**

Fetene TESHOME  
National Meteorological Agency  
Addis Ababa  
Ethiopia  
Tel.: +116615540  
E-mail: fetenekoket@yahoo.com

## **FINLAND**

Heikki TUOMENVIRTA  
Finnish Meteorological Institute  
B.O. Box 503  
Helsinki  
Finland  
Tel.: +358295394122  
E-mail: heikki.tuomenvirta@fmi.fi

## **FRANCE**

Michel BECKERT  
Ministère de l'Enseignement Supérieur et de la  
Recherche / Direction générale de la Recherche  
et de l'Innovation  
1, rue Descartes  
75231 Paris Cedex 05  
France  
Tel.: +33155559985  
E-mail: michel.beckert@recherche.gouv.fr

Eric BRUN  
MEDDE  
DGEC/SCEE/ONERC  
92055 La Defense  
France  
Tel.: +33140819294  
E-mail: eric.brun-barriere@developpement-  
durable.gouv.fr

Timothee OURBAK  
MAEDI - Equipe COP21  
244 Boulevard Saint Germain  
75007 Paris  
France  
Tel.: +33144498056  
E-mail: timothee.ourbak@diplomatie.gouv.fr

## **GEORGIA**

Ramaz CHITANAVA  
Hydrometeorological Department of Georgia  
150, David Agmashenebeli Ave  
Tbilisi  
Georgia  
Tel.: +995 32 243 95 50  
E-mail: chitanavaramaz@gmail.com

## **GERMANY**

Karin KARTSCHALL  
German Environment Agency (UBA)  
Wörlitzer Platz 1  
Dessau  
Germany  
Tel.: +49 340 2103 2043  
E-mail: karin.kartschall@uba.de

Christian MÜLLER  
Federal Ministry for the Environment, Nature  
Conservation, Building and Nuclear Safety  
Köthener Straße 2-3  
Berlin  
Germany  
Tel.: +49 - 30 - 18 305 4695  
E-mail: Christian.Mueller@bmub.bund.de

Astrid SCHULZ  
Climate and Energy  
German Advisory Council on Global Change  
(WBGU)  
Berlin  
Germany  
Tel.: +49 30 26394817  
E-mail: aschulz@wbgu.de

Christiane TEXTOR  
German Aerospace Center, Project Management  
Agency, German IPCC Coordination Office  
Heinrich-Konen-Str.1, 53227  
Bonn  
Germany  
Tel.: +49 228 3121 1554  
E-mail: christiane.textor@dlr.de

#### **GHANA**

Kwadwo OWUSU  
Ghana  
Department of Geography and Resource  
Development  
University of Ghana, P. O. Box LG59  
Legon, Accra  
Ghana  
Tel.: +233 267 528 993  
E-mail: kowusu1@gmail.com

#### **GREECE**

Eleni GEORGOPOULOU  
National Observatory of Athens/ Inst. for  
Environmental Research & Sustainable  
Development  
I. Metaxa & Vas. Pavlou, GR-15236 Palea Penteli,  
Greece  
Athens  
Greece  
Tel.: +302108109215  
E-mail: elenag@noa.gr

Ioannis SARAFIDIS  
National Observatory of Athens  
Lofos Nymfon, Thesseon, GR-11810  
Athens  
Greece  
Tel.: +302108109190  
E-mail: sara@noa.gr

#### **GRENADA**

Michael MASON  
Ministry of Agriculture  
Ministerial Complex Botanical Gardens  
St. George  
Grenada  
Tel.: +4734403083 Ext.3020  
E-mail: elvismason@gmail.com

#### **GUINEA**

Boubacar Madina DIALLO  
Direction Nationale de la Météorologie de Guinea  
Commune Matoto Cite de l'Air 0030  
Conakry  
Guinea  
Tel.: +224628223339  
E-mail: madina\_pita@yahoo.fr

#### **GUINEA BISSAU**

Joao LONA TCHEDNA  
National Institute of Meteorology  
Avenida do Brasil, Cx.P. NÂ° 75  
1038 Cedex-Bissau  
Guinea Bissau  
Tel.: +245 955422007  
E-mail: J\_Lona@yahoo.fr

#### **HUNGARY**

András HUSZÁR  
Ministry of National Development  
1011 Budapest, Fö utca 44-50. HUNGARY  
Budapest  
Hungary  
Tel.: +3617954125  
E-mail: andras.huszar@nfm.gov.hu

#### **INDIA**

Ramanlal Bhatt JAIVARDHAN  
Ministry of Environment, Forest and Climate  
Change  
3rd Floor Jal Block, Indira Paryavaran  
Bhavan, Ministry of Environment, Forest and  
Climate Change, New Delhi 110003  
India  
Tel.: +911124362543  
E-mail: jrbhatt@nic.in

#### **INDONESIA**

Ardina PURBO  
Ministry of Environment and Forestry  
Mangala Wanabakti Building, Block 7, 12th  
Floor, Jalan Gatot Subroto  
Jakarta  
Indonesia  
Tel.: +62 21 5730144  
E-mail: ardinapurbo@gmail.com

Achmad Gunawan WIDJAKSONO  
Ministry of Environment and Forestry  
Manggala Wanabakti Building, Block 7, 12th  
Floor, Jalan Gatot Subroto  
Jakarta  
Indonesia  
Tel.: +62 21 5730144  
E-mail: achmadgun@yahoo.com

Hari WIBOWO  
Ministry of Environment and Forestry  
Manggala Wanabakti Building Block 7  
12<sup>th</sup> Floor, Jalan Gatot Subroto  
Jakarta 10270  
Indonesia  
Tel.: +62 215730144  
E-mail: harwib@gmail.com

#### **IRAN**

Ali GHOLAMPOUR  
Iran Embassy  
Bangkok  
Iran  
Tel.: +960877909  
E-mail: gholampoura@uahoo.com

Mohammad KHODDAM  
Petroleum Ministry  
Taleghani Ave., P.O. Box 1864  
Tehran  
Iran  
Tel.: + 9821 66070038  
E-mail: affairs.intl@gmail.com

Davood PARHIZKAR  
I. R. of Iran Meteorological Organization (IRIMO)  
Meraj Blvd., Azadi SQ.,  
P.O.Box: 13185-461  
Tehran  
Iran  
Tel.: +982166070038  
E-mail: Parhizkar@irimo.ir

#### **IRELAND**

Frank MCGOVERN  
Richview, Clonskeagh Road  
Dublin 14  
Ireland  
Tel.: +35312680100  
E-mail: f.mcGovern@epa.ie

#### **ITALY**

Eleonora COGO  
CMCC  
Via Franeschini 14  
Bologna  
Italy  
Tel.: +390510406203  
E-mail: eleonora.cogo@cmcc.it

#### **JAMAICA**

Jacqueline SPENCE  
Meteorological Service  
65 3/4 Half Way Tree Road  
Kingston 10  
Jamaica  
Tel.: +1 876 960 8990  
E-mail: j.spence@metservice.gov.jm

#### **JAPAN**

Yohei CHIBA  
Natural Resources and Ecosystem Services,  
Adaptation, Institute for Global Environmental  
Strategies (IGES)  
2108-11 Kamiyamaguchi, Hayama  
Kanagawa  
Japan  
Tel.: -4592  
E-mail: y-chiba@iges.or.jp

Tetsuya DEGUCHI  
Research Institute of Innovative Technology for  
the Earth (RITE),  
9-2 Kizugawadai, Kizugawa-shi  
Kyoto  
Japan  
Tel.: +81 774 75 2302  
E-mail: deguchi@rite.or.jp

Mai FUJII  
Research and Information Office, Policy and  
Coordination Division, Global Environment  
Bureau, Ministry of the Environment (MOE)  
1-2-2, Kasumigaseki, Chiyoda-Ku  
Tokyo  
Japan  
Tel.: -13690  
E-mail: MAI\_FUJII@env.go.jp

Chie HAYASHI  
Environmental Analysis Section, Environment and  
Energy Department, Japan Weather Association  
Sunshine 60 Bldg. 55F, 3-1-1 Higashi-Ikebukuro,  
Toshima-ku  
Tokyo  
Japan  
Tel.: -14032  
E-mail: chie.hayashi.83@hosei.ac.jp

Shumpei IIDA  
Ministry of Agriculture, Forestry and Fisheries  
1-2-1 Kasumigaseki, Chiyodaku  
Tokyo  
Japan  
Tel.: -11664  
E-mail: shumpei\_iida030@maff.go.jp

Tadayuki KANENAGA  
Ministry of Agriculture, Forestry and Fisheries  
1-2-1 Kasumigaseki, Chiyoda-Ku  
Tokyo  
Japan  
Tel.: +81-(0)3-6744-2016  
E-mail: tadayuki\_kanenaga280@maff.go.jp

Izumi MORI  
Ministry of Education, Culture, Sports, Science  
and Technology  
3-2-2 Kasumigaseki, Chiyoda-ku  
Tokyo  
Japan  
Tel.: -10837  
E-mail: imori@mext.go.jp

Muneyuki NAKATA  
Natural Resources and Ecosystem Services  
Adaptation, Institute for Global Environmental  
Strategies (IGES)  
2108 Kamiyamaguchi, Hayama  
Kanagawa  
Japan  
Tel.: -10391  
E-mail: nakata@iges.or.jp

Akio TAKEMOTO  
Research and Information Office, Policy Planning  
Division Global Environment Bureau, Ministry of  
the Environment  
1-2-2, Kasumigaseki, Chiyoda-Ku  
Tokyo  
Japan  
Tel.: -13690  
E-mail: AKIO\_TAKEMOTO@env.go.jp

Michiyoshi TOYA  
Global Environmental Affairs Office, Industrial  
Science and Technology Policy and Environment  
Bureau, Ministry of Economy, Trade and Industry  
1-3-1 Kasumigaseki, Chiyoda-ku  
Tokyo  
Japan  
Tel.: +81335017830  
E-mail: toya-michiyoshi@meti.go.jp

Junichi TSUTSUI  
Atmospheric and Marine Environment Sector,  
Environmental Science Research Laboratory,  
Central Research Institute of Electric Power  
Industry  
1646 Abiko, Abiko-shi  
Chiba  
Japan  
Tel.: -8286  
E-mail: tsutsui@criepi.denken.or.jp

Kenichi WADA  
Research Institute of Innovative Technology for  
the Earth, (RITE) Systems Analysis Group  
9-2 Kizugawadai, Kizugawa-shi  
Kyoto  
Japan  
Tel.: +81 774 75 2304  
E-mail: wada@rite.or.jp

Shigeru WATANABE  
Environmental Analysis Section, Environment and  
Energy Department, Japan Weather Association  
Sunshine 60 Bldg. 55F, 3-1-1 Higashi-Ikebukuro,  
Tokyo  
Japan  
Tel.: -14032  
E-mail: watanabe.shigeru@jwa.or.jp

Kazuyoshi YOSHIMATSU  
Senior Coordinator for Climate Issues,  
Administration Division, Global Environment and  
Marine Department, Japan Meteorological Agency  
1-3-4 Otemachi Chiyoda-ku  
Tokyo  
Japan  
Tel.: -11493  
E-mail: yoshimatsu@met.kishou.go.jp

## **JORDAN**

Faraj ALTALIB  
Ministry of Environment  
King Faisal Street, Building 82, 11941 Um Uthaina  
Amman  
Jordan  
Tel.: +96265560113  
E-mail: altalibfaraj@yahoo.com

## **KAZAKSTAN**

Olzhas AGABEKOV  
Ministry of Energy of Kazakhstan  
Orynbor 10, 14th block  
Astana  
Kazakstan  
Tel.: +77172740258  
E-mail: o.agabekov@energo.gov.kz

## **KENYA**

Hussein. S. MUHAMAD  
Permanent Mission of Kenya to the UN Office,  
Nairobi  
Box 41395-00100  
NAIROBI  
Kenya  
Tel.: +254208079149  
E-mail: hussein.muhamad@kmunon.go.ke

Patricia A. NYINGURO  
Kenya Meteorological Department  
BOX 30259-00100  
Nairobi  
Kenya  
Tel.: + 254203867880  
E-mail: pnyinguro@gmail.com

## **LAO PEOPLE'S DEMOCRATIC REPUBLIC**

Thiangthamavong SANGKHANE  
Dept. of Disaster Management and Climate  
Change, MONRE  
Sisavath Village, Nahaidiew Road  
Vientiane Capital  
Lao People's Democratic Republic  
Tel.: +85621265017  
E-mail: th.khan@yahoo.com

## **LEBANON**

Nadim FARAJALLA  
Issam Fares Institute for Public Policy and  
International Affairs  
American University of Beirut  
Beirut  
Lebanon  
Tel.: +9611350000  
E-mail: nf06@aub.edu.lb

## **LESOTHO**

Charles TSEOLE  
Lesotho Meteorological Services  
Maseru  
Lesotho  
Tel.: +266 22317250  
E-mail: tseolecharles@gmail.com

## **LIBERIA**

Arthur GAR-GLAHN  
Liberia Meteorological Service  
Ministry of Transport  
Monrovia  
Liberia  
Tel.: +231 886 565 245  
E-mail: agarglahn98@gmail.com

## **LYBIA**

Ali ELJADID  
Faculty of Science  
University of Tripoli - Libya  
Tripoli  
Libya  
Tel.: +218-215-623082  
E-mail: eljadid2003@yahoo.com

## **LUXEMBOURG**

Andrew FERRONE  
Luxembourg Institute of Science and Technology  
(LIST)  
41, rue du Brill  
L-4422 Belvaux  
Luxembourg  
Tel.: +352 275 888 75 051  
E-mail: andrew.ferrone@list.lu

## **MADAGASCAR**

Nirivololona RAHOLIJAO  
Direction Générale de la Météorologie  
P.O.B 1254  
101-Antananarivo  
Madagascar  
Tel.: +261 34 05 560 94  
E-mail: [niraraholijao@gmail.com](mailto:niraraholijao@gmail.com)

## **MALAWI**

Adams Shentone CHAVULA  
Department of Climate Change and  
Meteorological Services  
Regional Government Offices South,  
Box 1808  
BLANTYRE  
Malawi  
Tel.: +265 1 822014  
E-mail: [adams.chavula@gmail.com](mailto:adams.chavula@gmail.com)

## **MALDIVES**

Ali SHAREEF  
Ministry of Environment and Energy  
Ameenee Magu  
Male  
Maldives  
Tel.: +9607965626  
E-mail: [ali.shareef@environment.gov.mv](mailto:ali.shareef@environment.gov.mv)

## **MALI**

Birama DIARRA  
Agence Nationale de la Météorologie  
Bp 237 Bamako Mali  
Bamako  
Mali  
Tel.: +22320206204  
E-mail: [biramadia@yahoo.fr](mailto:biramadia@yahoo.fr)

## **MARSHALL ISLANDS**

Mahendra KUMAR  
Climate Change Policy & Technical Expert  
P.O. Box 16275  
Suva  
Fiji/Marshall Islands  
Tel.: +679 9252898  
E-mail: [kumar.mahend@gmail.com](mailto:kumar.mahend@gmail.com)

## **MAURITIUS**

Rajan MUNGRA  
Mauritius Meteorological Services  
St Paul Road  
Vacoas  
Mauritius  
Tel.: +230 6861031  
E-mail: [rajanmungra@yahoo.com](mailto:rajanmungra@yahoo.com)

## **MEXICO**

Maria Amparo ARROYO MARTINEZ  
National Institute of Ecology and Climate Change  
Periferico Sur 5000, Col. Insurgentes Cuicuilco,  
Del. Coyoacan, 04530  
Mexico City  
Mexico  
Tel.: +52 5554246418  
E-mail: [iris.jimenez@inecc.gob.mx](mailto:iris.jimenez@inecc.gob.mx)

Cynthia MORENO  
Mexico Embassy in Bangkok  
20<sup>th</sup> Floor, Thai Wah Tower  
21/60-62 South Sathorn Road  
Bangkok 10120  
Mexico

## **MONACO**

Jonathan RIT  
Monaco Gouvernement  
3, avenue de Fontvieille  
Monaco  
Monaco  
Tel.: +37798984010  
E-mail: [jrit@gouv.mc](mailto:jrit@gouv.mc)

## **MONGOLIA**

Batjargal ZAMBA  
Ministry of Environment and Tourism (MET)  
Sukhbaatar duureg, Juulchnii gudamj 5, Baga  
toiruu 3, BOMT, room 203  
Ulaanbaatar  
Mongolia  
Tel.: +976 77329876  
E-mail: [z\\_batjargal@yahoo.com](mailto:z_batjargal@yahoo.com)

## **MONTENEGRO**

Sanja PAVICEVIC  
Institute of Hydrometeorology and Seismology  
IV Proleterske 19  
Podgorica  
Montenegro  
Tel.: +382 20 226 486  
E-mail: [sanja.pavicevic@meteo.co.me](mailto:sanja.pavicevic@meteo.co.me)

## **NEPAL**

Ram Prasad LAMSAL  
Ministry of Population and Environment  
Singhdarbar  
Kathmandu  
Nepal  
Tel.: +4210610  
E-mail: [rplamsal1@yahoo.com](mailto:rplamsal1@yahoo.com)

## **NETHERLANDS**

Tom KRAM  
PBL  
Postbus 303, (pb 90) 3720 AH  
Bilthoven  
Netherlands  
Tel.: +31(0)30-2743554  
E-mail: [Tom.Kram@pbl.nl](mailto:Tom.Kram@pbl.nl)

Marcel BERK  
Ministry of Infrastructure and the Environment  
Plesmanweg 1-6  
Den Haag  
Netherlands  
Tel.: +31 6 5259 5453  
E-mail: [marcel.berk](mailto:marcel.berk)

Rob VANDORLAND  
KNMI  
Utrechtseweg 297  
3731GA de Bilt  
Netherlands  
Tel.: +31302206775  
E-mail: [rob.van.dorland@knmi.nl](mailto:rob.van.dorland@knmi.nl)

## **NEW ZEALAND**

Helen PLUME  
Ministry for the Environment  
23 Kate Sheppard Place  
Wellington 6143  
New Zealand  
Tel.: +64 4 439 7627  
E-mail: [helen.plume@mfe.govt.nz](mailto:helen.plume@mfe.govt.nz)

Dan ZWARTZ  
Ministry for the Environment  
23 Kate Sheppard Place  
Wellington 6143  
New Zealand  
Tel.: +64 4 439 7542  
E-mail: [dan.zwartz@mfe.govt.nz](mailto:dan.zwartz@mfe.govt.nz)

## **NICARAGUA**

Humberto GONZALEZ  
Secretaria de Politicas Publicas de la Presidencia  
Contiguo a la Asamblea  
Nacional  
MANAGUA  
Nicaragua  
Tel.: +505 89882803  
E-mail: [hgonzalez@sppn.gob.ni](mailto:hgonzalez@sppn.gob.ni)

Javier GUTIERREZ  
MARENA  
Km 12.5 carretera Norte, frente a Zona Franca  
Managua  
Nicaragua  
Tel.: +505 22632870  
E-mail: [xaviergut@gmail.com](mailto:xaviergut@gmail.com)

Paul OQUIST  
Ministry of the Presidency  
Rotonda Hugo Chavez  
Managua  
Nicaragua  
Tel.: +50522632870  
E-mail: [p3oquist@yahoo.com](mailto:p3oquist@yahoo.com)

## **NIGER**

Moussa LABO  
Direction de la Météorologie Nationale  
BP 12246  
Niamey  
Niger  
Tel.: +22720732160  
E-mail: [moussa.labo@yahoo.fr](mailto:moussa.labo@yahoo.fr)

## **NIGERIA**

Joseph Ejike ALOZIE  
Nigerian Meteorological Agency  
Bill Clinton Drive, Nnamdi Azikiwe International  
Airport, Abuja.  
FCT, Abuja  
Nigeria  
Tel.: +234 8038620950  
E-mail: [jealozie@gmail.com](mailto:jealozie@gmail.com)

Anthony Chijioke ANUFOROM  
Nigerian Meteorological Agency  
Bill Clinton Drive, Nnamdi Azikwe International  
Airport, Abuja, Nigeria  
FCT, Abuja  
Nigeria  
Tel.: +234 8038620950  
E-mail: tonycanuforum@yahoo.com

Ifeanyi Daniel NNODU  
Nigerian Meteorological Agency  
Bill Clinton Drive, Nnamdi Azikiwe International  
Airport, Abuja FCT, Nigeria  
FCT, Abuja  
Nigeria  
Tel.: +234 8038620950  
E-mail: idnnodu@yahoo.com

Chukwuemeka OKEBUGWU  
Department of Climate Change  
Federal Ministry of Environment  
Plot 444, Aguiyi Ironsi Street, Green Building  
Maitama  
Abuja  
Nigeria  
Tel.: +234 8064426144  
E-mail: chuksokebugwu@yahoo.com

#### **NORWAY**

Øyvind CHRISTOPHERSEN  
Norwegian Environment Agency  
Grensesvingen 7  
Oslo  
Norway  
Tel.: +4797075014  
E-mail: chr@miljodir.no

Maria KVALEVÅG  
Norwegian Environmental Agency  
Strømsveien 96  
0663 Oslo  
Norway  
Tel.: +4799791100  
E-mail: maria.kvalevag@miljodir.no

Vigdis VESTRENG  
Norwegian Environment Agency  
Strømsveien 96  
Oslo  
Norway  
Tel.: +4722573427  
E-mail: vigdis.vestreng@miljodir.no

#### **PERU**

Oscar Carlos ROCA FERRAND  
Direccion de Medio Ambiente  
Jiron Lampa 545  
Cercado de Lima  
Peru  
Tel.: +511 204 4664  
E-mail: oroca@reee.gob.pe

#### **PHILIPPINES**

Leandro BUENDIA  
Climate Change Commission  
238 Mabini Hall, Malacanang Compound, San  
Miguel, Manila  
Philippines  
Tel.: +632 536-3380  
E-mail: leandro.buendia@gmail.com

Thelma CINCO  
PAGASA  
UP Diliman  
Quezon City  
Philippines  
Tel.: +632 9294865  
E-mail: telacebes@yahoo.com

Rosalina DE GUZMAN  
PAGASA-Dept. of Science and Technology  
Science Garden Complex, Agham Rd. Diliman  
Quezon City  
Philippines  
Tel.: +632 434 5882  
E-mail: rdeguzmanph@yahoo.com

#### **REPUBLIC OF KOREA**

Young-hwan AHN  
Korea Energy Economics Institute  
405-11 Jongga-ro, Jung-gu  
Ulsan  
Republic of Korea  
Tel.: -2859  
E-mail: ahn@keei.re.kr

Hyunju BAEK  
Korea Meteorological Administration  
61- Yeouidaebang-ro 16-gil, Dongjak-gu  
Seoul  
Republic of Korea  
Tel.: -2557  
E-mail: whitepr@korea.kr

Aram BAEK  
Korea meteorological Administration  
61 yeouidaebang-ro 16-gil, Dongjak-gu  
Seoul  
Republic of Korea  
Tel.: -2502  
E-mail: arbaek@korea.kr

Seonyeong BAK  
Korea meteorological Administration  
61 yeouidaebang-ro 16-gil, Dongjak-gu  
Seoul  
Republic of Korea  
Tel.: -2504  
E-mail: mint0708@gmail.com

Hyungwook CHOI  
Greenhouse Gas Inventory and Research Center  
#501, Gwanhwamun Officia, Saemunan-ro 92,  
Jongno-gu  
Seoul  
Republic of Korea  
Tel.: -8207  
E-mail: lesssoz.choi@gmail.com

Jun-seok CHUNG  
Korea Meteorological Administration  
61 yeouidaebang-ro 16-gil, Dongjak-gu  
Seoul  
Republic of Korea  
Tel.: -2492  
E-mail: woobo008@gmail.com

In-seong HAN  
National Fisheries Research & Development  
Insitute  
Gijanghaean-ro 216, Gijang-eup, Gijang-gun,  
Busan  
Republic of Korea  
Tel.: 82-51-720-2231  
E-mail: hisjamstec@korea.kr

Hyungjin KIM  
APEC Climate Center  
12 Centum 7-ro, Haeundae-gu  
Busan  
Republic of Korea  
Tel.: -4668  
E-mail: hyungjin@apcc21.org

Seungdo KIM  
Hallym University  
Chuncheon, Gangwon-do  
Republic of Korea  
Tel.: -3484  
E-mail: sdkim@hallym.ac.kr

Seong Kyoun KIM  
Korea meteorological Administration  
61 yeouidaebang-ro 16-gil, Dongjak-gu  
Seoul  
Republic of Korea  
Tel.: -2510  
E-mail: skkim0916@korea.kr

Won-tae KWON  
Korean Society of Climate Change Research  
#803 The Korean Federation of Science and  
Technology Societies main building, 22 Teheran-  
ro 7-gil, Gangnam-gu  
Seoul  
Republic of Korea  
Tel.: +82-2-557-7897  
E-mail: wontk@naver.com

Sangjun LEE  
Korea Energy Economics Institute  
405-11 Jongga-ro, Jung-gu  
Ulsan  
Republic of Korea  
Tel.: -2894  
E-mail: sjlee@kee.re.kr

Seungjun LEE  
Korea Environment Institute  
Building B 10 floor, 370 Sicheong-daero  
Sejong  
Republic of Korea  
Tel.: -7955  
E-mail: leesj@kei.re.kr

Woosung LEE  
Science and Technology Policy Institute  
5th floor, Building B, Sejong National Research  
Complex 370, Sicheong-daero  
Sejong  
Republic of Korea  
Tel.: -2370  
E-mail: leews@stepi.re.kr

Kyeongyeon NA  
Ministry of Public Safety and Security  
#532-1, 17-2dong, 13 jeongbucheongsaro  
Sejong  
Republic of Korea  
Tel.: -5333  
E-mail: naky@korea.kr

Minyoung OH  
Greenhouse Gas Inventory and Research Center  
#501, Gwanhwamun Officia, Saemun-ro 92,  
Jongno-gu  
Seoul  
Republic of Korea  
Tel.: -8258  
E-mail: ohmin714@korea.kr

Seung-kyun PARK  
Korea meteorological Administration  
61 yeouidaebang-ro 16-gil, Dongjak-gu  
Seoul  
Republic of Korea  
Tel.: -2474  
E-mail: pskk@korea.kr

Jinjoo SUNG  
Ministry of Forign Affairs  
60, Sajik-ro 8-gil, Jongno-gu  
Seoul  
Republic of Korea  
Tel.: -9880  
E-mail: jjsung14@mofa.go.kr

Catalina COVALENCO  
Ministry of Environment  
9, Constantin Tanase  
Chisinau  
Republic of Moldova  
Tel.: +373 22 204 506  
E-mail: covalenco.catalina@mediu.gov.md

## **RUSSIAN FEDERATION**

Anna GLADILSHCHIKOVA  
Institute of Global Climate and Ecology  
Glebovskaya Street, 20B  
Moscow  
Russian Federation  
Tel.: +7 499 748 3914  
E-mail: anna.igce@gmail.com

## **SAINT LUCIA**

Claire Louise FYSON  
Potsdam Institute for Climate Impact Research  
Telegrafenberg,  
14473 Potsdam  
Germany/Saint Lucia  
Tel.: +49 331 2882500  
E-mail: Claire.Fyson@pik-potsdam.de

Carl-friedrich SCHLEUSSNER  
Climate Analytics gGmbH  
Friedrichstraße 231, Haus B  
10969 Berlin  
Germany/Saint Lucia  
Tel.: +49 30 259 22 95 38  
E-mail: carl.schleussner@climateanalytics.org

Susanna DE BEAUVILLE SCOTT  
Sustainable Development & Environment Division  
Ministry of Sustainable Development, Energy,  
Science & Technology  
Castries  
Saint Lucia  
Tel.: +17584518746  
E-mail: susannascottmp@gmail.com

## **SAO TOME AND PRINCIPE**

João Vicente DOMINGOS VAZ LIMA  
National Institute Of Meteorology  
BP 30 Sao Tome  
Sao Tome  
Sao Tome and Principe  
Tel.: +239 2224840  
E-mail: jvicente57@hotmail.com

## **SAUDI ARABIA**

Yousef ALHAFEDH  
Kacst  
Riyadh  
Saudi Arabia  
Tel.: +503243909  
E-mail: yhafedh@kacst.edu.sa

Badar ALHARBI  
Kacst  
Riyadh  
Saudi Arabia  
Tel.: +500627740  
E-mail: balharbi@kacst.edu.sa

Mohammed ALSHAMSI  
Kacst  
P.O.Box 6080  
Riyadh  
Saudi Arabia  
Tel.: +966565511566  
E-mail: mshamsi@kacst.edu.sa

Alaa JAHDALI  
Ministry of Energy, Industry and Mineral  
Resources  
P.O. Box. 6360, Code 31311  
Dhahran  
Saudi Arabia  
Tel.: +96638758377  
E-mail: alaaaljhdali83@gmail.com

Ayman SHASLY  
Ministry of Petroleum and Mineral Resources  
P.O.Box 05347  
Dhahran  
Saudi Arabia  
Tel.: '+96638733255  
E-mail: ayman.shasly@gmail.com

Albara TAWFIQ  
Ministry of Energy, Industry and Mineral  
Resources  
P.O. Box. 6360, Code 31311  
Dhahran  
Saudi Arabia  
Tel.: +966504996010  
E-mail: albara\_tawfiq@hotmail.com

Abdullah TAWLAH  
Ministry of Petroleum and Mineral Resources  
P.O.Box 6369  
Dhahran  
Saudi Arabia  
Tel.: +96638800481  
E-mail: abdullah.tawlah@gmail.com

## SENEGAL

Aida Diongue NIANG  
National Agency of Civil aviation and Meteorology  
BP 8257 Dakar-Yoff Senegal  
Dakar  
Senegal  
Tel.: +221 338695057  
E-mail: aida.diongue.niang@gmail.com

## SEYCHELLES

Will AGRICOLE  
Ministry of Environment, Energy and Climate  
Change  
Botanical Garden  
Victoria, Mahe  
Seychelles  
Tel.: '+2484670500  
E-mail: w.agricole@meteo.gov.sc

## SIERRA LEONE

Abubakarr JALLOH  
Meteorological Department  
F18 Charlotte Street  
Freetown  
Sierra Leone  
Tel.: +232 22 226692  
E-mail: [bakarryoko@yahoo.com](mailto:bakarryoko@yahoo.com)

## SINGAPORE

Muhammad Eeqmal HASSIM  
Centre for Climate Research Singapore,  
Meteorological Service Singapore, National  
Environment Agency  
36 Kim Chuan Road  
Singapore  
Singapore  
Tel.: +65 6488 1875  
E-mail:  
[Muhammad\\_Eeqmal\\_Hassim@nea.gov.sg](mailto:Muhammad_Eeqmal_Hassim@nea.gov.sg)

Vanessa LIM  
Ministry of the Environment and Water Resources  
40 Scotts Road, Level 23-00  
Singapore  
Singapore  
Tel.: +6567319049  
E-mail: [vanessa\\_lim@mewr.gov.sg](mailto:vanessa_lim@mewr.gov.sg)

Muslim Anshari RAHMAN  
National Climate Change Secretariat  
55 Newton Road, #13-04/05 Revenue House,  
Singapore 307987  
Singapore  
Singapore  
Tel.: +65 6430 0639  
E-mail: [Muslim\\_Anshari\\_RAHMAN@nccs.gov.sg](mailto:Muslim_Anshari_RAHMAN@nccs.gov.sg)

## **SOLOMON ISLANDS**

Morgan WAIRIU  
Pacific Centre for Environment and Sustainable  
Development  
University of the South Pacific, Laucala campus  
Suva  
Fiji/ Solomon Islands  
Tel.: + 679 3232578,  
E-mail: mwairiu@gmail.com

## **SOUTH AFRICA**

Pemy GASELA  
Department of Environmental Affairs  
Private Bag X447, Pretoria, 0001  
Pretoria  
South Africa  
Tel.: +27 12 310 1877  
E-mail: PGasela@environment.gov.za

## **SPAIN**

Jose Ramon PICATOSTE RUGGERONI  
OECC  
Calle Alcalá 92  
Madrid  
Spain  
Tel.: +34914361542  
E-mail: JRPicatoste@magrama.es

Ernesto RODRIGUEZ CAMINO  
Spanish Meteorological Agency  
P.O. BOX 285  
Madrid  
Spain  
Tel.: +34915819869  
E-mail: erodriguezc@aemet.es

## **SRI LANKA**

Lalith CHANDRAPALA  
Department of Meteorologz  
383, Bauddhaloka Mawatha  
Colombo 7  
Sri Lanka  
Tel.: +94112694104  
E-mail: lalithch@hotmail.com

## **SUDAN**

Omer Mohamed ELTOM ELSHAMI  
Higher Council for Environment & Natural  
Resources  
P.O. Box: 10488- Khartoum  
Khartoum  
Sudan  
Tel.: +249 183 784279  
E-mail: omer\_hesr@yahoo.com

## **SURINAME**

Sukarni SALLONS-MITRO  
Meteorological Service Suriname  
Magnesium straat no. 41  
Paramaribo  
Suriname  
Tel.: +597 491-143  
E-mail: sukarnimitro@yahoo.com

## **SWAZILAND**

Eric S. SEYAMA  
Swaziland Meteorological Service  
P.O. Box 2650  
Mbabane  
Swaziland  
Tel.: +2684046274  
E-mail: eseyama@swazimet.gov.sz

## **SWEDEN**

Lena LINDSTRÖM  
SMHI, Swedish Meteorological and Hydrological  
Institute  
Folkborgsvögen 17  
Norrköping  
Sweden  
Tel.: +46 (0)11-4958365  
E-mail: lena.lindstrom@smhi.se

Markku RUMMUKAINEN  
SMHI, Swedish meteorological and Hydrological  
Institute  
Folkborgsvögen 17  
Norrköping  
Sweden  
Tel.: +4958570  
E-mail: markku.rummukainen@smhi.se

## **SWITZERLAND**

Mischa CROCI-MASPOLI  
MeteoSwiss  
MeteoSwiss  
Zurich  
Switzerland  
Tel.: +41 58 460 94 06  
E-mail: mischa.croci-maspoli@meteoswiss.ch

Jose ROMERO  
Federal Office for the Environment (FOEN)  
Papiermühlestrasse 172  
Berne  
Switzerland  
Tel.: +41584626862  
E-mail: Jose.romero@bafu.admin.ch

## **TAJIKISTAN**

Nasimjon RAJABOV  
State Organization for Hydrometeorology,  
Committee for Environmental Protection  
47 Shevchenko Street  
Dushanbe  
Tajikistan  
Tel.: +992938991001  
E-mail: nasim.rajabov@gmail.com

## **THAILAND**

Wannarattana ADIRAKTRAKARN  
Department of Water Resources  
180/3 Rama VI Road, Soi 34, Samsaen Nai,  
Phyathai  
Bangkok  
Thailand  
Tel.: +662 218 6617  
E-mail: adirektrakarn.w@gmail.com

Yuthasart ANULUXTIPUN  
Land Development Department  
2003/61 Phahonyothin Rd. Lard Yao, Chatuchak  
Bangkok  
Thailand  
Tel.: + 662 579 5546  
E-mail: 9yuthasart@gmail.com

Natthanich ASVAPOOSITKUL  
60/1 Soi Pibunwattana 7, Rama VI Rd., Payathai,  
22/14 Harmony Building Soi Pahon Yothin 11,  
Pahon Yothin Rd, Payathai  
Bangkok  
Thailand  
Tel.: +662 265 6500 Ext. 6783  
E-mail: natthan.asv@gmail.com

Lawan CHAN-AMPORN  
Department of Agriculture  
50 Phaholyothin Rd., Ladyao, Chatuchack  
Bangkok  
Thailand  
Tel.: +662 579 0151  
E-mail: lawan1st@gmail.com

Puangpen CHANPRASERT  
Department of Health  
88/22 Tambon Talad Khwan , Amphur Muang,  
Tiwanond Road  
Nonthaburi  
Thailand  
Tel.: +662 590 4000  
E-mail: puangpen@yahoo.com

Sutthatip CHORMALI  
Department of National Parks, Wildlife and Plant  
Conservation  
61 Phaholyothin Road, Chatuchak  
Bangkok  
Thailand  
Tel.: +662 579 9969  
E-mail: chormali\_su@yahoo.com

Suthathip DEJCHAISRI  
Department of Disaster Prevention and Mitigation  
3/12 U-Thong Nok Rd, Dusit  
Bangkok  
Thailand  
Tel.: +662 637 3306  
E-mail: foreign\_dpm@yahoo.com

Rawinorn DULYAKASEM  
Office of International Cooperation on Natural  
Resources and Environment  
Ministry of Natural Resources and Environment  
Bangkok  
Thailand  
Tel.: +662 265 6236  
E-mail: rawinorn.psed6@gmail.com

Sivach KAEWCHAROEN  
Office of Natural Resources and Environmental  
Policy and Planning  
60/1 Rama VI Road Samsen Nai Phaya Thai  
Bangkok  
Thailand  
Tel.: +662 265 6692  
E-mail: sivachk@gmail.com

Dares KAEWKET  
Office of Natural Resources and Environmental  
Policy and Planning  
60/1 Rama VI Road Samsen Nai Phaya Thai  
Bangkok  
Thailand  
Tel.: +662 265 6692  
E-mail: dares\_ka@hotmail.com

Suphakarn LUANMANEE  
Department of Agriculture  
50 Phaholyothin Rd., Ladyao, Chatuchack  
Bangkok  
Thailand  
Tel.: +662 561 4681  
E-mail: kei\_suphakarn@hotmail.com

Ratana LUKANAWARAKUL  
Department of National Parks, Wildlife and Plant  
Conservation  
61 Phaholyothin Road, Chatuchak  
Bangkok  
Thailand  
Tel.: +662 561 0777 ext 1430  
E-mail: ratlakana@gmail.com

Suphat PHENGPHAN  
Office of Natural Resources and Environmental  
Policy and Planning  
60/1 Rama VI Road Samsen Nai Phaya Thai  
Bangkok  
Thailand  
Tel.: +662 265 6692  
E-mail: suphat.php@gmail.com

Tippawan PHOTIWUT  
Office of Natural Resources and Environmental  
Policy and Planning  
60/1 Rama VI Road Samsen Nai Phaya Thai  
Bangkok  
Thailand  
Tel.: +662 265 6692  
E-mail: tippawan.ptw@gmail.com

Saowanee PRACHANSRI  
Land Development Department  
2003/61 Phahonyothin Rd. Lard Yao, Chatuchak  
Bangkok  
Thailand  
Tel.: +662 579 3504  
E-mail: s\_prachansri@hotmail.com

Tuangporn PRASERTSIN  
Office of Natural Resources and Environmental  
Policy and Planning  
60/1 Rama VI Road Samsen Nai Phaya Thai  
Bangkok  
Thailand  
Tel.: +662 265 6692  
E-mail: e\_tuang@hotmail.com

Shotiros PROTONG  
Department of Water Resources  
180/3 Rama VI Road, Soi 34, Samsaen Nai,  
Phyathai  
Bangkok  
Thailand  
Tel.: +662 218 6617  
E-mail: shotirosprotong@yahoo.com

Thawatchai SAENGGHAMSUK  
Thailand Greenhouse Gas Management  
Organization (Public Organization)  
120 Ratthaprasasanabhakti Building, 9th Fl. The  
Government Complex Commemorating His  
Majesty, Chaeng Wattana Road Laksi  
Bangkok  
Thailand  
Tel.: +662 141 9813  
E-mail: [t.somnam@tgo.or.th](mailto:t.somnam@tgo.or.th)

Phirun SAIYASITPANICH  
Office of Natural Resources and Environmental  
Policy and Planning  
60/1 Rama VI Road Samsen Nai Phaya Thai  
Bangkok  
Thailand  
Tel.: +662 265 6692  
E-mail: dolljoy@hotmail.com

Suree SATAPOOMIN  
Department of Marine and Coastal Resources  
No. 120 among the top three at the Public  
Administration Building, 5-9 win over 80th  
December 5, 2550 Government Complex on  
Chaeng Wattana Road. Thungsonghong Laksi  
Bangkok  
Thailand  
Tel.: +662 141 1333  
E-mail: suree.ss@gmail.com

Ukkrit SATAPOOMIN  
Department of Marine and Coastal Resources  
No. 120 among the top three at the Public  
Administration Building, 5-9 win over 80th  
December 5, 2550 Government Complex on  
Chaeng Wattana Road. Thungsonghong Laksi  
Bangkok  
Thailand  
Tel.: +662 141 1241  
E-mail: ukkrit@yahoo.com

Nonglak SOPAKAYOUNG  
Office of International Cooperation on Natural  
Resources and Environment  
Ministry of Natural Resources and Environment  
Bangkok  
Thailand  
Tel.: +662 278 8627  
E-mail: nsopa33@gmail.com

Chanutsakul SUPIRAK  
Office of Natural Resources and Environmental  
Policy and Planning  
60/1 Rama VI Road Samsen Nai Phaya Thai  
Bangkok  
Thailand  
Tel.: +662 265 6692  
E-mail: chanutsakul.s@gmail.com

Kraichat TANTRAKARNAPA  
Mahidol University  
420/6 Ratchawithi Road, Ratchathewi  
Bangkok  
Thailand  
Tel.: +662 354 9100  
E-mail: kraichat.tan@mahidol.ac.th

Rungthiwa TATICHTARA  
Office of Natural Resources and Environmental  
Policy and Planning  
60/1 Rama VI Road Samsen Nai Phaya Thai  
Bangkok  
Thailand  
Tel.: +662 265 6692  
E-mail: t.rungthiwa@gmail.com

Sirintornthep TOWPRAYOON  
Joint Graduate School of Energy and Environment  
King Mongkut&#amp;#amp;#amp;#amp;#039;s  
University of Technology Thonburi  
126 Prachauthit Rd, Bangmod, Tungkru  
Bangkok  
Thailand  
Tel.: +662 470 8309  
E-mail: sirin.jgsee@kmutt.ac.th

#### **THE FORMOER YUGOSLAV REPUBLIC OF MACEDONIA**

Natasa MARKOVSKA  
Macedonian Acdademy of Sciences and Arts  
Krste Misirkov 2, P.O.Box 428  
Skopje  
The former Yugoslav Republic of Macedonia  
Tel.: +389 2 32 35 427  
E-mail: natasa@manu.edu.mk

#### **UNITED REPUBLIC OF TANZANIA**

Ladislaus CHANGA  
Tanzania Meteorological Agency  
P.O. Box 3056  
Dar es Salaam  
United Republic of Tanzania  
Tel.: +255 784597066  
E-mail: ladislaus.changa@meteo.go.tz

#### **TOGO**

Kokou SABI  
Université de Lomé  
BP: 1515 FDS-UL  
Lomé  
Togo  
Tel.: +228 22 36 39 01  
E-mail: sabikokou@yahoo.fr

## **TURKEY**

Omer OZTURK  
Ministry of Environment and Urbanization  
Eskişehir Yolu 9. km.  
Ankara  
Turkey  
Tel.: +903125863005  
E-mail: omer.ozturk@csb.gov.tr

## **TURKMENISTAN**

Gurbangeldi ALLABERDIYEV  
State Committee of Turkmenistan on Environment  
Protection and Land Resources  
Str. Azady, 59  
Ashgabat  
Turkmenistan  
Tel.: +993 12 94 11 01  
E-mail: gallaberdiyev@yandex.ru

## **UGANDA**

James MAGEZI-AKIIKI  
Uganda national Meteorological Authority  
P.O. Box 7025  
Kampala  
Uganda  
Tel.: +256 414 259455  
E-mail: mageziakiikibj@yahoo.co.uk

## **UNITED KINGDOM**

Jolene COOK  
Department of Business, Energy and Industrial  
Strategy  
3 Whitehall Place,  
London, SW1A 2AW  
United Kingdom  
Tel.: +44 300 068 5589  
E-mail: jolene.cook@decc.gsi.gov.uk

Sarah HONOUR  
3-8 Whitehall Place  
London  
United Kingdom  
Tel.: +443000688134  
E-mail: sarah.honour@decc.gsi.gov.uk

Cathy JOHNSON  
26 South View Road  
Marlowe  
SI73jp  
United Kingdom  
Tel.: +44 1628 483940  
E-mail: Cathy.Johnson@decc.gsi.gov.uk

## **UNITED STATES OF AMERICA**

Farhan AKHTAR  
U.S. Department of State  
2201 C St NW, Suite 2480  
Washington  
United States of America  
Tel.: -4337  
E-mail: AkhtarFH@state.gov

Christo ARTUSIO  
U.S. Department of State  
2201 C St NW, Suite 2480  
Washington  
United States of America  
Tel.: -206941  
E-mail: artusiofc@state.gov

David REIDMILLER  
U.S. Department of State  
Department of State / 2201 C St NW, OES/EGC,  
Suite 2480  
Washington  
United States of America  
Tel.: +1 202 4193470  
E-mail: dreidmiller@usgcrp.gov

Reed SCHULER  
U.S. Department of State  
2201 C St NW, Suite 2480  
Washington  
United States of America  
Tel.: -5723  
E-mail: schulerrm@state.gov

## **UKRAINE**

Svitlana KRAKOVSKA  
'03028  
Prospekt Nauki, 37  
Kyiv  
Ukraine  
Tel.: '+380445258630  
E-mail: Krasvit@ua.fm

## **URUGUAY**

Jorge CASTRO  
Instituto Uruguayo de Meteorologia  
Javier Barrios Amorin 1488  
Montevideo  
Uruguay  
Tel.: +5982 4000 373  
E-mail: jcastrosomoza@hotmail.com

## **UZBEKISTAN**

Sergey MYAGKOV  
72, 1st Bodomzor yuli str.,  
Tashkent 100052  
Uzbekistan  
Tel.: +998 71 237 35 11  
E-mail: uzhyet@meteo.uz

## **VENEZUELA**

Isabel Teresa DI CARLO QUERO  
Embassy of the Bolivarian Republic of Venezuela  
in Germany, Ministry of People's Power for  
Foreign Affairs  
Embassy of the Bolivarian Republic of Venezuela  
in the Federal Republic of Germany  
Berlin  
Venezuela  
Tel.: +493083224083  
E-mail: isabel.dicarlo@gmail.com

## **ZAMBIA**

Mwepya E. SHITIMA  
Ministry of Lands, Natural Resources and  
Environmental Protection  
Box 50694  
Mulungushi House Ridgeway  
Lusaka  
Zambia  
Tel.: +260 211 252589  
E-mail: mwepysashitima@yahoo.com

## **ZIMBABWE**

Elisha MOYO  
Climate Change Management Department  
Ministry of Environment, Water and Climate, 11th  
Floor, Kaguvi Building, Corner 4th Street/Central  
Avenue,  
Harare  
Zimbabwe  
Tel.: +2634701681  
E-mail: enmoyo@gmail.com

## **OBSERVERS**

### **AFRICAN UNION COMMISSION (AUC)**

Olayide OLUSHOLA  
African Union Commission (AUC)  
Roosevelt Street  
Ethiopia  
Tel.: +251 11 518 2867  
E-mail: goodness4mi@gmail.com

### **ECONOMIC COOPERATION ECONOMIC (ECO)**

Abolfazl AZIZIPANAH  
Economic Cooperation Organization  
No. 1, Golbou Alley, Kamranieh St.  
Tehran  
Iran  
Tel.: +98 21 22831733  
E-mail: Prg-envenr@eco.int

### **EUROPEAN UNION (EU)**

Anastasios KENTARCHOS  
European Union  
Rue du Champ de Mars, 21  
Brussels  
Belgium  
Tel.: +32 229 86733  
E-mail: anastasios.kentarchos@ec.europa.eu

Miles PERRY  
European Union  
Avenue de Beaulieu 24  
Brussels  
Belgium  
Tel.: +3222964483  
E-mail: miles.perry@ec.europa.eu

**FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS (FAO)**

Martial BERNOUX  
Food and Agriculture Organization of the United  
Nations  
Viale delle Terme di Caracalla  
Rome  
Italy  
Tel.: +39 0657052274  
E-mail: martial.bernoux@fao.org

**FUTURE EARTH INTERNATIONAL**

Claire WEILL  
Future Earth International  
4 Place Jussieu, University Pierre  
and Marie Curie  
Paris  
France  
Tel.: +33144276136  
E-mail: claire.weill@futureearth.org

**GLOBAL CLIMATE OBSERVING SYSTEM  
(GCOS)**

Simon EGGLESTON  
GCOS  
7 bis, avenue de la Paix  
Geneva  
Switzerland  
Tel.: +41227308272  
E-mail: seggleston@wmo.int

**GERMANWATCH**

Gerrit HANSEN  
GERMANWATCH  
Stresemannstr.72  
Berlin 10969  
Germany  
Tel.: +49302888 356-92  
E-mail: hansen@germanwatch.org

**INTERNATIONAL ATOMIC ENERGY AGENCY  
(IAEA)**

David SHROPSHIRE  
International Atomic Energy Agency  
Vienna International Centre,  
PO Box 100, 1400  
Vienna  
Austria  
Tel.: +43 (1) 2600 22776

E-mail: D.Shropshire@iaea.org

**INTERNATIONAL CIVIL AVIATION  
ORGANIZATION (ICAO)**

Neil DICKSON  
International Civil Aviation Organization (ICAO)  
999 Robert-Bourassa Boulevard, Montréal,  
Quebec H3C 5H7, Canada  
Montréal  
Canada  
Tel.: +1 514 965 8219 (x6042)  
E-mail: ndickson@icao.int

**INTERNATIONAL COUNCIL FOR LOCAL  
ENVIRONMENTAL INITIATIVES (ICLEI)**

Milag SAN JOSE- BALLESTEROS  
ICLEI  
C40 - Cities Climate Leadership Group  
476 Siglap Road  
04-48 Singapore 454946  
Singapore  
Tel.: +6598575832  
E-mail: mballesteros@c40.org

**INTERNATIONAL PETROLEUM INDUSTRY  
ENVIRONMENTAL CONSERVATION  
ASSOCIATION (IPIECA)**

Haroon KHESHGI  
IPIECA  
ExxonMobil Research and Engineering Company  
Route 22 East  
Annandale, NJ  
United States of America  
Tel.: -3773  
E-mail: haroon.s.kheshgi@exxonmobil.com

Cynthia A. RANDLES  
IPIECA  
ExxonMobil Research and Engineering  
1545 US-22, Clinton, NJ, 08801  
Clinton  
United States of America  
Tel.: +19083352591  
E-mail: cynthia.a.randles@exxonmobil.com

**UNITED NATIONS ENVIRONMENT  
PROGRAMME (UNEP)**

Sunday LEONARD  
United Nations Environment Programme  
UN Complex, Gigiri  
Nairobi  
Kenya  
Tel.: +254207624311  
E-mail: sunday.leonard@unep.org

**UNITED NATIONS FRAMEWORK  
CONVENTION ON CLIMATE CHANGE  
(UNFCCC)**

Florin VLADU  
UNFCCC  
Martin-Luther-King-Strasse 8  
53175 Bonn  
Germany  
Tel.: +49 228 815 1422  
E-mail: fvladu@unfccc.int

**UNIVERSITY COLLEGE LONDON**

Leo MEYER  
University College London  
Gower Street, WC1E 6BT  
London  
UK  
Tel.: +31652098568  
E-mail: leo.meyer@climatecontact.nl

**WORLD METEOROLOGICAL ORGANIZATION  
(WMO)**

Elena MANAENKOVA  
WMO  
7bis Av. de la Paix  
1211 Geneva  
Switzerland  
Tel.: +4122 730 8300  
E-mail: dsgo@wmo.int

Philip DECOLA  
WMO  
Sigma Space Corporation  
4600 Forbes Blvd.  
Lanham, MD 20706  
United States of America  
Tel.: +1 202 641 7178  
E-mail: pdecola@wmo.int

**TECHNICAL SUPPORT UNITS AND TASK  
GROUPS**

Anna PIRANI  
Head, IPCC WGI TSU  
FCS Campus Paris-Saclay, Immeuble Discovery,  
Route de l'Orme des Merisiers  
Saint Aubin  
France  
Tel.: +33 (0)1 69 33 7799  
E-mail: anna.pirani@universite-paris-saclay.fr

Wilfran MOUFOUMA OKIA  
IPCC WGI TSU  
Université Paris Saclay, FCS Campus Paris-  
Saclay  
Immeuble Discovery, Route de l'Orme des  
Merisiers  
Saint Aubin  
France  
Tel.: +33 (0)1 69 33 77 23  
E-mail: wilfranmo@gmail.com

Clotilde PEAN  
IPCC WGI TSU  
Université Paris Saclay, FCS Campus Paris-  
Saclay,  
Immeuble Discovery, Route de l'Orme des  
Merisiers  
Saint Aubin  
France  
Tel.: +33 (0)1 69 33 77 23  
E-mail: clotilde.pean@universite-paris-saclay.fr

Yang CHEN  
IPCC WGI TSU  
Chinese Academy of Meteorological Sciences  
No. 46, South Avenue Zhong-Guan-Cun Haidian  
Beijing  
China  
Tel.: +86 10 68407874  
E-mail: chenyang@camsma.cn

Melinda TIGNOR  
Head, IPCC WGII TSU  
Alfred-Wegener-Institute  
Markstrasse 3  
28195 Bremen  
Germany  
Tel.: +49 471 4831 2012  
E-mail: melinda.tignor@ipcc-wg2.awi.de

Jeff HARDY  
IPCC WGIII TSU  
Imperial College London  
14 Princes Gardens  
London SW7 1NA  
United Kingdom  
Tel.:  
E-mail: jeff.hardy@imperial.ac.uk

Andrej KRANJC  
Head, IPCC TFI TSU  
C/o Institute for Global Environmental Strategies  
(IGES)  
2108-11 Kamiyamaguchi  
Hayama, 240-0115  
Japan  
Tel.: +81 46 855 3754  
E-mail: kranjc@iges.or.jp

Baasansuren JAMSRANJAV  
IPCC TFI TSU  
C/o Institute for Global Environmental Strategies  
(IGES)  
2108-11 Kamiyamaguchi  
Hayama, 240-0115  
Japan  
Tel.: +81 46 855 3757  
E-mail: baasansuren@iges.or.jp

Sekai NGARIZE  
IPCC TFI TSU  
C/o Institute for Global Environmental Strategies  
(IGES)  
2108-11 Kamiyamaguchi  
Hayama, 240-0115  
Japan  
Tel.: +81 46 855 3756  
E-mail: ngarize@iges.or.jp

Pavel SHERMANAU  
IPCC TFI TSU  
C/o Institute for Global Environmental Strategies  
(IGES)  
2108-11 Kamiyamaguchi  
Hayama, 240-0115  
Japan  
Tel.: +81 46 855 3759  
E-mail: shermanau@iges.or.jp

Timothy CARTER  
TGICA  
Finnish Environment Institute  
Mechelininkatu 34a  
Helsinki  
Finland  
Tel.: +358407405403  
E-mail: tim.carter@ymparisto.fi

Bruce HEWITSON  
TGICA  
University of Cape Town  
Private Bag X3  
Rondebosch  
South Africa  
Tel.: +27 21 650 2784  
E-mail: Bruce.Hewitson@uct.ac.za

#### **IPCC SECRETARIAT**

Abdalah MOKSSIT  
Secretary of the IPCC  
7bis av. de la Paix  
Geneva  
Switzerland  
Tel.: +4122 730 8574 Mobile: 212 661  
E-mail: amokssit@wmo.int

Carlos MARTIN-NOVELLA  
Deputy Secretary of the IPCC  
7bis Av. de la Paix  
Geneva  
Switzerland  
Tel.: + 41227308247  
E-mail: cmartin-novella@wmo.int

Jonathan LYNN  
7bis Avenue de la Paix  
Geneva  
Switzerland  
Tel.: +4122 730 8066  
E-mail: jlynn@wmo.int

Judith EWA  
7bis Avenue de la Paix  
Geneva  
Switzerland  
Tel.: +4122 730 8087  
E-mail: jewa@wmo.int

Sophie SCHLINGEMANN  
7bis Av. de la Paix  
1211 Geneva  
Switzerland  
Tel.: +4122 730 8533  
E-mail: sschlingemann@wmo.int

Jesbin BAIDYA  
7bis Avenue de la Paix  
1211 Geneva  
Switzerland  
Tel.: +4122 730 8516  
E-mail: jbaidya@wmo.int

Nina PEEVA  
7bis Av. de la Paix  
Geneva  
Switzerland  
Tel.: +41 22 730 8120  
E-mail: npeeva@wmo.int

Mxolisi E SHONGWE  
7bis Av. de la Paix  
1211 Geneva  
Switzerland  
Tel.: +4122 730 8438  
E-mail: mshongwe@wmo.int

Werani ZABULA  
7bis Av. de la Paix  
1211 Geneva  
Switzerland  
Tel.: +4122 730 8120  
E-mail: wzabula@wmo.int

Laura BIAGIONI  
7bis Av. de la Paix  
1211 Geneva  
Switzerland  
Tel.: +4122 730 8522  
E-mail: lbiagioni@wmo.int

Annie COURTIN  
7bis Av. de la Paix  
12 Geneva  
Switzerland  
Tel.: +4122 730 8284  
E-mail: acourtin@wmo.int

Oksana EKZARKHO  
7bis Avenue de la Paix  
Geneva  
Switzerland  
Tel.: (4122) 730 8208  
E-mail: oekzarkho@wmo.int

Joelle FERNANDEZ  
7bis Av. de la Paix  
1211 Geneva  
Switzerland  
Tel.: +4122 730 8254  
E-mail: jfernandez@wmo.int

Jin Mi KIM  
Korea University  
16-gil 61 Yeouidaebangro, Dongjak-gu  
Seoul  
Republic of Korea  
Tel.: +82 2 835 1363  
E-mail: solmy1023@gmail.com

#### **CONFERENCE OFFICER**

Elhousseine GOUAINI  
World Meteorological Organization  
7bis Avenue de la Paix  
Geneva  
Switzerland  
Tel.: + 41 22 7308060  
E-mail: egouaini@wmo.int

#### **ENB**

Jennifer ALLAN  
IISD Reporting Services (ENB)  
4525 St. George Street  
Vancouver  
Canada  
Tel.: '+16047160256  
E-mail: jennifer@iisd.org

Rishikesh Ram BHANDARY  
IISD Reporting Services (ENB)  
300 East 56th Street, Apt. 11D  
New York  
United States of America  
Tel.: +1 617 768 7552  
E-mail: rishikesh@iisd.org

Maria GUTIERREZ  
IISD Reporting Services (ENB)  
40 Barrow street  
New York  
United States of America  
Tel.: +7 985 480 6715  
E-mail: maria@iisd.org

Tel.: +7 985 480 6715  
E-mail: [leila@iisd.org](mailto:leila@iisd.org)

Leila MEAD  
IISD Reporting Services (ENB)  
300 East 56th St. Apt 11D  
New York NY 10022  
United States of America