

# REPORT OF THE FORTY-SIXTH SESSION OF THE IPCC

Montreal, Canada, 6 – 10 September 2017

## 1. OPENING OF THE SESSION

Mr Hoesung Lee, Chair of the Intergovernmental Panel on Climate Change (IPCC), called the Forty-Sixth Session of the IPCC to order on Wednesday 6 September 2017 at 10 am at the International Civil Aviation Organization (ICAO) headquarters, in Montreal, Canada. He welcomed the dignitaries and delegates and expressed gratitude to the Government of Canada for hosting the meeting.

In his opening statement, the Chair of the IPCC noted that this important session had the task to decide on the outlines of the three Working Group contributions to the Sixth Assessment Report (AR6), based on the results of the Scoping Meeting in Addis Ababa in May 2017. He noted that a further scoping meeting will be held to draft the outline of the Synthesis Report, which would integrate the three Working Group contributions and the three Special Reports of this assessment cycle.

He recalled that the AR6 would be the critical scientific input for the global community as it reviews the Paris Agreement and considers whether greater ambition is needed to address climate change. He recalled that the 21<sup>st</sup> session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) identified the future reports of the IPCC as sources of information for the Global Stocktake. He noted that science underpins the negotiating process and provides the evidence base for sound policy and that this session would also consider the alignment of the IPCC cycles to the UNFCCC process.

The Chair recalled that the IPCC agreed to deliver the Synthesis Report of the AR6 one year before the first Global Stocktake in 2023 and informed the Session that work on the special reports for this cycle and the 2019 Refinement to the 2006 Guidelines for National Greenhouse Gas Inventories was proceeding apace.

He said that the Session will also be presented with the results of the work of the Ad Hoc Task Group on Financial Stability and would consider the IPCC budget. He called on all member governments of the IPCC to continue supporting science and ensuring the IPCC is in a financial position to carry out its activities. He highlighted the importance of conducting outreach activities in all regions to bring the findings of the IPCC to the attention of policymakers and wider audiences. He also expressed appreciation to Canada for hosting several outreach events in Montreal.

The Chair of the IPCC concluded by expressing the hope that the meeting would be conducted in an atmosphere of collegiality, cooperation and compromise and wished the participants fruitful and productive discussions as he declared the 46<sup>th</sup> Session of the IPCC open.

The Honorable Martine Dubuc, Associate Deputy Minister of Environment and Climate Change Canada, welcomed the IPCC to Canada. She noted that the work to be accomplished would be crucial for Canada as a member of the Paris Agreement, which counts on IPCC science for its implementation. She said Canada was very proud to host this important Session that would lay the foundations of AR6 – summarizing the work of thousands of scientists working for the IPCC from 2015 to 2022.

Chief Christine Zachary-Deom, Mohawk Council of Kahnawà:ke, provided the opening blessings by thanking nature and all forms of life that surround us. She concluded by welcoming all participants to Montreal, a place where big meetings are held.

Mr David Grimes, President of the World Meteorological Organization (WMO), welcomed delegates to Canada. He noted that international cooperation has never been as important as it is today, when extreme weather and climate events now account for more than four out of every five disasters worldwide. He further noted that warming which is occurring in our atmosphere, oceans and climate, in particular in the Polar Regions, is having significant impacts, leading to increased severe weather and extreme events such as droughts, floods and forest fires. He remarked that these events underscore the need for the WMO and IPCC to work together to ensure the scientific knowledge is in place to build societal resilience and support adaptation to threats of natural hazards and weather and climate extremes. He reported that at the recent WMO Executive Council meeting in May 2017 had recognized the important role of, and contributions from WMO Members and their National Meteorological and Hydrological Services towards the work of the IPCC. Mr Grimes added that the Executive Council had also recognized the substantial benefits that flow to National Meteorological and Hydrological Services and the IPCC through the active involvement of scientists and experts from these Services, especially those from developing countries, in the activities of the IPCC.

Ms Elena Manaenkova, Deputy Secretary-General of WMO, expressed appreciation and gratitude to the Government of Canada for hosting the 46<sup>th</sup> Session of the IPCC.

She highlighted the key role that the IPCC plays in producing quality assessments in support of national and international policy formulation on climate change-related issues. Ms Manaenkova remarked that the AR6 would be of unprecedented policy relevance. She noted that the quality of the report would benefit from the diversity, inclusiveness, equality and gender sensitivity of all aspects.

Ms Manaenkova noted that one of the important discussions at this session was the alignment of the work of the IPCC to the Global Stocktake and that this was an important matter for WMO too. She reported that WMO has reorganized its climate activities to assemble climate data and produce climate information products complementary to those of the IPCC. It has aligned its terminology to that of the IPCC, including the WMO annual statement on global climate.

Ms Manaenkova emphasized that a good level of financial resources in the IPCC Trust Fund was crucial to ensure completion of activities and products of the IPCC. She expressed appreciation for the strong efforts of the Chair and the Secretary of the IPCC in resource mobilization. She also noted that as parent organizations both WMO and UN Environment have an important role to play and reported that WMO Secretary-General and UN Environment Executive Director had met to discuss how to support resource mobilization.

Ms Manaenkova noted that WMO remains committed to assist IPCC in delivering its work programme, including through financial, administrative and operational support. She concluded by noting that WMO looked forward to the nomination of authors for the AR6 so that it could contribute experts from its community.

Mr Jian Liu, Chief Scientist, United Nations Environment Programme (UN Environment), expressed appreciation to the Government of Canada for hosting the 46<sup>th</sup> Session of the IPCC and for its global leadership in fighting climate change and environmental degradation.

Mr Liu emphasized the important role the city of Montreal has played for the global environment. He noted that in two weeks the 30<sup>th</sup> birthday of the Montreal Protocol would be celebrated. The Protocol unites member countries in phasing out the production of substances that are responsible for ozone depletion as a co-benefit to responding to climate change. He recalled that Montreal also hosted in 2005 the UNFCCC COP11 and the 24<sup>th</sup> Session of the IPCC. And is the host of the UN Convention on Biological Diversity. He noted that this month was the 55<sup>th</sup> anniversary of the publication of the book *Silent Spring* by Rachel Carson and recalled some of the milestone events in global environmental policy since then.

Mr Liu recalled in its almost 30 years of history the IPCC had provided decision-makers with regular assessments of the scientific basis of climate change which had been essential for the creation of the UNFCCC, the Kyoto Protocol and the Paris Agreement.

Mr Liu stated that UN Environment was proud to be one of the co-sponsors of the IPCC. He also noted that UN Environment would support the IPCC in whatever way it could including at financial, administrative and political level. He reported that UN Environment together with WMO were planning a joint event at COP23 to call upon Ministers from different countries to be more supportive of the IPCC.

He reported that at programme level UN Environment was working on the emissions gap report and on the Programme of Research on Climate Change Vulnerability, Impacts and Adaptation that would be more supportive to the IPCC and UNFCCC process.

Mr Youssef Nassef, Director of the Adaptation Department, United Nations Framework Convention on Climate Change (UNFCCC), expressed appreciation to all other panelists for raising important matters and said he would focus on the UNFCCC process.

Mr Nassef noted that the implementation of the Paris Agreement was now in a full swing and that there has never been a more urgent need for science to inform the ambitious cycle established under the agreement. The Fifth Assessment Report (AR5) left a mark on the UNFCCC process by informing discussions on the long-term global goal and leading to a global acceptance for the need of a more ambitious climate goal. He added that the landmark decision from Paris to keep a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius was significantly influenced by the outcomes of the AR5. The UNFCCC was looking at the IPCC for guidance on science in this new era of implementation.

Mr Nassef highlighted three particular areas where the IPCC contributions add special value. Firstly, on the contribution to policy he stated that it was important to continue building on the impact of the AR5 as the IPCC was in the process of scoping the AR6. He added that UNFCCC was looking forward to reports with clear story-lines that help frame decision-making that countries and the international community face at this critical juncture. Examples included the need for analysis that uses a near-term time frame consistent with the cycle of the Nationally Determined Contributions (NDCs) and the need for balanced treatment of national action on adaptation and mitigation in IPCC Working Groups II and III as well as rigorous exploration of climate-resilient sustainable development pathways especially in light of emerging risks, key society issues, values and cultures.

Secondly, Mr Nassef listed the contribution to social well-being. The Paris Agreement encompasses the goal of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change with a view to contributing to sustainable development and ensuring an adaptation response that is adequate in the context of the temperature goal. He stated that UNFCCC was looking forward to the continued input from Working Group II including on measuring progress on adaptation. He also commended the IPCC on the advanced preparations of the Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) and the Special Report on Climate Change and Land (SRCL). He announced that during COP23 in Bonn, 11 November would be Oceans Day and UNFCCC was intending to include valuable scientific input into the relevant events that would take place on that day and was ready to work with the IPCC on this important topic in general. He also said that the UNFCCC was looking forward to the Cities and Climate Change Science Conference to take place in Canada in 2018, which would support the implementation of the Paris Agreement as well as the New Urban Agenda and the Sustainable Development Goals.

Thirdly Mr Nassef listed the opportunities for engagement with UNFCCC. He noted that the Global Stocktake as well as the nationally determined contributions (NDCs) and the enhanced transparency framework all mark critical policy milestones. By 2023 parties to the UNFCCC will finalize the first Global Stocktake on whether the world is on track to meet the Paris

Agreement's ambitions. He remarked that the Global Stocktake process would be based on the best available science including the latest IPCC assessments. He added that relevant discussions at this session would be particularly impactful especially on aligning the IPCC and Global Stocktake cycles.

Mr Nassef concluded by noting that governments were eagerly awaiting the scenarios IPCC would present in the upcoming Special Report on Global Warming of 1.5 °C (SR15) so that they could make informed decisions during the 2018 Facilitative Dialogue regarding their next NDCs. He expressed appreciation for the excellent collaboration between the IPCC and UNFCCC and stated that the UNFCCC was committed to supporting the IPCC and communicating science.

The Honorable Catherine McKenna, Minister of Environment and Climate Change of Canada, communicated her message via recorded video. She said she was very pleased that Canada is hosting this session during the same year that Canada is celebrating its 150<sup>th</sup> anniversary. She noted that Canada has taken concrete actions based on science to protect the planet for future generations. She said that the IPCC is advancing science on climate change while providing world class expertise and acknowledged the participation of Canadian scientists in the work of IPCC. She stressed that the work the IPCC would accomplish in Montreal was particularly important, as it would lay the foundations of the Sixth Assessment Report. She stressed that Canada is committed to fighting climate change and promoting clean growth and noted that the world is shifting to cleaner forms of energy that will require global collaboration, actions and solutions. She concluded by wishing all participants all the best for the 46<sup>th</sup> Session.

The Honorable Kirsty Duncan, Minister of Science of Canada, communicated her statement via video message. She welcomed the participants to Montreal and noted that Canada is working to build a clean growth economy that will lead to a cleaner, healthier and sustainable planet for our children. She emphasized that understanding the evidence of climate change is important in slowing down its progress and mitigating its harmful effects. The report generated from the discussion will play an important role in supporting the implementation of the Paris Agreement and the Pan-Canadian Framework on Clean Growth and Climate Change. She stressed that Canada strongly supports research on climate change and is actively involved in this research.

The Chair of the IPCC introduced the provisional agenda as contained in document [IPCC XLVI/Doc.1](#).

Ms Debra Roberts, Co-Chair of Working Group II, requested that an additional agenda item on the expert meeting on the Cities conference be included as a verbal report to the plenary under agenda Item 12. Based on the request, it was decided to include the verbal report as an agenda item.

In the ensuing discussions, representatives of the following member governments took the floor; Saudi Arabia, Canada, Norway, Belgium, Germany, Finland, France, Luxembourg, Netherlands, New Zealand, Mexico, Spain, Sweden, Switzerland, the United Kingdom and Venezuela.

The recurring problem of issuing of visas to delegates participating in the plenary was noted by some representatives, who requested a report from the Secretariat concerning the problem. Furthermore, one country highlighted the absence of their experts due to the inability to obtain visas and underscored their right to express reservations and re-open meeting outcomes after such time as the experts could examine the outcomes of the session. The delegate requested that his statement be reflected in the report of the meeting, to which the Panel agreed.

The recurring problem of issuing of visas to delegates participating in the plenary was noted by some representatives, who requested a report from the Secretariat concerning the problem. In addition, some clarity was sought about the quorum.

A representative of the host country offered its regrets for the inconvenience caused and its assistance in clarifying the matter. The Secretary of the IPCC briefed the plenary about the efforts made by the Secretariat to assist the delegates with obtaining visas and the difficulties faced. The Secretary added that in the future the letters of agreement could include a clause noting commitment from the host country and its immigration department to facilitate this process. The secretariat further clarified that there are no rules concerning the quorum except for sessions involving elections.

One representative of a member government, supported by others, proposed that a short report on the previous day's gender workshop be presented under any other business. Concern was raised as to whether additional items, which require a decision could be considered under any other business as this would set an unwanted precedent. Based on the discussion it was agreed that gender balance and the outcome of the workshop would be discussed during the progress report of individual working groups by the co-chairs.

## **2. APPROVAL OF THE DRAFT REPORT OF THE 45<sup>TH</sup> SESSION OF THE IPCC**

The draft report of the 45<sup>th</sup> Session of the IPCC as contained in document [IPCC-XLVI/Doc.5](#) was presented and approved without changes.

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

The Chair of the IPCC opened the Agenda Item 3.1 on IPCC Programme and Budget – Budget for the years 2018, 2019 and 2020, document [IPCC-XLVI/Doc. 2](#). Ms Judith Ewa, Programme Officer, introduced the Agenda Item. The Financial Task Team (FiTT) was established. The FiTT 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). The FiTT met six times during the week to deliberate on key issues relating to the IPCC programme and budget, including the revised budget for 2018, the forecast budget for 2019 and the indicative budget for 2020. The Chair of the IPCC instructed the FiTT to report back to the Panel with its recommendations on Sunday, 10 September 2017.

The Chair of the IPCC opened Agenda Item 3.2 on Resource Mobilization – Status on the Implementation of Planned Activities, document [IPCC-XLVI/INF. 9](#). Mr Abdalah Mokssit, Secretary of the IPCC, introduced the Agenda Item. Government representatives of the following member countries made statements; Australia, European Union, Germany, Japan, Republic of Korea, Mali, Netherlands, Norway, Poland, Switzerland and United Kingdom. All governments and organizations thanked the host country, Canada, for hosting the 46<sup>th</sup> Session of the IPCC.

In the ensuing discussions many voiced grave concern as to the financial situation of the IPCC. One government representative noted it would double its contribution to €100,000 in 2017 and in the coming years and urged other members to do the same. It further stated that if members were not able to resolve the financial issue then the IPCC would not be able to carry out its programme of work.

Another government representative noted some problems in the transfer of its pledge to the IPCC trust fund but indicated that a solution had been found and the secretariat informed.

A representative of a regional economic integration organization expressed its intention, on behalf of its member states and associated countries to raise contributions substantially in the coming years. During the Sixth Assessment Report (AR6) cycle the intention is to help improve the financial situation of the IPCC and others were to do the same. The products of the AR6 contribute to the UNFCCC process by responding to the needs of the global stocktake and will require a substantial amount of work from the IPCC. The representative

noted that many of its member states contribute independently and through in-kind support to the Technical Support Union (TSUs).

One government representative indicated that it intended to make a further contribution to the IPCC Trust Fund in 2017.

Another government representative indicated that it is also making additional efforts at the beginning of AR6 cycle and has already announced to the IPCC Secretariat its pledge for the next 3 years. It also intends to bring additional funding in the amount of more than three annual contributions to assist with the process.

One government representative emphasized the severity of the financial crisis, noting a gap of CHF 6 million in 2018 and 2019. It would be important to know what the expenditures will be in the future. It thanked the Secretariat for the presentation of the budget estimates but noted that it seemed that expenditures are almost 25% lower than the budget estimates. It would therefore be useful to analyse the individual budget lines to understand why there is under-expenditure. This does not mean that the budget should be lower. It would be useful to have a buffer as contributions to the IPCC Trust Fund are voluntary and on an annual basis so there is little flexibility for the planning. The representative suggested that it is time for the Panel to take a decision on the level of the reserve, which is in line with the IPCC procedures which request the Panel to take a decision on the size of the reserve. Doing so would not mean that the budget will decrease nor the funding targets, but it would provide a clearer idea on the reserve the IPCC would need.

Another government representative expressed support for the previous intervention saying that it would be useful to analyse the individual budget lines and that it is important to learn from history how much is being saved. It indicated that it intended to contribute more to the IPCC Trust Fund in 2017 --- the contribution would be higher than that of 2016. He indicated that a substantial increase in its contribution to the IPCC would be made in 2018. The Chair of the IPCC thanked the member country for being a great supporter of the IPCC by hosting meetings and supporting outreach events.

One government representative announced his country's commitment to making a contribution in 2018 at the same level as in previous years. He also announced that the government would host the Third Lead Author meeting for the Task Force on National Greenhouse Gas Inventories (TFI) Methodological Report in 2019. He agreed with previous speakers that the IPCC needs a buffer reserve. He noted that the FiTT has an extensive job ahead of it and pointed out that the budget for 2018 is a substantial increase over 2017 and wanted to understand what the implications were and asked if there exists a document to describe aggregation of proposed contributions announced in IPCC-46.

One government representative thanked the Secretariat for the presentation on resource mobilization. He indicated that the government had made its contribution in 2017 with a multi-year pledge to 2019 and announced the intention to host IPCC-48 in 2018. The Chair of the IPCC thanked the member country for its contribution and its offer to host IPCC-48 next year.

One government representative commended the Secretariat for its active and efficient efforts to mobilize additional resources. It agreed with previous interventions and added that the IPCC still needs to analyze and review the amount of funds needed for the AR6 process. The cost of meetings depend on the selection of authors and it would therefore be better to take a decision on funds needed after the selection of authors for the individual Working Groups have been made. The representative made a reference to interventions made during IPCC-45 (Guadalajara) and proposed to that the Panel consider avoiding holding plenary sessions that are not connected to the adoption of AR6 products. He noted having identified two such sessions in 2020.

One government representative announced that the government would make a contribution later in 2017 and that it would continue to make contributions to the Trust Fund and also to the Task Force on National Greenhouse Gas Inventories TSU. The representative indicated that it would consider the possibility of increasing its contribution to the IPCC Trust Fund and that the importance of the activities implemented by the IPCC was recognized but, as some others indicate, it would be important to spend funds more efficiently and to reduce the costs of activities by the IPCC. The Chair thanked the government for its pledge and added that the IPCC is grateful for the increase. He added that the IPCC depended on the member governments and that its scientists also depended on the member governments' commitment to support the IPCC. The IPCC took note of the document.

The Chair of the IPCC opened the Agenda Item 3.3 on Audit of 2016 financial statement of the Intergovernmental Panel on Climate Change, document [IPCC-XLVI/INF. 1](#). Ms Judith Ewa, Programme Officer, introduced the Agenda Item. The IPCC took note of the document.

The Chair of the IPCC opened the Agenda Item 3.4 on Any other matters, which has two sub-items. The sub item on Budget preparation process, document [IPCC-XLVI/INF. 2](#), was introduced by Ms Judith Ewa, Programme Officer. The IPCC took note of the document. The sub item on Communication and Outreach for the Special Reports in the Sixth Assessment Report Cycle, document [IPCC-XLVI/Doc. 4](#), was introduced by Mr Jonathan Lynn, Head of Communications and Media Relations. Funding implications contained in the document were referred to the FiTT for consideration.

Ms Helen Plume, on behalf of the co-chairs submitted recommendations from the FiTT to the Panel. She explained that the FiTT undertook its tasks against a backdrop of a very serious financial situation of the IPCC, which had been presented to the Panel earlier in the Session. She stated that the proposed 2018 budget had been prepared using the standard costs for meetings and travel, as had been done in the past. She explained that it was necessary to construct the budget in this way as it contains a number of unknowns e.g. the location of the meetings and the level of participation in these meetings.

She noted that the 2018 budget is at CHF 8.2 million. However, based on the past experience, actual expenditure would be lower than the budgeted amount. She considered this no excuse for complacency about the financial situation. She noted that the IPCC's financial reserves are rapidly declining and that there is a need for a stabilization of the financial situation. In considering the scientific work ahead to complete the AR6 work programme, the FiTT discussed priorities for expenditure, in the event that the financial situation would not improve. In the view of the FiTT, delivery of the scientific work programme was very high on this list. There are activities that must be done and others that could be done if resources are available, such as the number of plenary sessions in a calendar year and decisions on expert meetings and the timing. Discussions on priorities took place in the FiTT but as there was not enough time to present it in the draft decisions, Ms Plume requested that this be part of the report on the Session. The discussions in the FiTT ranked the list of priorities as follows: (1) Secretariat, (2) lead author meetings, (3) Plenaries, (4) Bureau meetings, (5) expert meetings/workshops and (6) activities under the "Other Expenditures" category in the budget table, with the communication activities being ranked higher than others in this category. She thanked the members of the FiTT for their dedication over the past four days and concluded by summarizing the recommendations contained in Decision IPCC-XLVI-1 on the IPCC Trust Fund Programme and Budget.

The government representatives that took the floor thanked the Co-Chair of the FiTT for the report and the work of the FiTT for putting the report together. One government representative commented on the missing asterisk against IPCC-47 in the 2018 budget table indicating that a decision by the Panel had not yet been taken as to whether it would be held or not. Some government representatives commented on paragraphs 3 and 9 of the draft decisions and requested that the figures be removed but a clear message be sent that there is a financial

crisis and a serious financial gap. The Working Group I (WGI) Co-Chair (Ms Masson-Delmotte) sought clarification on the next steps with regard to the proposed expert meeting on regional information to be held in 2018. The Chair responded that this required a Panel decision. The Co-Chair of the FiTT explained that the FiTT decided to go ahead and include these activities, with the knowledge that decisions from the Panel were pending e.g. the above-mentioned expert meeting. The FiTT, by agreeing on the availability of budget, was not taking a decision about whether or not the meeting should take place – it was just providing the budget in the event that the Panel decided that the meeting should take place. One government representative supported the explanation by the Co-chair of the FiTT and recommended that the budget be adopted as is.

The IPCC adopted the budget for 2018 and noted the forecast 2019 budget and the indicative budget for 2020 and adopted Decision IPCC-XLVI-1 on the IPCC Trust Fund Programme and Budget as contained in **Annex 1**.

#### **4. AD HOC TASK GROUP ON FINANCIAL STABILITY (ATG-Finance)**

The Chair of the IPCC opened the Agenda Item 4, documents [IPCC-XLVI/Doc.8](#), [IPCC-XLVI/INF.12](#) and [IPCC-XLVI/INF.14](#) on the Ad Hoc Task Group on Financial Stability of IPCC (ATG-Finance).

The Agenda Item was introduced by the Co-chairs of the ATG-Finance, Ms Thelma Krug and Mr Youba Sokona. Ms Krug gave a brief background on how the ATG-Finance was established, its mandate, its membership and the structure of the report. She stated that the report aimed to be as comprehensive yet concise as possible. On behalf of her co-chair, she expressed gratitude to the member governments for entrusting them to co-chair this group. Ms Krug's presentation focussed on the contributions to the IPCC and the reserves. She gave a breakdown of the total contributions to the IPCC in 2016, and indicated that it showed that with such a narrow contributions base of major contributors, it made the funding of the IPCC vulnerable in case of sudden changes. She referred to page 10 of the report, which provides a description of the steady decline in the number of contributors to the IPCC since 2008, requiring the IPCC to draw on its cash reserves to cover the costs of implementing its work programme. The decline can also be observed on the total amount of contributions since 2010. For the past three years (2014, 2015 and 2016), the annual contributions did not exceed CHF 4.4 million. She cautioned that if this trend continued, the IPCC will not be able to implement its work programme for the Sixth Assessment Report (AR6), since an annual funding gap of CHF 6 million is estimated from 2017 onwards. She added that the funding needs for 2017 is CHF 8.3 million. Income for 2017 so far is CHF 1.9 million and pledges amount to CHF 1.8 million. If the situation continues as it is now, the IPCC Trust we will exhaust its reserves in 2017. These are genuine reasons for concern that will require the Panel to evaluate and help find a solution.

Mr Sokona introduced the funding options, the pros and cons table and the overall process that led to the development of the report. He thanked all those who had contributed to the document and encouraged the member governments to take the time to read it. He pointed out that the financial situation is a very important issue and needed to be looked at carefully and seriously. He cautioned that the IPCC could be faced with a situation where it might have to stop activities. The resources that the IPCC requires to function are minuscule in comparison to what the IPCC is achieving and will achieve. With regard to the process, he indicated that intensive interaction, with a number of colleagues who participated in the discussions, resulted in identifying the various funding options. He explained that initially the Co-chairs hesitated to include a pros and cons table as they did not want to attach an opinion against each pro and con. However, colleagues insisted on seeing this pros and cons table and it was eventually included as an information (INF) document. He indicated that eight funding options had been identified and were to be further explored. He added that they were not exclusive and all had some merit. He outlined the funding options, as follows: (a) voluntary

and assessed contributions – as in some UN organizations, e.g. WMO. The limit of voluntary contributions has been observed that is why the ATG-Finance was created, (b) increasing voluntary contributions from member governments – some governments increased their contributions because the IPCC Trust Fund is faced with a financial problem, but this is a one-off solution not a permanent one, (c) assessed/mandatory contributions – every member government should contribute. The IPCC has 195 members and so far half of them have never made a contribution to the IPCC – this is not acceptable, (d) crowd funding – if 1% of the world's population were to contribute \$2 that would generate \$150 million for the IPCC; this can be easily done, (e) contributions from scientific/research and philanthropic institutions – there is a need for intensive communication and contacts with these institutions need to be initiated. This option could serve as a permanent solution not an *Ad Hoc* one, (f) contributions from UN entities and international/regional financial institutions – a number of UN organizations are also facing financial difficulties but the IPCC needs to explore this possibility, (g) private sector – this should not be excluded but should be a possibility even if it is limited and (h) Funding (friends) meeting - Friends of IPCC i.e. goodwill people who come together to promote IPCC in order to raise funds. Each of these options have their own merits and their own problems, but they are not mutually exclusive. He concluded by saying that the intention of the report is to invite the IPCC to consider the document and take a decision, at IPCC-46, on which funding options the IPCC should engage in. On behalf of his Co-chair, he encouraged Member Governments, who have not yet done so, to contribute to the IPCC Trust Fund with a view to broadening the donor base. He further highlighted the recommendations contained in the report for the Panel to consider and stressed that the IPCC needs to move away from an *Ad Hoc* and predictable situation to a permanent and predictable situation in order for the IPCC to fulfill its mandate.

The Chair thanked the Co-chairs of the ATG-Finance for the comprehensive report on the financial status and the options for improving the financial situation of the IPCC. He reminded the Panel of the mandate of the ATG-Finance and encouraged Member Governments to review page 10 of [IPCC-XVLI/Doc. 8](#), which provides an illustration of the decline in the number of contributors and contributions. The floor was opened for comments.

The following government representatives of member countries took the floor: Austria, Australia, Bahamas, Belgium, Benin, Bolivia, Brazil, Canada, China, Chile, Dominican Republic, El Salvador, European Union, Finland, France, Friends World Committee for Consultation, Future Earth, Germany, Greece, Hungary, Indonesia, Italy, Japan, Kenya, Mali, Mexico, Morocco, Netherlands, Nicaragua, Norway, Peru, Poland, Saudi Arabia, South Africa, Sweden, Switzerland, Togo, United Kingdom, United States of America, Zambia, Zimbabwe. All speakers thanked the Government of Canada for its hospitality and for hosting the 46<sup>th</sup> Session of the IPCC (IPCC-46). They also thanked the Co-chairs of the ATG-Finance and its members for the comprehensive report which would serve as a good basis for further consideration by the IPCC in order to make an informed decision about the funding options to engage in.

One government representative acknowledged that the report presented was very clear and important. Referring to Mr Sokona's presentation, it reiterated that the IPCC could be faced with a situation where it might have to stop its activities. It was therefore necessary to ensure the stability of the IPCC and its ability to carry out the on-going activities by putting in place the necessary resources for the IPCC. It appreciated the eight options that had been proposed, especially the one calling for all the IPCC member governments to contribute. The little that each country can give will allow the IPCC to fulfill its mandate especially since all countries are affected by climate change. It added that the IPCC is an independent body and with respect to that, safeguards would have to be established in order to preserve its independence when accepting contributions from research institutions, the private sector and banks. The rules of the IPCC will have to be clear on this. Concerns were expressed by another government representative with regard to dealing with the private sector. It cautioned that it did not want IPCC products to be perceived as being sponsored by a private entity. A call for the

identification of eligibility criteria when dealing with the private sector and non-governmental institutions was made and a proposal was also made for the mandate of the ATG-Finance to be extended to review these criteria. Other member countries supported this proposal. Another government representative seemed uncertain as to whether the IPCC had all the available information needed to take any further decisions because of some unknowns e.g. the costs involved for each option or the interest of other institutions to partner with the IPCC. It was suggested not to explore only one option but rather to go for a basket of options while bearing in mind the impartiality and independence of the IPCC. Uncertainty was expressed as to whether assessed/mandatory contributions would solve the problem. It was explained that in the United Nations Framework Convention on Climate Change (UNFCCC), there was always a discussion on the efficiency of contributions. Some government representatives felt that there were several unclear matters about the application of the scale of assessments and that it should be considered carefully before its adoption. Other government representatives felt that the UN Scale of assessments took into account all the countries' needs in a fair way and provided an indicative amount to be contributed by each country; the amount indicated is not compulsory. Attention was drawn to the recommendations at the end of the document especially the funding gaps and the targets. It was felt that the IPCC's budget should mainly rely on funding from its Member Governments. One government representative enquired as to why the products of the IPCC are free of charge adding that additional funding could be obtained from IPCC products if they were sold.

It was felt that fundraising efforts should be conducted by all member governments and not just by the IPCC leadership. Several government representatives encouraged all member governments to go back to their capitals to ensure that funding is provided to the IPCC. The communications team was requested to come up with information material that could be used to persuade colleagues within the respective finance ministries to provide funding to the IPCC Trust Fund. One government representative called for all Member Governments to increase their contributions and/or make a contribution if not already done. Some expressed their appreciation for the pros and cons table. Others expressed an interest for the IPCC to approach the Green Climate Fund (GCF). Appreciation was expressed to the UNFCCC for reinstating the budget line for the IPCC. The IPCC was informed that Bloomberg Philanthropies had recently made a contribution to the UNFCCC. The IPCC leadership was encouraged to explore option (e) and contact UNFCCC to explore the possibility of also obtaining a contribution from Bloomberg Philanthropies. A request was made for the IPCC not to only look at increasing income but also reducing expenditures by prioritizing activities. A number of requests were made for the FiTT to analyze income and expenditures and perhaps consider restructuring the budget. With regard to scientific, research and philanthropic institutions, some government representatives felt that these institutions were already stretched and were already making contributions to the IPCC in the form of scientists. Crowd funding was recognized as an interesting option.

There was also a call for the IPCC to have a "Plan B" in the event that the necessary funding would not be forthcoming. One government representative felt that it was the responsibility of all member governments to ensure the functions of the IPCC by increasing the contributions base, reducing costs and trying to have a better budget. It proposed that there be a new engagement strategy by approaching ministers of major economies at COP-23 and by organizing a very focused fundraising campaign. This proposal was supported by another member government. As the security of citizens in the Caribbean and the United States of America are currently being affected by storms intensified by climate change, one government representative proposed that Member Governments may wish to consider supporting the IPCC and the scientific information critical for mitigating the root causes of climate change, by seeking funding from national security budgets. Ministers could be encouraged to consider IPCC funding as an effective investment as a security concern.

One government representative noted that his government hoped to double its contribution up to 2022.

The Chair affirmed the principle that the IPCC should be funded by the Member Governments stressing that all officers of the IPCC, including the Chair, Vice Chairs, Co-chairs, Secretariat and scientists of the respective Bureaux, needed to provide leadership. With regard to the hybrid options, he suggested to wait for one year to see how the revenue will play out at which time a decision could be taken as to which funding options to adopt. Some member governments supported the Chair's suggestion to wait for one year before taking a decision. One government representative feared that waiting one year in order to assess the financial situation was too long. These fears were supported by others and earlier proposal that efforts to approach the GCF and UNFCCC regarding Bloomberg Philanthropies should be done by the IPCC leadership were reiterated. It was felt that since it takes time for funding to come in, the IPCC runs the risk of having to cancel some important activities. Ms Valerie Masson-Delmotte, WGI Co-chair, expressed concerns about the lack of visibility of funds available to support the authors who will attend lead author meetings to write the reports in the coming years. There is a huge interest of the scientific community to contribute to the IPCC as expressed by the number of volunteers wanting to participate in the scoping meetings and for the special reports. She proposed to strengthen the possibility for the IPCC to seek support from scientific organizations e.g. academy of sciences and their partnerships, which have links to foundations that are scientific bodies, which do not raise issues of agendas and concerns associated with the private sector. Her proposal to open the possibility for further funding is in an effort to ensure that when the call for author nominations is launched, there is the visibility of funding for these authors, at least for the first years. Ms Helen Plume, FiTT Co-chair, indicated that discussions held in the FiTT, so far, have suggested that the FiTT cannot finalize the proposed 2018 budget, based on the proposed budget in the documentation submitted to the Panel. This is due to insufficient funds in the bank in addition to the insufficient pledges. It may be necessary to trim back activities in the proposed budget in order to have a budget that meets with the financial rules. She cautioned that when the FiTT reports back to the Panel, the budget may not look like the proposed budget in IPCC-XLVI/Doc.2.

While several member governments agreed that the financial stability of the IPCC should be restored they felt that the funding of the IPCC should mainly come from the Member Governments. This could be achieved by broadening the contributions base. Some felt that maintaining the status quo was not an option given the fact that this has been tried with results that have not been very encouraging. Others were also in favour of exploring a hybrid of options bearing in mind to give due diligence to the independence, integrity and impartiality of the IPCC. These funding options were (b) increasing voluntary contributions from Member Governments, (e) contributions from scientific, research and philanthropic institutions and (f) contributions from UN entities and international and regional financial institutions. It was felt that the parent organizations needed to make regular contributions to the IPCC Trust Fund. Another group of member governments recommended to also explore option (d) crowd funding which could bring about public awareness. In addition, since the IPCC will be celebrating its 30<sup>th</sup> anniversary in 2018, it was proposed that this occasion be used to launch a fundraising campaign.

The Chair summed up the decisions as follows: (1) a reaffirmation that government funding will continue to be the main source of funding to the IPCC Trust Fund, (2) consideration of the hybrid funding options at IPCC-47 for decision and (3) extension of the mandate of the ATG-Finance until IPCC-47. The IPCC took note of the document.

## **5. ADMISSION OF OBSERVER ORGANIZATIONS**

The legal officer of the IPCC Secretariat, Sophie Schlingemann, introduced document [IPCC-XLVI/Doc. 10](#) related to this topic and noted that since the 45<sup>th</sup> Session (Guadalajara, 27-31 March 2017) twelve applications from organizations for IPCC observer status had been submitted in accordance with the IPCC Policy and Process for Admitting Observer Organizations. After screening by the Secretariat, the IPCC Bureau positively reviewed the

applications at its 54<sup>th</sup> Session (Montreal, 5 September 2017). Subsequently the Panel admitted by consensus the following twelve organizations:

(1) Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), (2) Heinrich Boell Foundation (HBF), (3) International Development Research Centre (IDRC), (4) Center for International Forestry Research (CIFOR), (5) Food & Water Watch, (6) Research and Development Centre, Nepal, (7) Imperial College London, (8) Canadian Nuclear Association, (9) European Marine Board (EMB), (10) Stockholm Resilience Centre, (11) Global Change Impact Studies Centre (GCISC), and (12) ParIAmericas.

## **6. REPORT OF THE CONFLICT OF INTEREST (COI) COMMITTEE**

The Chair of the IPCC COI Committee, Youba Sokona, gave a brief verbal report on the activities of the COI Committee. He informed the Panel that the 13<sup>th</sup> COI Committee meeting was held on 16 June 2017. At that meeting the COI Committee reviewed the annual reports of the three Working Groups and the Task Force Bureau (TFB) in relation to their consideration of conflict of interest issues in accordance with paragraph 11 of the Implementation Procedures of the COI Policy. The Working Groups and the TFB reported that no conflict of interest was identified. The Chair furthermore informed the Panel that as of 1 July 2017 WMO had appointed its Ethics Officer, Mr Alessandro Maggi, to represent the organization on the IPCC COI Committee and that the former representative, Mr Detlev Pontz, had resigned at the end of June 2017 after four years serving on the Committee, for which he was thanked. The Panel took note of the report.

## **7. SCOPING OF THE IPCC SIXTH ASSESSMENT REPORT (AR6)**

### **7.1. Working Group I, AR6 Report outline**

Ms Valérie Masson-Delmotte, Co-Chair of Working Group I introduced the proposed outline for the AR6 Working Group I Report contained in document [WG-I:13/Doc. 2](#) highlighting that the scope, which is a significant evolution from previous reports, is premised on developments in climate science, advances in the understanding the climate system, and integrating multiple lines of evidence to understand observed climate change and anticipate future changes. The AR6 WGI report aims to generate knowledge relevant for policy making through the end to end assessment of key topics, strengthening the assessment of climate information for regions, enhanced information exchange across the three Working Group reports to facilitate the synthesis of the full AR6, and including information for risk assessment and risk management. The outline is designed to utilize output from the CMIP6<sup>1</sup> project and other relevant information to update and complement the assessment undertaken in the three AR6 Special Reports which are in preparation and to facilitate an integrated solutions-oriented assessment both within the physical science basis, and across the other Working Group reports and the AR6 as a whole.

Ms Masson-Delmotte when summarizing the scoping process, mentioned the salient inputs which contributed to the development of the outline, which included a pre-scoping questionnaire which was sent to governments and IPCC Observer Organizations, consultation of the climate science international community by the Working Group I TSU, recommendations from the IPCC Workshop on Communications, and the Workshop on Regional Climate Projections and their use in Impacts and Risk Analysis Studies, which informed Working Group I's contribution to the IPCC Chair's Vision Paper. More than six hundred individuals with expertise relevant for Working Group I were nominated for the scoping meeting. The Working Group I Bureau selected sixty participants. Scoping meeting participants reached a consensus on the proposed outline, including chapter titles, and the indicative bullet points which were presented to the Panel in document [WG-I:13/Doc. 2](#).

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<sup>1</sup> Coupled Model Intercomparison Project Phase 6

Ms Masson-Delmotte summarized the proposed storyline of the Working Group I AR6 report highlighting that after the framing chapter, the subsequent chapters could be grouped into three broad subsets. The first subset would comprise of three chapters (i.e. Chapters 2-4), which build on the conclusions of AR5, deal with large-scale climate change and are designed to provide an updated comprehensive assessment of knowledge on the current state of the climate system, anthropogenic interference, and predictability and projections of future changes. The second subset of chapters (i.e. Chapters 5-9) would deal with global climate processes which are drivers of regional and global climate such as global cycles, carbon and other biogeochemical cycles, energy, sea-level and water, and short-lived climate forcers and air quality. The last subset of chapters (Chapters 10-12) would aim to strengthen the assessment of regional climate information building on chapters on large scale climate dynamics, and includes extreme events and hazards for impacts and risk assessment. To ensure the transparency and coherence of the assessment, the report is expected to include technical annexes on methodological aspects that will be common to two or more chapters, updating and enabling continuity from AR5 such as paleoclimate information, observational datasets and reanalysis, evaluation of CMIP6 models, radiative forcing and climate metrics, and detection and attribution methods.

Ms Masson-Delmotte gave a more elaborate overview of the indicative contents for each chapter highlighting identified topics of potential linkages with the AR6 Special Reports and the assessment carried out by other Working Groups, particularly Working Group II. The need for a strong cross-chapter collaboration to assess topics which span different chapters within the Working Group I report was emphasized and some cross-chapter issues were highlighted. The Working Group I Co-Chair affirmed the commitment from the Working Group I Bureau Members and the TSU to support the author team in the effort to strengthen the required cross-chapter dialogue and collaboration.

Ms Masson-Delmotte informed the Panel that Working Group I is developing a proposal for an Expert Meeting on the Assessment of Regional Information to develop practical guidelines for AR6 authors on the assessment of regional information and the cross-WG treatment of regional issues. The Expert Meeting would ideally be held after the selection of AR6 authors and the WGI First Lead Author Meeting. She reported that the AR6 Scoping Meeting recommended the establishment of a cross-WG Task Group on Regional Aspects and the development of a regional atlas jointly by WGI and WGII to map risks, their determinants, and associated uncertainty issues. There was also a recommendation to establish a cross-WG scenario team comprising of authors from scenario relevant chapters in each WG.

In the ensuing discussion the following government representatives of member countries took the floor; Norway, Switzerland and El Salvador.

One government representative commended the approach and emphasized the importance of fostering a close integration between observations and projections, which would potentially enhance the policy relevance of the report, and the cross-WG treatment of cross cutting issues. Another government representative agreed to the importance of this and requested the Working Groups to provide a comprehensive assessment of past, present and future climate at regional and sub-national scales and to ensure that the information is easily accessible by users such as delegates involved in the UNFCCC process. One government representative suggested that the treatment of oceans should assess the events and changes occurring in Central America, particularly the dynamic interactions between the Atlantic and the Pacific Oceans.

The draft outline contained in document [WG-I:13/Doc. 2](#) was discussed extensively in the 13<sup>th</sup> Session of Working Group I.

When the 46<sup>th</sup> Session of the IPCC reconvened following the Working Group Sessions, Ms Masson-Delmotte presented the near-final version of the Working Group I outline and the draft decision text. She requested governments to nominate highly skilled experts to be considered for selection as authors for the AR6 to enable a selection process, which will ensure diversity across regions, in expertise, career stage, and gender. In particular, governments were requested to nominate highly skilled women scientists to be considered as Coordinating Lead Authors.

In the ensuing discussion government representatives of the following member countries took the floor: Canada, Poland, the Russian Federation, Morocco, Belgium, Norway and the United States of America.

One government representative expressed the intention to apply a gender lens to the AR6 author nomination process and encouraged other governments to facilitate nomination processes that would allow for diversity and greater balance among the selected candidates. He emphasized the importance of enhancing gender balance, as also highlighted in a workshop which was held in the evening on 5 September 2017 the report of which will be made publicly available. He encouraged the IPCC to build on the momentum to be gained from a consultation on the development of a gender action plan under the UNFCCC scheduled to take place in Ottawa after the 46<sup>th</sup> Session of the IPCC.

One government representative commended the efforts by the IPCC to foster a regional balance in the selection of authors for IPCC reports. A One government representative, with support from another, expressed concern over the apparent intra-regional imbalance within Europe whereby Eastern European countries are underrepresented. Another government representative recommended an increased involvement of experts from National Meteorological and Hydrological Services, particularly from developing countries and countries with economies in transition (EITs) in the Working Group I author team. One government representative requested the Bureau to pay more attention to the representativeness of developing countries in the author team expressing a concern that of the 30 experts they nominated as potential authors for the SROCC and the SRCCL, none was selected. The Chair of the IPCC urged Bureau Members to address the concerns raised about the regional imbalances and to encourage experts from their region to participate in IPCC activities.

One government representative requested information on the indicative length of the AR6, particularly the Summary for Policymakers (SPM), which could be made shorter. One government representative suggested that the SPMs should have headline statements but that the Panel should give the authors the latitude to decide on the length of the SPM. Ms Masson-Delmotte informed the Panel that the aim is to deliver concise headline statements of about two pages and a readable SPM of at most twenty-five pages and about ten figures, tailored for effective presentation and communication through a clear narrative and language to provide the appropriate content and quality. She proposed to the Panel that the SPM figures could be in two forms: a printable version; and a layered version. The latter version would be used to present complex information in successive layers and could facilitate an animated presentation of the figures for outreach in a more pedagogic format.

One government representative noted that several elements instituted as practice during the AR6 cycle were missing in the draft decision text for adopting the outlines and proposed to add two paragraphs. The Chair of the IPCC added that the decision text proposed was used during the approval of the AR6 Special Reports. After some amendments, the Panel accepted the decision text proposed by the government representative.

The Panel adopted the Working Group I AR6 outline contained in Annex 1 of Decision IPCC/XLVI-2.

## 7.2. Working II, AR6 Report outline

Mr Hans-Otto Pörtner, Working Group II Co-Chair gratefully acknowledged the contributions of the Working Group II Bureau, TSU and the Scoping Meeting participants towards the development of the draft outline, which to a large extent complements ongoing work on the AR6 Special Reports.

Mr Pörtner informed the Panel that the Working Group II Bureau received about 780 nominations for the Scoping Meeting from which 73 experts were selected. The selection process resulted in an improvement in gender balance of the participants and an increase in the percentage of experts from developing countries. The proportion of Scoping meeting participants was 60% and 40% for those with and without any previous IPCC experience, respectively.

The Working Group II outline, which was presented in document [WG-II:11/Doc. 2](#) is structured according to three overarching themes: 1) risks, adaptation and sustainability for natural and human systems impacted by climate change; 2) the regional context; and 3) synthetic approaches to addressing sustainable development pathways. The report will contain a series of cross-chapter boxes, which will address issues from a somewhat different angle as well as complementing information from the Special Reports.

Mr Pörtner elaborated on Chapters 1 – 5 and the associated indicative contents which are presented in document [WG-II:11/Doc. 2](#). After the Framing and Context Chapter, the chapters he elaborated on fall within the theme dealing with climate change impacts on natural and human systems, and responses.

Ms Debra Roberts, Working Group II Co-Chair further elaborated on proposed Chapters 6 – 8, which also fall within the theme addressing the impacts and responses for natural and human systems. She further elaborated on the seven regional chapters (i.e. Chapters 9 – 15), which fall within theme 2, which aims to address the regional and sub-regional context. Ms Roberts highlighted several threads, which link chapters and themes in an endeavor to carry the storyline throughout the Working Group II AR6 and to foster complementarity between products while avoiding overlaps. The last theme which comprises Chapters 16 – 18, aim to synthesize the sectoral and regional approaches applied in the preceding chapters to provide a synthetic opportunity for sustainable development in natural and human systems. The three themes will be supported by seven cross-chapter boxes which would provide an opportunity to integrate key issues across chapters and linkage to other AR6 products including updating material from the AR6 Special Reports.

The draft outline presented in document [WG-II:11/Doc. 2](#) was discussed extensively during the 11<sup>th</sup> Session of Working Group II.

When the 46<sup>th</sup> Session of the IPCC reconvened after the 11<sup>th</sup> Session of Working Group II, Mr Pörtner invited the Panel to approve the outline, which was adopted by the Working Group II session. The draft decision text requested the Panel to invite Working Group Co-Chairs to develop appropriate mechanisms to ensure the effective coordination of WG contributions to the AR6, to oversee the treatment of cross-cutting themes and to prepare a common glossary. The schedule for the preparation of the WGII contribution to the AR6 and the required budget were presented. Mr Pörtner informed the Panel that the page lengths are only indicative and owing to the late approval of the outlines during the Working Group II Session there was no cross-WG discussion on the length of the SPMs.

In the ensuing discussions the government representatives of member countries made interventions; Saint Lucia, United States of America, Venezuela, Belgium, Ecuador, Germany, Zambia, France and Norway.

One government representative said that she would have preferred to see a reference to loss and damage in the outline to stimulate scientific contributions necessary to examine the subject from a scientific lens and to clarify the concept towards the development of adequate solutions. Hurricanes, which impacted the Caribbean region, were used to illustrate the devastating nature of extreme events. They expressed hope that the authors preparing the AR6, on the basis of the indicative bullets will provide a thorough assessment of the relevant peer-reviewed literature on loss and damage and that the concept would be incorporated into the AR6 SYR. Countries were encouraged to nominate experts who work in the area of loss and damage for possible selection into the AR6 author team.

One government representative proposed to add two paragraphs to the covering decision, which adopts the outlines, which were approved during the Working Group Sessions. One government representative suggested that the amendments to the decision text, which had been proposed should only be reflected in the report for the 46<sup>th</sup> Session of the IPCC but need not be included in the decision documents. Several government representatives raised concerns that the Panel had not seen the proposed amendments to the decision text. One government representative requested that all Panel decisions should be presented to the Panel on the screen before being adopted. Another government representative supported the Working Group II Co-Chair noted that the AR6 outline approval is slightly different from that of the Special Reports because the WG report titles were not discussed.

The Panel adopted the Working Group II AR6 outline contained in Annex 1 of Decision IPCC/XLVI-3.

### **7.3. Working Group III, AR6 Report outline**

Mr Jim Skea, Working Group III Co-Chair informed the Panel that Mr Ramon Pichs-Madruga, Working Group III Vice-Chair after an agreement by the WGIII Bureau accepted to stand in for Mr Priyadarshi Shukla, Working Group III Co-Chair.

Mr Skea reported that during the AR6 Working Group III Scoping, no draft outline was presented to participants prior to the meeting. Instead, the Co-Chairs and the Working Group III Bureau presented three overarching challenges which the WGIII outline could address: 1) establish stronger linkages between the high level climate stabilization goals and scenarios and the practical steps which are needed in the short and medium term to make the realization of longer term goals possible; 2) introduce disciplines and strands of literature relevant for climate change mitigation which had not featured significantly in previous WGIII reports; and 3) to connect climate change mitigation very strongly with sustainable development.

The Working Group III Co-Chair informed the Panel that the Scoping Meeting for their Working Group was attended by sixty participants. The Scoping Meeting was preceded by an Expert Meeting on Scenarios, Mitigation and Climate Stabilization, which produced recommendations, which had a strong influence on the Scoping Meeting outcome.

Mr Skea briefly described the overall architecture of the WGIII outline which has seventeen chapters presented in document [WG-III:13/Doc. 2](#) and elaborated on some of the indicative contents. He mentioned the emphasis across the outline on sectoral chapters, which are expected to map readily on to countries' reporting structure of their greenhouse gas emissions inventories. The outline also provides linkages to sustainable development and Sustainable Development Goals (SDGs). He highlighted chapters, which represent innovations from the AR5 and those which exemplify a wide range of actors. Mr Skea expressed the strong desire to make more use of case studies in AR6 than previously, in order to supplement high-level messages with real-level examples of mitigation interventions, which would potentially be more relevant to policymakers. He showed examples of cross-cutting themes, relevant for more than one Working Group, which have been built into the structure of the report such as

scenario analysis and modelling and input into the Global Stocktake under the Paris Agreement.

Mr Skea briefly mentioned the Working Group III (WGIII) schedule and timeline for the preparation of the AR6 highlighting that there are currently no offers for hosting Lead Author Meetings and requested governments who are willing to host the meetings to communicate to the WGIII TSU.

The draft outline presented in document [WG-III:13/Doc. 2](#) was discussed extensively during the 13<sup>th</sup> Session of Working Group III until it was adopted.

The 46<sup>th</sup> Session of the IPCC reconvened after the dedicated Session of Working Group III. Mr Skea mentioned the four elements of the draft decision and invited the Panel to approve the outline of the Working Group III contribution to the AR6 as agreed by the Working Group III Session. He informed the Panel that when selecting authors for the SRCCL, Working Group III introduced a screening procedure for intra-regional balance. He assured the Panel that authors will be advised to improve the readability of the SPM but would not support the proposal to prepare a short SPM, which may result in complex ideas becoming intermingled with each other.

In the ensuing discussions the following government representatives of member countries spoke: Belgium, the United States of America, Germany, Spain, Luxemburg, the United Kingdom, and Ecuador.

One government representative supported by another and the Working Group II Co-Chair requested that the report of the 46<sup>th</sup> Session of the IPCC should reflect that the Working Groups are encouraged to individually and/or jointly work on cross-cutting issues.

One government representative proposed to add text covering the decision which approves the outline which was adopted by the Working Group III Session. One government representative supported by another requested that the text, which could potentially be presumed to prescribe to authors which literature they should assess, be deleted from the text. One government representative suggested an amended text to indicate that “the report assesses relevant literature especially since the AR5, in a manner consistent with the IPCC guidance on the use of literature”. One government representative supported by some others suggested that the suggested amendment should also be adopted in the text covering the decisions for the adoption of Working Group I and Working Group II outlines.

The Panel adopted the amended outline contained in Annex 1 of Decision IPCC/XLVI-4.

#### **7.4. AR6 Synthesis Report**

The Chair of the IPCC informed the Panel that a Break-out Group (BOG) on the Synthesis Report (SYR) was established during the Scoping Meeting of the AR6 to develop a preliminary broad outline of the AR6 SYR. Working Group Co-Chairs nominated twenty-one BOG participants, seven representing each WG, from amongst the Scoping Meeting participants. The BOG on the SYR was co-chaired by IPCC Vice-Chairs Ms Thelma Krug and Mr Youba Sokona. A dedicated Scoping Meeting for the SYR is scheduled for April 2019, the outcome of which will be presented to the Panel for approval. This will be followed by the selection of the Core Writing Team (CWT) whose first meeting is scheduled for some time towards the end of 2019 after the completion of the First Order Drafts for each of the Working Group AR6 reports.

Ms Thelma Krug thanked the Chair of the IPCC for entrusting them with the responsibility to coordinate the preparation of the SYR at the AR6 Scoping Meeting and also thanked Mr Andy Reisinger, Working Group III Vice-Chair for his substantial contributions.

Ms Krug reminded the Panel of its previous decisions on the SYR, which were taken at the 41<sup>st</sup> Session (i.e. paragraph 3 of Decision IPCC/XLI-4) and the 43<sup>rd</sup> Session (i.e. paragraph 7 of Decision IPCC/XLIII-7) of the IPCC. She reiterated that the preliminary work carried out at the Scoping Meeting, which involved experts representing the three IPCC Working Groups, was part of the preparation for the dedicated SYR Scoping meeting to be held in 2019. The first round of discussions at the Scoping Meeting involving all three Working Groups was in recognition of the fact that the SYR will address topics transcending individual Working Group domains. Participants identified areas where the Working Group outlines could give particular attention to issues which warrant a coordinated treatment to facilitate synthesis.

Mr Youba Sokona, presented tentative broad elements underpinning the SYR, which are contained in document [IPCC-XLVI/Doc. 6](#). He informed the Panel that mechanisms to support the synthesis, which were discussed, include joint chapter meetings between Working Groups, discussions between Chapter Coordinating Lead Authors, joint Task Groups to deal with cross-cutting issues and internal guidance papers.

During the ensuing discussions Netherlands, Norway, India, Switzerland and Finland made statements.

One government representative supported by another proposed that a matrix of earmarked synthesizing themes across the three Working Group AR6 could be developed which might subsequently be used as guidance for selecting the CWT. One government representative suggested that the Working Group collaboration in integrating cross-cutting and synthesizing themes should begin early in the preparation of the AR6. One government representative reminded the Panel of the various approaches employed in the preparation of the SYR in the past and suggested that an approach, which aims to address the most pertinent issues such as those under the UNFCCC, should be devised. One government representative suggested that the SYR should produce practical and concrete usable information for users.

The Chair of the IPCC reported on the process for addressing cross-cutting themes during the Scoping Meeting, which is summarized in Section C of the document [IPCC-XLVI/Doc. 6](#). He highlighted that the Working Group Bureau deliberated on possible cross-cutting topics. A total of twenty-four cross-cutting themes were identified. The Scientific Steering Committee selected eight themes, which were discussed further in Breakout Group Sessions. Possible approaches to treating the cross-cutting themes were suggested.

In the ensuing discussions Norway and Germany made interventions.

It was suggested that there is a need for further work to identify the most crucial cross-cutting themes and requested Working Groups to work in collaboration. The government representative further requested the Executive Committee of the IPCC to prepare an updated document to be presented for the discussion at the next Plenary. One government representative suggested that technologies used in geo-engineering deserve further elaboration and emphasized the need for cross-Working Groups collaboration in dealing with cross-cutting issues. The Chair of the IPCC committed to providing more updated information on the treatment of cross-cutting issues at the 47<sup>th</sup> Session of the IPCC.

The Chair of the IPCC concluded that comments and suggestions from delegates would be considered by the IPCC Vice-Chairs and incorporated in the documents, which will be provided to the dedicated SYR Scoping Meeting.

The Panel took note of the document [IPCC-XLVI/Doc. 6](#).

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

Mr Andreas Fischlin, Co-Chair of the ATF-TGICA who introduced the document [IPCC-XLVI/Doc. 9](#) reported on the work of the Ad hoc Task Force. He highlighted that following the face-to-face meeting held in Guadalajara, two sub-groups were formed to accelerate their work. The first sub-group, which looks at the priority objectives for a future, TGICA has identified priorities, which were not yet fully concluded. The second sub-group works on the analysis of the responses to questionnaires, which were sent out to targeted people and to IPCC National Focal Points. Selected preliminary results from the analysis were presented.

The ATF-TGICA has not yet completed its tasks. The Co-Chair requested the Panel to extend the mandate of the Ad hoc Task Force until the 47<sup>th</sup> Session of the IPCC under its current membership.

The government representative of India commended the work of TGICA and suggested that the group should not only oversee the Data Distribution Centre (DDC) but should become more proactive and user-oriented in its approach and pay more attention to the usability of data and related information, to converting raw output from climate models into data which can be readily used to run impact models, to enhance awareness and use of standard impact assessment models, to facilitate access to regional climate data and scenario information and country-level socio-economic baseline data from reputed credible sources, to support vulnerability and impact analysis and to facilitate liaison with relevant external organizations.

The Panel approved the extension of the mandate of the ATF-TGICA until the 47<sup>th</sup> Session of the IPCC.

## **9. ALIGNMENT OF THE CYCLES OF THE IPCC AND THE GLOBAL STOCKTAKE**

The Secretary of the IPCC introduced the document [IPCC-XLVI/Doc. 3](#) under this agenda item. He highlighted the three options outlined in the document:

- Reducing the assessment cycle to five years noting that discussions on the future of the IPCC and elections for the next cycle will have to take place at the end of the current assessment cycle.
- Increasing the assessment cycle to ten years and producing an update of relevant information for the global stocktake in the middle of the assessment cycle.
- Maintaining current length of the cycle with the option that if the time of approval of the Assessment Report for a given cycle does not align with the timing of the immediate next global stocktake, the IPCC would produce a targeted Special Report the scope and timing of which would be designed to address the needs of the global stocktake.

The Chair noted that this was a very important agenda item that needed more discussion and that there would not be enough time to address it thoroughly during this session.

In the ensuing discussion the government representatives of the following member countries made interventions: Argentina, Brazil, Germany, France, India, Luxembourg, Norway, Saudi Arabia, Zambia and the United Kingdom.

Following the discussions, the Panel took note of the document and agreed that the agenda item would be discussed at its next Session. The Panel further agreed that before its next session, the Secretariat should invite governments to make submissions, which would inform the documentation and discussions at IPCC-47.

The Panel agreed in principle that a Task Group would be established, co-chaired by France and Mexico. The mandate and terms of reference of the group will be discussed and determined at the next session of the Panel.

## **10. PARTICIPATION OF DEVELOPING COUNTRIES IN IPCC ACTIVITIES**

The Panel due to time constraints did not discuss this agenda item. Government representatives of India and Zimbabwe made statements suggesting that the discussion on enhancing the participation of developing countries should be held at the 47<sup>th</sup> Session of the IPCC and that the concerns raised on the selection of authors from developing countries and the intra-regional imbalances should be given due consideration when the IPCC selects AR6 authors.

The Chair of the IPCC agreed that the agenda item should be deferred to the next Panel Session and pledged to urge the IPCC Bureau to take into consideration the concerns raised by governments during the AR6 authors' selection.

## **11. SHORT – LIVED CLIMATE FORCERS**

Mr Eduardo Calvo Buendia, Co-Chair of the TFI who introduced the document [IPCC-XLVI/Doc. 7](#) briefly elaborated on the three options contained in the proposal and the proposed timeline. The proposed Expert Meeting is expected to provide recommendations on future TFI work on short-lived climate forcers (SLCF) inventory methodology to be submitted for consideration by the Panel.

During the ensuing discussion government representatives of the following member countries made interventions: Norway, Canada, Sweden, Argentina, United States of America and Brazil.

One government representative expressed support for the proposal, particularly option 2, and recommended the establishment of a Scientific Steering Committee, and informed the Panel that two countries are willing to provide financial support for the Expert Meeting. One government representative noted that involvement of the Bureau in the preparation of such an initiative would be conducive. Another government representative suggested that the TFI Co-Chairs should also consider incorporating certain elements on methodologies, which are presented in option 1. Other government representatives voiced support for options 1 and 3, respectively. One government representative supported by another noted the financial constraints facing the IPCC and recommended that funding prioritization should be done to identify high priority activities to be undertaken in 2018.

The Chair of the IPCC noted that a majority of governments were in support of option 2 and requested the Panel to approve that the Expert Meeting should be held with a strong focus on the most preferred option.

The Panel approved the proposal to hold the Expert Meeting with a focus on option 2.

## **12. PROGRESS REPORTS**

### **12.1 Special Report on Global Warming of 1.5°C**

Ms Valérie Masson-Delmotte, Co-Chair of Working Group I reported that the First Order Draft of the Special Report on Global Warming of 1.5°C (SR1.5) was undergoing expert review at the time of reporting. More than 1,800 experts registered to review the report. She thanked the Government of Sweden for offering to host the Third Lead Author Meeting and requested

governments who would be willing to host the Fourth Lead Author Meeting to contact the Head of the Working Group I TSU.

The Panel took note of the progress report on the preparation of the SR1.5.

Ms Masson-Delmotte requested that the Panel provide guidance on whether the SR1.5 should have a Technical Summary which would consist of the Executive Summaries from the different chapters, to be consistent with the approach adopted in the preparation of the SROCC and SRCCL. This has to be implemented in the preparation of the Second Order Draft.

The government representative from Belgium raised a concern that since the Panel had already approved the outline for the SR1.5 it would be helpful to know the rationale for including a Technical Summary. Ms Masson-Delmotte explained that the main motivation is that the Technical Summary is translated into all UN Languages and will be very helpful to provide information in different languages and that the IPCC Bureau at its 54<sup>th</sup> Session supported the inclusion of a Technical summary in the SR1.5. Belgium accepted the explanation and supported by Germany, recommended that the Panel approves the inclusion of a Technical Summary in the SR1.5.

The Panel approved that the SR1.5 should have a Technical Summary.

Ms Masson-Delmotte explained to the Panel that Working Group I is proposing to hold an Expert Meeting during the first semester of 2018 on regional information to develop the guidelines for the AR6. The Secretariat suggested that the proposal could be submitted for consideration at the 47<sup>th</sup> Session of the IPCC.

In the ensuing discussions the government representatives of the following member countries spoke; Belgium, Germany, Norway and the United States of America.

The proposal to hold an Expert Meeting on Regional Information was supported in two of the interventions. Some government representatives noted that procedurally, the Panel would take a decision on the proposed meeting after reviewing the proposal document, which was not made available in this case. The Working Group II Co-Chair supported the proposal to hold the Expert Meeting but raised a concern that the 47<sup>th</sup> Session of the IPCC to be held in March or April 2018 will be too late for a decision on this matter. He proposed that the Executive Committee could take the decision on the Expert Meeting. Some government representatives suggested the Panel authorizes the Executive Committee to decide on the Expert Meeting upon receipt of the proposal and that IPCC Focal Points could receive the proposal for their information. The Head of the Working Group I TSU informed the Panel that the proposal had already been submitted to Executive Committee and that the appropriate time for holding the Expert Meeting is May 2018. One government representative requested the Panel to approve the Expert Meeting to allow the preparations to commence.

The Panel agreed that the Expert Meeting on Regional Information should be held in 2018 and mandated the Executive Committee to formally approve the meeting and the budget.

## **12.2. Special Report on the Ocean and Cryosphere in a Changing Climate**

Owing to time constraints, the Panel took note of the report contained in document [IPCC-XLVI/INF. 10](#) without a formal discussion.

## **12.3. Special Report on Climate Change and Land**

Owing to time constraints, the Panel took note of the report contained in document [IPCC-XLVI/INF. 11](#) without a formal discussion.

#### **12.4. Task Force on National Greenhouse Gas Inventories (TFI)**

Mr Kiyoto Tanabe, Co-Chair of the TFI reported that the TFI is developing the 2019 Refinement of the 2006 Guidelines for National Greenhouse Gas Inventories. As shown in document [IPCC-XLVI/INF. 5](#), 190 experts were selected by the Task Force Bureau as Lead Authors and Review Editors from among 328 nominations which were received. The First Lead Author Meeting (LAM1) was held in June 2017 in Bilbao, Spain where roles were allocated to authors, a detailed work plan was developed, and a decision was taken for the literature cutoff date to be 25 June 2018. He thanked the Government of Spain and the Basque Country Government for hosting the LAM1, and the Basque Centre for Climate Change and the University of the Basque Country for their generous support.

Mr Tanabe informed the Panel that the TFI continues to maintain, improve and promote the IPCC Emissions Factor Database (EFDB) and IPCC Inventory Software. The TFI continues its collaboration with the UNFCCC to help inventory compilers to better understand and use TFI products. He requested governments to submit nominations for replacements of some outgoing members of the EFDB Editorial Board.

The Panel took note of the report.

#### **12.5. Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)**

Owing to time constraints, the Panel took note of the report contained in document [IPCC-XLVI/INF. 7](#) without a formal discussion.

#### **12.6. Expert meeting on Mitigation, Sustainability and Climate Stabilization Scenarios**

Owing to time constraints, the Panel took note of the report contained in document [PCC-XLVI/INF. 6](#) without a formal discussion.

#### **12.7. Communication and outreach activities**

IPCC Senior Communications Manager, Mr Jonathan Lynn, presented the report on communication and outreach activities (document [IPCC-XLVI/INF.8](#)). From the report, he highlighted that the Secretariat had organized some of the outreach activities in a highly cost-effective manner and gave the example of two webinars for Early Career Research Scientists held in July 2017 and organized together with the Working Group Technical Support Units and the World Climate Research Programme.

Mr Lynn also highlighted the very useful role of outreach activities at all scales in promoting engagement with the work of the IPCC. He gave the example of the participation of IPCC Bureau Member and Vice-Chair of Working Group II Joy Pereira in the Fourth Session of the Pacific Meteorological Council (PMC-4) and the 2nd Pacific Ministerial Meeting on Meteorology (PMMM-2) in the Solomon Islands in August 2017, where she was able to engage with the focal points and other people from every country in the region to involve them in the work of the IPCC.

Mr Lynn showed a mock-up of the new IPCC website now under development. He reported on efforts to enhance the IPCC's presence on social media: the IPCC currently has around 93,000 followers on Twitter. Analysis of IPCC social media channels showed that the IPCC was reaching out to both developed and developing countries.

The Chair of the IPCC thanked the secretariat and invited the representative of Saudi Arabia to take the floor.

The government representative of **Saudi Arabia** announced that as part of its support to the IPCC, Saudi Arabia would hold a regional outreach event for the countries of the Middle East in Riyadh on 19-20 September 2017. This event would be sponsored by the King Abdulaziz City for Science and Technology (KACST) and would cover the results of the Fifth Assessment Report (AR5), including response options for climate change, and plans for the Sixth Assessment cycle. He said that organizers had sent out invitations to many stakeholders at all levels in the region including to decision-makers, business representatives, international organization, civil society, local communities, research, academia and students associations as well as the national and regional media. He expressed gratitude to IPCC Secretariat for its participation and support for this event which would bring great benefit to the region. The Chair expressed gratitude to Saudi Arabia for hosting this important regional outreach event and emphasized that the IPCC has a number of topical messages with the approved outlines for the Sixth Assessment Report.

The IPCC took note of the report on communication and outreach activities.

### **12.8. Scholarship programme**

Ms Ko Barrett, IPCC Vice-Chair and Chair of the IPCC Scholarship Programme Science Board introduced the agenda item. Making reference to document [IPCC-XLVI/INF. 4](#), she informed the Panel that 188 applications were received in response to the call for applications under the 4<sup>th</sup> round of awards. After the initial screening 185 applications were deemed complete and submitted for expert review. Thirteen students were selected for awards to pursue their PhD and post-doctoral research. Of these, seven were awarded scholarships by the Prince Albert II of Monaco Foundation and six were awarded scholarships by the Cuomo Foundation. She invited the Panel to sincerely thank the funding partners for continuing to generously support the Scholarship Programme. She also thanked the IPCC experts who diligently reviewed the applications under very tight deadlines.

Ms Barrett informed the Panel that the balance in the Scholarship Programme Trust Fund account was CHF 947,582.00, and that efforts to pursue partnership opportunities will be strengthened. She requested the Panel to provide suggestions and advice through the Secretariat on potential Trustees who could accept to serve in the Scholarship Programme Board of Trustees if appointed.

The Panel took note of the report.

### **13. MATTERS RELATED TO UNFCCC AND OTHER INTERNATIONAL BODIES**

Norway suggested that this agenda item be discussed at the next IPCC Panel Session and requested the Chair of the IPCC to engage the UNFCCC prior to the 23<sup>rd</sup> Conference of Parties.

The Chair of the IPCC agreed to defer the agenda item to the next Panel Session and to meet UNFCCC representatives to discuss possible ways of further strengthening the existing good working relationships and collaboration.

### **14. ANY OTHER BUSINESS**

No issue was raised under this agenda item.

## **15. PLACE AND DATE FOR THE 47TH PLENARY SESSION OF THE IPCC**

The Secretary informed the Plenary of the generous offer of the Government of France to host the 47<sup>th</sup> Session of the IPCC. The Panel gratefully accepted the offer to hold the next Panel Session in Paris, France early in 2018.

## **16. CLOSING OF THE SESSION**

The Chair of the IPCC thanked the Government of Canada for hosting a successful 46<sup>th</sup> Session of the IPCC. He thanked government representatives of member countries, Bureau members, the Secretariat and the interpreters for a successful meeting and gaveled the meeting to a close at 9.00 pm on Sunday 10 September 2017.

## 46<sup>TH</sup> SESSION OF THE IPCC

6 – 10 September 2017, Montreal, Canada

### Decisions adopted by the Panel

#### Decision IPCC/XLVI-1. IPCC Trust Fund Programme and Budget

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

1. Thanks the Secretariat of the IPCC for the support it has provided to the IPCC process.
2. Approves the following modifications to the 2018 budget proposal in **Annex 10** as compared to the budget approved at the 45<sup>th</sup> Session of the IPCC:
  - Reduction in the number of journeys for “TFB” budget line; decrease of CHF 36,000.
  - Adjustment in the number of journeys for “TFI Methodological development - Lead Author Meetings; decrease of CHF 234,000.
  - Addition of budget line “TFI – Expert Meeting on Short-lived Climate Forcers”; increase of CHF 187,200,
  - Adjustment in the number of days and addition of journeys for budget line “Bureau” – increase of CHF 318,000
  - Adjustment in the number of journeys for budget line “SR1 (1.5°C) LAM4”; increase of CHF 23,400.
  - Adjustment in the number of journeys for budget line “SR2 (Land) LAM2 and LAM3”; decrease of CHF 18,720.
  - Transfer of budget line “WG II AR6 LAM1” from 2018 to 2019; decrease of CHF 468,000.
  - Addition of budget line “WG I Expert Meeting on Assessing Climate Information for Regions”; increase of CHF 140,400.
  - Adjustment to budget line “Communication”; increase of CHF 59,500.
  - Deletion of budget line “Web conferences”; decrease of CHF 30,000.
  - Adjustment to budget line “Publications/Translations”; decrease of CHF 80,000.
3. Notes the forecast budget for 2019 (**Annex 11**) and the indicative budget for 2020 (**Annex 12**), 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 and for its contribution to the IPCC Trust Fund. Expresses its gratitude to the United Nations Framework Convention on Climate Change for its contribution to the IPCC Trust Fund.
5. Expresses its gratitude to member governments, especially those from developing countries, for their generous contributions to the IPCC Trust Fund, with special thanks to member governments which support the Technical Support Units (TSUs) and a number of IPCC activities, including data centres, meetings and outreach actions.

6. Urges member governments to maintain and preferably increase their level of contribution to the IPCC Trust Fund or to make a contribution in case they have not yet done so in order to broaden the donor base. Further urges member governments to make multi-year contributions. Notes that member governments, when transferring funds to WMO, should indicate that the contribution is “for the IPCC Trust Fund” to ensure proper identification of the recipient.
7. Thanks member governments who made pledges during IPCC-46 for 2017 and urges them to transfer the funds as soon as possible. Thanks member governments who made pledges during IPCC-46 for 2018 and urges them to transfer the funds as early as possible in 2018 and, if possible, before IPCC-47. Noting that contributions from IPCC member governments are due on 1 January of each calendar year.
8. Decides to continue preparing the budget of the IPCC Trust Fund using the standard costs, bearing in mind that expenditures may be lower than the budget. Further requests the Secretariat to explore any possible revision to the standard costs for meetings. Notes that even in a situation where expenditures are lower than the budget there will still be a need to use funds from the reserves and that there is an urgent need to reverse this trend.
9. Notes with deep concern that the level of contributions to the IPCC Trust Fund received and pledged to-date will not suffice to implement the work programme for 2018 and that there is a funding gap in 2017 of CHF 1.8 million which needs to be filled by the end of 2017. Urges all member governments to provide the Secretariat with an indication of their contributions as soon as possible. Notes with grave concern that there is a substantial shortfall in funding of the IPCC throughout the current cycle.
10. Notes that in Appendix B to the Principles Governing IPCC Work, paragraph 19 “Working Capital Reserve” – *“Within the IPCC Trust Fund there shall be maintained a working capital reserve at a level to be determined from time to time by the Panel by consensus. The purpose of the working capital reserve shall be to ensure continuity of operations in the event of a temporary shortfall of cash. Drawdowns from the working capital reserve shall be restored from contributions as soon as possible.”* Further notes that there is a need to establish the level of the working capital reserve for the IPCC Trust Fund, and requests the Secretariat to prepare a proposal for the level and purpose of the working capital reserve of the IPCC for the 47<sup>th</sup> Session of the Plenary (IPCC-47).
11. Requests the Secretariat to provide to member governments, on a bi-monthly basis, information on actual expenditures and expected year-end outcome.
12. Requests that the Secretariat presents the budget in a format that includes the cash balance and which categorises expenditure per activity as well as budget code level.
13. Requests the Secretariat to produce a plan to reduce costs in the Secretariat and present it to IPCC-47.

## **Ad Hoc Task Group on Financial Stability of the IPCC**

14. Thanks the Co-chairs of the Ad Hoc Task Group on Financial Stability of the IPCC (ATG-Finance) for their work in producing the document contained in IPCC-XLVI/Doc.8. Further thanks the members of the ATG-Finance for their input and advice.

15. Extends the mandate of the ATG-Finance with specific focus on parts 2 and 3 of its mandate; (2) exploring means to mobilize additional resources, including from UN organizations and others (e.g., UNEP, GEF, GCF), and evaluating their potential implications, in particular issues related to conflict of interest and legal matters; and (3) providing guidance on the eligibility of potential donors, including the private sector.

16. Decides to revisit the discussion on the fundraising options as contained in the report of the Ad Hoc Task Group on Financial Stability of the IPCC. Requests the ATG-Finance to report back to IPCC-47 with its proposals.

17. Encourages the Chair and the Secretary of the IPCC to continue their resource mobilisation efforts.

## REVISED 2017 BUDGET ADOPTED BY IPCC-XLV

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	1 meeting	120,000 30 journeys	20,400	140,400
SR 1 (1.5°C) LA 1, LA 2 and LA 3	CL/LA	600,000 150 journeys	102,000	702,000
SR 2 (Land) LA 1	CL/LA	236,000 59 journeys	40,120	276,120
SR 3 (Oceans) LA 1	CL/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>3,376,160</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
Library facility	one-time fee (moved from 2016)			103,000
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>878,628</b>
<b>Secretariat</b>				
Secretariat	staff costs/misc expenses			1,912,500
Resource Mobilization	travel costs (Phase I: 2017-2019)			15,800
<b>SUB-TOTAL</b>				<b>1,928,300</b>
<b>TOTAL</b>				<b>8,336,088</b>

## PROPOSED 2018 BUDGET ADOPTED BY IPCC-XLVI

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 5 days	2 sessions 72 journeys	288,000	150,000	438,000
Executive Committee 4 days	2 sessions and consultations	0	10,880	10,880
TFB	1 session	0 0 journeys	6,120	6,120
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>				
WG I AR6 LA 1	CLA/LA	400,000 100 journeys	68,000	468,000
WG II AR6 LA 1	CLA/LA (move to 2019)	0 100 journeys	0	0
SR 1 (1.5°C) LA 4	CLA/LA	200,000 50 journeys	34,000	234,000
SR 2 (Land) LA 2 and LA 3	CLA/LA	512,000 128 journeys	87,040	599,040
SR 3 (Oceans) LA 2 and LA 3	CLA/LA	360,000 90 journeys	61,200	421,200
WG I Expert Meeting - Assess climate info for regions	1 meeting (contingency)	120,000 30 journeys	20,400	140,400
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 (contingency)	60,000 15 journeys	10,200	70,200
TFI Methodological devt. Lead Author meetings	2 meetings	672,000 168 journeys	114,240	786,240
TFI Expert meeting on Short-Lived Climate Forcers	1 meeting	160,000 40 journeys	27,200	187,200
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
<b>SUB-TOTAL</b>				<b>3,493,160</b>
<b>Other Expenditures</b>				
2006 GL software	maintenance/development			6,000
EFDB maintenance	update/management			7,000
Publications/Translations	IPCC publications			120,000
Communication	AR6 material/travel/events			320,000
Distribution	IPCC publications			100,000
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>801,128</b>
<b>Secretariat</b>				
Secretariat	staff costs/misc expenses			1,912,500
Resource Mobilization	travel costs (Phase I: 2017-2019)			15,600
<b>SUB-TOTAL</b>				<b>1,928,100</b>
<b>TOTAL</b>				<b>8,277,388</b>

## FORECAST 2019 BUDGET NOTED BY IPCC-XLVI

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 (Land)	480,000 120 journeys	280,000	760,000
IPCC-51 4 days	Programme and budget Acceptance SR3 (Oceans)	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	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>2,821,000</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 1 and LA 2	CLA/LA meeting	800,000 200 journeys	136,000	936,000
WG III AR6 LA 1 and LA 2	CLA/LA meeting	800,000 200 journeys	136,000	936,000
SR 2 (Land) LA 4	CLA/LA meeting	292,000 73 journeys	49,640	341,640
SR 3 (Oceans) 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)	64,000 16 journeys	0	64,000
TFI Expert meeting	1 meeting (contingency)	100,000 25 journeys	17,000	117,000
<b>SUB-TOTAL</b>				<b>4,057,920</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
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>821,628</b>
<b>Secretariat</b>				
Secretariat	staff costs/misc expenses			1,912,500
Resource Mobilization	travel costs (Phase I: 2017-2019)			15,600
<b>SUB-TOTAL</b>				<b>1,928,100</b>
<b>TOTAL</b>				<b>9,628,648</b>

New activity as compared to budget noted in IPCC-43 & IPCC-44, subject to Panel approval in IPCC-51  
All activities subject to Panel approval in IPCC-51

## INDICATIVE 2020 BUDGET NOTED BY IPCC-XLVI

Activity	Purpose	DC/EIT support	Other Expenditure	Sub-total
<b>Governing bodies</b>				
IPCC-52 4 days	Programme and budget	480,000 120 journeys	280,000	760,000
IPCC-53 4 days	Programme and budget	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	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>2,061,000</b>
<b>Lead Authors, scoping, expert meetings and workshops</b>				
WG I AR6 LA 4	CLA/LA meeting	400,000 100 journeys	68,000	468,000
WG II AR6 LA 3 and LA 4	CLA/LA meeting	800,000 200 journeys	136,000	936,000
WG III AR6 LA 3 and LA 4	CLA/LA meeting	800,000 200 journeys	136,000	936,000
SYR AR6	CWT-2 meeting	60,000 15 journeys	10,200	70,200
SYR AR6	CWT-3 & CWT-3bis meetings	120,000 30 journeys	20,400	140,400
TGICA	2 meetings contingency	96,000 24 journeys	16,320	112,320
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	1 meeting contingency	100,000 25 journeys	17,000	117,000
<b>SUB-TOTAL</b>				<b>3,029,840</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
IT Infrastructure	web hosting/cloudflare/upgrades			13,128
External Audit	fee			20,000
Advisory Services	Conflict of Interest			30,000
Co-Chairs	support			200,000
<b>SUB-TOTAL</b>				<b>836,628</b>
<b>Secretariat</b>				
Secretariat	staff costs/misc expenses			1,912,500
Resource Mobilization	travel costs (Phase II: 2020-2022)			15,800
<b>SUB-TOTAL</b>				<b>1,928,300</b>
<b>TOTAL</b>				<b>7,855,768</b>

All activities subject to Panel approval in IPCC-53

## **Decision IPCC/XLVI-2. Chapter outline of the Working Group I contribution to the Sixth Assessment Report (AR6)**

*The Intergovernmental Panel on Climate Change decides,*

(1) To agree to the outline of the Working Group I contribution to the IPCC Sixth Assessment Report as contained in Annex 1 to this document.

(2) That this report assesses relevant literature, especially since the Fifth Assessment Report (AR5), in a manner consistent with the IPCC guidance on the use of literature.

(3) 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.

(4) To invite the Co-Chairs of Working Group I and the Co-Chairs of WGII and WGIII to develop appropriate mechanisms to ensure the effective co-ordination of Working Group contributions to the IPCC Sixth Assessment Report, to oversee the treatment of cross-cutting themes, and to prepare a Glossary common to Working Groups I, II and III.

(5) That in order to achieve this, the timetable for the production of the IPCC Working Group I contribution to IPCC Sixth Assessment Report is as follows:

15 September – 27 October 2017	Call for author nominations
29 January – 4 February 2018	Decision on Selection of authors
25 June – 1 July 2018	First Lead Author Meeting
7 – 13 January 2019	Second Lead Author Meeting
29 April – 23 June 2019	Expert Review of the First Order Draft
26 August – 1 September 2019	Third Lead Author Meeting
2 March – 26 April 2020	Expert and Government Review of the Second Order Draft
1 – 7 June 2020	Fourth Lead Author Meeting
7 December 2020 – 31 January 2021	Final Government Distribution of the Final Draft and Final Government Review of the Summary for Policy Makers
12 – 18 April 2021	Submission to the WGI Session for approval of the Summary for Policymakers and acceptance of the underlying Report

(6) That the budget for the production of the Working Group contribution to the IPCC Sixth Assessment Report is as contained in Decision (IPCC/XLVI-1) on the IPCC Trust Fund Programme and Budget.

**Chapter outline of the Working Group I contribution to the IPCC Sixth Assessment Report (AR6)**

**Summary for Policy Makers**

**Technical Summary**

**Chapter 1:**

**Framing, context, methods**

Executive Summary

- Synthesis of key findings from AR5 and earlier assessment reports, and connections to AR6 Special Reports
- Framing of the physical science information relevant for mitigation, adaptation, and risk assessment in the context of the Global Stocktake
- Assessment approach
- Observational and reanalysis developments since the AR5
- Model and experimental design developments since the AR5
- Emissions and forcing scenarios
- Treatment and evaluation of uncertainty throughout the report

Frequently Asked Questions

**Chapter 2:**

**Changing state of the climate system**

Executive Summary

- Multi-millennial context, pre-industrial to present day
- Natural and anthropogenic forcings
- Radiative forcing
- Large-scale indicators of observed change in the atmosphere, ocean, cryosphere, land, and biosphere
- Modes of variability

Frequently Asked Questions

## **Chapter 3:**

### **Human influence on the climate system**

#### Executive Summary

- Overview of model performance and development since the AR5
- Simulated large-scale indicators of change in the atmosphere, ocean, cryosphere, land, and biosphere
- Simulated modes of variability
- Natural variability versus anthropogenically-forced change
- Attribution of large-scale observed changes

#### Frequently Asked Questions

## **Chapter 4:**

### **Future global climate: scenario-based projections and near-term information**

#### Executive Summary

- Projections of global mean surface temperature and other key global indicators
- Evaluation of multi-model ensemble methods
- Large scale patterns of climate change
- Committed climate response, climate targets, overshoot, irreversibility, abrupt change
- Climate response to greenhouse gas removal scenarios
- Climate response to solar radiation management scenarios
- Interplay between internal variability and response to forcings, including short-lived forcings
- Variability and unexpected changes of global mean surface temperature
- Near-term predictability, sources and capabilities
- Synthesis of climate information in the near-term

#### Frequently Asked Questions

## **Chapter 5:**

### **Global carbon and other biogeochemical cycles and feedbacks**

#### Executive Summary

- Feedbacks between climate and biogeochemical cycles, including paleoclimate information
- Ocean acidification
- Historical trends and variability of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O; sources and sinks
- Projections of global biogeochemical cycles from near-term to long-term
- Abrupt change, irreversibility
- Model evaluation, emergent constraints
- Transient climate response to cumulative emissions and remaining carbon budgets for climate targets
- Biogeochemical implications of land and coastal management mitigation options and greenhouse gas removal
- Biogeochemical implications of solar radiation management scenarios

#### Frequently Asked Questions

## **Chapter 6:**

### **Short-lived climate forcings**

#### Executive Summary

- Key emissions: global overview, natural, anthropogenic, historical and scenarios
- Observed and reconstructed concentrations and radiative forcing
- Direct and indirect-aerosol forcing
- Implications for greenhouse gas lifetimes
- Implications of different socio-economic and emission pathways, including urbanisation, for radiative forcing
- Connections to air quality and atmospheric composition

#### Frequently Asked Questions

## **Chapter 7:**

### **The Earth's energy budget, climate feedbacks, and climate sensitivity**

#### Executive Summary

- Energy budget and its changes through time
- Radiative forcing: definitions, estimates, and its representation in models
- Climate feedbacks
- Sensitivity of the climate system: methods and uncertainty
- Empirical constraints on the sensitivity of the climate system, including paleoclimate
- Global warming potential, global temperature change potential, and other metrics

#### Frequently Asked Questions

## **Chapter 8:**

### **Water cycle changes**

#### Executive Summary

- Observations, models, methods and their reliability
- Past, present and projected changes, trends, variability and feedbacks in the physical components of the water cycle
- Circulation, processes and phenomena (e.g. monsoon systems) affecting moisture and precipitation patterns, including extremes
- Cloud-aerosol processes affecting the water cycle
- Changes in seasonality of natural storage and water availability
- Abrupt change
- Confidence in projections

#### Frequently Asked Questions

## **Chapter 9:**

### **Ocean, cryosphere, and sea level change**

#### Executive Summary

- Past and future changes in ocean circulation and properties (trends, variability and extremes)
- Past and future changes in marine and terrestrial cryosphere
- Evaluation of models and projection methods
- Detection and attribution
- Past global and regional sea level changes
- Projections of global and regional sea level change
- Abrupt change and long-term commitment
- Extreme water levels (tides, surge and ocean waves)

#### Frequently Asked Questions

## **Chapter 10:**

### **Linking global to regional climate change**

#### Executive Summary

- Regional phenomena, drivers, feedbacks and teleconnections
- Regional scale observations and reanalyses
- Interplay between internal variability and forced change at the regional scale, including attribution
- Evaluation of model improvements, methods, including downscaling and bias adjustment and regional specificities
- Confidence in regional climate information, including quantification of uncertainties
- Scale specific methodologies e.g. urban, mountains, coastal, catchments, small islands
- Approaches to synthesizing information from multiple lines of evidence

#### Frequently Asked Questions

## **Chapter 11:**

### **Weather and climate extreme events in a changing climate**

#### Executive Summary

- Extreme types, encompassing weather and climate timescales and compound events (including droughts, tropical cyclones)
- Observations for extremes and their limitations, including paleo
- Mechanisms, drivers and feedbacks leading to extremes
- Ability of models to simulate extremes and related processes
- Attribution of changes in extremes and extreme events
- Assessment of projected changes of extremes and potential surprises
- Case studies across timescales

#### Frequently Asked Questions

## **Chapter 12:**

### **Climate change information for regional impact and for risk assessment**

#### **Executive Summary**

- Framing: physical climate system and hazards
- Region-specific integration of information, including confidence
- Information (quantitative and qualitative) on changing hazards: present day, near term and long term
- Region-specific methodologies
- Relationship between changing hazards, global mean temperature change, scenarios and emissions

#### **Frequently Asked Questions**

## **ANNEXES**

### **Options for cross-WG integration including Regional Atlas**

### **Cross Working Group Glossary**

### **Technical Annexes**

### **List of Acronyms**

### **List of Contributors**

### **List of Reviewers**

## **INDEX**

**Decision IPCC/XLVI-3. Chapter outline of the Working Group II contribution to the Sixth Assessment Report (AR6)**

*The Intergovernmental Panel on Climate Change decides,*

(1) To agree to the outline of the contribution of Working Group II to the Sixth Assessment Report as contained in Annex 1 to this document.

(2) That this report assesses relevant literature, especially since the Fifth Assessment Report (AR5), in a manner consistent with the IPCC guidance on the use of literature.

(3) 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.

(4) To invite the Co-Chairs of Working Group II and the Co-Chairs of WGI and WGIII to develop appropriate mechanisms to ensure the effective coordination of Working Group contributions to the IPCC Sixth Assessment Report, to oversee the treatment of cross-cutting themes, and to prepare a Glossary common to Working Groups I, II and III.

(5) That in order to achieve this, the timetable for the production of the Working Group II contribution to the AR6 is as follows:

15 September – 27 October 2017	Call for nominations of Coordinating Lead Authors, Lead Authors and Review Editors
29 January – 4 February 2018	Selection of Authors
21–25 January 2019	First Lead Authors Meeting
8–12 July 2019	Second Lead Authors Meeting
21 October – 16 December 2019	Expert Review of the First Order Draft
27–31 January 2020	Third Lead Authors Meeting
7 August – 2 October 2020	Expert and Government Review of the Second Order Draft
2–7 November 2020	Fourth Lead Authors Meeting
11 June – 6 August 2021	Final Government Distribution of the Final Draft and Final Government Review of the Summary for Policymakers
4 – 8 October 2021	IPCC approval of the Summary for Policymakers and acceptance of the underlying Report

(6) That the budget for the production of the Working Group II contribution to the IPCC Sixth Assessment Report is as contained in Decision (IPCC/XLVI-1) on the IPCC Trust Fund Programme and Budget.

**Chapter outline of the Working Group II contribution to the IPCC Sixth Assessment Report (AR6)**

**Summary for Policymakers [pages TBD]**

**Technical Summary [40 pages]**

**Chapter 1: Point of departure and key concepts [30 pages]**

- Changing policy context (including UNFCCC, Paris Agreement and Global Stocktake, SDGs, etc.); AR5 and SR findings and critical messages, goals of this report
- The significance of sectoral and regional climate risks to natural and human systems and their interactions in the context of culture, values, ethics, identity, behaviour, historical experience, and knowledge systems (e.g., indigenous and local)
- The climate risk framework used in this report encompassing hazard, exposure, and vulnerabilities, including their spatial distribution, cascading impacts, disaster risk reduction, and risk uncertainties
- The significance of adaptation, in addressing climate change risks, including diverse adaptation responses, technologies including nature and ecosystem-based adaptation, outcomes, common principles, resilience, and issues of scale
- Detection and attribution of climate impacts and methods to evaluate adaptation responses
- Understanding dynamic climate risks from scenarios that reflect multiple interacting drivers
- Scientific, technical and socioeconomic aspects of current and future residual impacts of climate change, including residual damage, irreversible loss, and economic and non-economic losses caused by slow onset and extreme events
- Limits to adaptation, and enabling conditions for effective adaptation including governance, institutions, and economic aspects
- Climate change responses and their interactions with sustainable development, including adaptation with mitigation co-benefits and trade-offs
- Opportunities for enhancing climate resilient development pathways

**SECTION 1: Risks, adaptation and sustainability for systems impacted by climate change**

**Chapter 2: Terrestrial and freshwater ecosystems and their services [60 pages]**

- Point of departure, key findings of other reports, organised by biomes including freshwater ecosystems, taking into account ecological disequilibria
- Historical and paleontological aspects of climate change impacts and risks
- Trends in critical ecosystems including detection and attribution of observed impacts and responses

- Projected hazards and exposure (link to WGI), including extreme events and interactions of multiple climatic, non-climatic and anthropogenic stressors at relevant temporal and spatial scales
- Projected impacts: species, ecosystem structure and biodiversity, emergence of novel communities, process rates, functions, and the implication for their services, at relevant temporal and spatial scales
- Vulnerability and resilience, enablers and limits to natural and planned adaptation, and maladaptation
- Assessing risks, opportunities, costs, and trade-offs including consideration of scenarios and impacts of adaptation and mitigation responses
- Planned adaptation and mitigation for management of risk within sustainable development and relevant policy contexts (SDGs), informed by cultural, ethical, identity, economic and behavioural dimensions
- Lessons from case studies

### **Chapter 3: Ocean and coastal ecosystems and their services [60 pages]**

- Point of departure, key findings of other reports, organised by systems, taking into account ecological disequilibria
- Historical and paleontological aspects of climate change impacts and risks
- Trends in critical ecosystems including detection and attribution of observed impacts
- Projected hazards and exposure (link to WGI), including extreme events and interactions of multiple climatic, non-climatic and anthropogenic stressors at relevant temporal and spatial scales, including ocean warming, ocean acidification, and oxygen loss
- Projected impacts: species, ecosystem structure and biodiversity, emergence of novel communities, process rates, functions, and the implication for their services, at relevant temporal and spatial scales
- Vulnerability and resilience, enablers and limits to natural adaptation
- Assessing risk, opportunities, costs, and trade-offs including consideration of scenarios and impacts of adaptation and mitigation responses
- Planned adaptation and mitigation for management of risk within sustainable development and relevant policy contexts (SDGs), informed by cultural, ethical, identity, economic and behavioural dimensions
- Lessons from case studies

### **Chapter 4: Water [60 pages]**

- Observed and projected hydrological changes on basin and watershed scales and water related hazards including floods, droughts and landslides
- Key short, medium and long term risks to water security, including quantity and quality in the context of critical sectors (including food-energy-water-health nexus) and different users and systems under alternative scenarios
- Adaptation responses including cooperation in different climatic zones to water security risks with co-benefits for sustainable development including consideration of impacts of adaptation and mitigation responses
- Societal responses to changes in shared water resources

- Approaches to achieving resilience in water systems and assessments of outcomes, costs, benefits, and where maladaptations were evident
- Lessons from case studies

### **Chapter 5: Food, fibre, and other ecosystem products [60 pages]**

- Climate-driven historical changes in agriculture, fisheries and forestry, detection and attribution of impacts, including impacts of adaptation and mitigation responses, considering key findings of other reports
- Current and projected risks for food and nutrition security, food systems on land and in the ocean, and the food-energy-water-health nexus
- Current and projected risks for wood, fibre and natural products, such as medicinal organisms, rubber and dyes
- Adaptation options for the production and use of food, fibre, and other ecosystem products across scales and regions including limits and barriers, knowledge systems and aspects of sustainable development
- Competition for the use of land and ocean, including conflicts with indigenous rights to land and water bodies, and other tradeoffs in the context of adaptation and mitigation responses
- Current and projected risks for provisioning and cultural ecosystem services with considerations of ethics and identity
- Lessons from case studies

### **Chapter 6: Cities, settlements and key infrastructure [60 pages]**

- Changes in the international policy architecture for settlements since AR5 (including SDGs)
- Interactions of climate risks with urban and rural change processes including food-energy-water-health nexus (e.g., air quality)
- Risk-reducing infrastructure and services (including ecological and social), their deficits, and implications for vulnerability, exposure and adaptation, particularly in the context of extreme events
- Detection and attribution of observed impacts and responses and projected risks from climate change under alternative scenarios for cities and settlements, and related infrastructure
- Adaptation options, adaptive capacity, responses and outcomes, including equity considerations, and links to mitigation
- Institutional, financial, and governance structures that enhance resilience of and enable adaptation in settlements, cities and key infrastructure
- Lessons from case studies

## **Chapter 7: Health, wellbeing and the changing structure of communities [50 pages]**

- Health and wellbeing impacts, including detection and attribution
- Projected risks to health and wellbeing under alternative scenarios, including food-energy-water-health nexus
- Vulnerable populations and communities
- Adaptation options, limits to adaptation, and their social, environmental and economic implications in the context of sustainable development
- Observed impacts and projected changes in migration, displacement, and trapped populations, and linkages to adaptation
- Psychological, social, and cultural dimensions
- Lessons from case studies

## **Chapter 8: Poverty, livelihoods and sustainable development [60 pages]**

- Detection and attribution of observed impacts and responses
- Projected climate change risks under alternative development scenarios as differentiated by economic opportunity and shifting livelihoods
- Observed and projected risks and losses and the challenges for equity and sustainable development
- Adaptation options, adaptive capacity and actions, and their outcomes for resilience and transformation, focusing on low-income households and communities
- Opportunities for development including adaptation with mitigation co-benefits and tradeoffs, economic diversification, equity, human security, coping with loss, residual risk, and sustainable development
- Lessons from case studies

## **SECTION 2: Regions**

### **Common elements across all *regional* chapters (guidance points not an outline)**

- Information on selected regional and sub-regional climate characteristics and zones
- Summary Table and/or figures with WGI and WGII information, combined with risk assessment (e.g., SREX SPM.1)
- Detection and attribution of observed impacts in natural and human systems on diverse time scales
- Region specific information on exposure and vulnerability
- Current sectoral climate risks, including specific regional and sub-regional considerations related to land, coasts and regional oceans
- Cultural and psychological dimensions (values, attitudes, ethical aspects, identity, behaviours, and different types of knowledge systems)
- Observed impacts and projected risks including identifying key risks and residual risks as well as development pathways depending on rate and level of climate change, including extremes and sea level rise
- Diverse adaptation options including opportunities, enablers, limits, barriers, adaptive capacity, and finances

- Governance and economic aspects including legal, institutional, financing, price responses, and trade
- Cross sectoral, intra-regional, and inter-regional issues including consideration of temporal scale
- Interaction of risks and responses to climate change with sustainable development pathways
- Implications of availability and heterogeneity of data, including the use of 'grey literature'
- Lessons from case studies

**Chapter 9: Africa [50 pages]**

**Chapter 10: Asia [50 pages]**

**Chapter 11: Australasia [30 pages]**

**Chapter 12: Central and South America [50 pages]**

**Chapter 13: Europe [40 pages]**

**Chapter 14: North America [40 pages]**

**Chapter 15: Small Islands [30 pages]**

**CROSS-CHAPTER PAPERS (with material for TS/SPM as appropriate)**

- **Biodiversity hotspots (land, coasts and oceans) [10 pages]**
- **Cities and settlements by the sea [10 pages]**
- **Deserts, semi-arid areas, and desertification [10 pages]**
- **Mediterranean region [10 pages]**
- **Mountains [15 pages]**
- **Polar regions [15 pages]**
- **Tropical forests [10 pages]**

**SECTION 3: Sustainable development pathways: integrating adaptation and mitigation**

**Chapter 16: Key risks across sectors and regions [40 pages]**

- Synthesis of observed impacts and responses, including detection and attribution
- Key risks and avoided impacts under a range of climate and development pathways, across temporal and spatial scales
- Limits to adaptation and residual risks in natural and human systems
- Reasons for Concern across scales
- Lessons from case studies at different scales, including trans-boundary risks

## **Chapter 17: Decision-making options for managing risk [40 pages]**

- Drivers of decision-making: values, perceptions, differential power and influence, behaviour, incentives, and financial opportunities
- Decision-making and governance for managing risk considering residual risk and limits to risk management across multiple scales, institutions, and systems
- Costs and non-monetized loss, benefits, synergies, and trade-offs, including distributional aspects
- Adaptation planning, implementation, finance needs and international cooperation, including consideration of public and private financial flows
- Lessons from case studies at different scales, including issues of governance and finance

## **Chapter 18: Climate resilient development pathways\* [40 pages]**

- Synergies and trade-offs of sustainable development (including SDGs), adaptation and mitigation, including the social effects of greenhouse gas emissions
- Adaptation pathways, including transformation and economic diversification, technologies, and strategies that strengthen resilience, reduce inequalities, and improve climate related human wellbeing
- Synthesis of risks and levels of adaptation in climate resilient pathways
- Lessons from case studies at different scales

*\*connection to WG III*

**ANNEX I: Regional Atlas**

**ANNEX II: Glossary**

**ANNEX III: List of Acronyms**

**ANNEX IV: List of Contributors**

**ANNEX V: List of Reviewers**

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**Decision IPCC/XLVI-4. Chapter outline of the Working Group III contribution to the Sixth Assessment Report (AR6)**

*The Intergovernmental Panel on Climate Change decides,*

(1) To agree to the outline of the Working Group III contribution to the IPCC Sixth Assessment Report as contained in Annex 1 to this document.

(2) That this report assesses relevant literature, especially since the Fifth Assessment Report (AR5), in a manner consistent with the IPCC guidance on the use of literature.

(3) 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.

(4) To invite the Co-Chairs of Working Group III and the Co-Chairs of WGI and WGII to develop appropriate mechanisms to ensure the effective co-ordination of Working Group contributions to the IPCC Sixth Assessment Report, to oversee the treatment of cross-cutting themes, and to prepare a Glossary common to Working Groups I II and III.

(5) That in order to achieve this, the timetable for the production of the IPCC Working Group III contribution to IPCC Sixth Assessment Report is as follows:

Sep 15 – Oct 27, 2017	Call for CLA/LA/RE Nominations
Jan 29 – Feb 4, 2018	Decision on selection of CLA/LA/RE
Apr 1 – 5, 2019	1 <sup>st</sup> Lead Author Meeting (LAM1)
Sep 30 – Oct 4, 2019	2 <sup>nd</sup> Lead Author Meeting (LAM2)
Dec 9, 2019 – Jan 31, 2020	1 <sup>st</sup> Order Draft (FOD) Expert Review
Mar 30 – Apr 3, 2020	3 <sup>rd</sup> Lead Author Meeting (LAM3)
Jun 1 – Jul 24, 2020	2 <sup>nd</sup> Order Draft (SOD) Expert Review
Oct 19 – 23, 2020	4 <sup>th</sup> Lead Author Meeting (LAM4)
Feb 1– Mar 26, 2021	FGD Government Review of SPM
Jul 12 – 14, 2021	IPCC acceptance/adoption/approval

(6) That the budget for the production of the Working Group contribution to the IPCC Sixth Assessment Report is as contained in Decision (IPCC/XLVI-1) on the IPCC Trust Fund Programme and Budget.

## Chapter outline of the Working Group III contribution to the IPCC Sixth Assessment Report (AR6)

### Summary for Policymakers

### Technical Summary

#### Chapter 1 Introduction and Framing

- Key findings from AR5 and Special Reports
- Recent developments such as the Paris Agreement and potential scientific inputs from the IPCC, including to the Global Stocktake and the SDGs
- Sustainable development perspectives
- Technology and other developments: multiple entry points to climate mitigation
- Solution orientation and accelerating progress
- Policy (multiple goal setting)
- Regional breakdown as relevant — local institutions, cultures, circumstances
- Sectors, services and systems
- Methods and framings including models, analysis, top-down/bottom-up, scenario framework, cost-benefit, treatment of uncertainty, risk assessment, data, social science framings
- Knowledge gaps
- Strong link with Chapter 17

#### Chapter 2: Emissions trends and drivers

- Past and present trends of territorial emissions and sinks on an annual and cumulative basis (by region, sector, GHG, etc.), including estimates of uncertainty
- Past and present trends of consumption-based emissions on an annual and cumulative basis (by region, sector, GHG, etc.), including estimates of uncertainty
- Socio-economic and demographic drivers (e.g. GDP, population, international trade) and their trends
- Overview of sectoral emission drivers and their trends
- Climate and non-climate policies and measures at different scales and their impacts on emissions
- Technological choices and changes and impacts of technological breakthroughs
- Emissions associated with existing and planned long-lived infrastructure
- Behavioral choices and lifestyles at individual and societal levels

### **Chapter 3: Mitigation pathways compatible with long-term goals**

- Methods of assessment, including approaches to analysis of mitigation and development pathways
- Socio-cultural-techno-economic assumptions and projections, including regional differences (referring to baseline and mitigation scenarios, Shared Socio-economic Pathways (SSPs), etc.
- Modelled emission pathways compatible with the Paris Agreement, including the long-term temperature goal<sup>2</sup>, and higher warming levels, taking into account CO<sub>2</sub>, non-CO<sub>2</sub> and short-lived climate forcers (including peaking, rates of change, balancing sources and sinks, and cumulative emissions)
- Role of changing climate on emissions
- System transitions and/or transformation compatible with mitigation pathways, including supply and demand and integrating sectoral information
- Economics of mitigation and development pathways, including mitigation costs, investment needs, employment effects, etc.
- Technological and behavioural aspects of mitigation pathways and socio-technical transitions
- Interaction between near- to mid-term action, and long-term mitigation pathways
- Links to sustainable development including risks, co-benefits, synergies, trade-offs and spill-over effects
- Links to adaptation including risks, co-benefits, synergies, trade-offs and spill-over effects
- Benefits of mitigation, including information from WG II
- Risk analysis of emission pathways considering uncertainty about climate response

### **Chapter 4: Mitigation and development pathways in the near- to mid-term**

- Accelerating mitigation in the context of sustainable development at the national, regional and international scales
- Projections of socio-economic and demographic drivers (e.g. GDP, population)
- Aggregate effects of climate action including NDCs and other mitigation efforts relative to long-term mitigation pathways, including methodologies and gap analysis
- Mitigation efforts in the context of national and, where appropriate, subnational action plans and policies
- National, regional and global modelling of mitigation and development pathways in relation to mid-century strategies
- Implications of mitigation for national development objectives, including: employment, competitiveness, GDP, poverty, etc., and contributions of sustainable development pathways to mitigation
- Enabling conditions for mitigation, including technology development and transfer, capacity building, finance, and private and public sector participation
- Uncertainties and risks to the achievement of mitigation goals
- Links to sustainable development including risks, co-benefits, synergies, trade-offs and spill-over effects
- Links to adaptation including risks, co-benefits, synergies, trade-offs and spill-over effects
- Benefits of mitigation, and mitigation co-benefits of adaptation including information from WG II

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<sup>2</sup> As set out in article 2 of the Paris Agreement.

## **Chapter 5: Demand, services and social aspects of mitigation**

- Mitigation, sustainable development and the SDGs (human needs, access to services, and affordability)
- Patterns of development and indicators of wellbeing
- Sustainable consumption and production
- Linking services with demand, sectors, systems - implications for mitigation and sustainable development
- Culture, social norms, practices and behavioural changes for lower resource requirements
- Sharing economy, collaborative consumption, community energy
- Implications of information and communication technologies for mitigation opportunities taking account of social change
- Circular economy (maximising material and resource efficiency, closing loops): insights from life cycle assessment and material flow analysis
- Social acceptability of supply and demand solutions
- Leapfrogging, capacity for change, feasible rates of change and lock-ins
- Identifying actors, their roles and relationships
- Impacts of non-mitigation policies (welfare, housing, land use, employment, etc.)
- Policies facilitating behavioural and lifestyle change
- Case studies and regional specificities

## **Common elements across sectoral chapters 6-11**

- Boundaries, scope and changing context
- Key findings from AR5 and the Special Reports
- Trends in emissions and their key drivers
- Global and regional costs and potentials
- Regional specificities
- The impacts of climate change on emissions and mitigation options
- Links to adaptation, including risks, adaptation with mitigation co-benefits, co-benefits, synergies, trade-offs and spill-over effects, as appropriate
- Links to sustainable development, including risks, co-benefits, synergies, trade-offs and spill-over effects, as appropriate
- Infrastructure and lock-in, as appropriate
- Sector specific barriers, policies, financing, and enabling conditions
- Knowledge gaps
- Case studies – as appropriate

## **Chapter 6: Energy systems**

- Energy services, energy systems and energy sector, integrations with other systems (including food supply system, buildings, transportation, industrial systems)
- Energy resources (fossil and non-fossil) and their regional distribution
- Global and regional new trends and drivers
- Policies and measures and other regulatory frameworks; and supply and demand systems
- Fugitive emissions and non-CO<sub>2</sub> emissions

- Global and regional new trends for electricity and low carbon energy supply systems, including deployment and cost aspects.
- Smart energy systems, decentralized systems and the integration of the supply and demand
- Energy efficiency technologies and measures
- Mitigation options (including CCS), practices and behavioral aspects (including public perception and social acceptance)
- Interconnection, storage, infrastructure and lock-in
- The role of energy systems in long-term mitigation pathways
- Bridging long-term targets with short and mid-term policies
- Sectoral policies and goals (including feed-in tariffs, renewables obligations and others)
- Mainstreaming climate into energy policy

## **Chapter 7: Agriculture, Forestry, and Other Land Uses (AFOLU)**

- Mitigation measures – supply and demand - effectiveness, costs, economics
- Mitigation potentials – supply and demand - global and regional
- Emerging technologies
- Constraints and opportunities across different contexts and regions
- Provision of food, feed, fibre, wood, biomass for energy, and other ecosystem services and resources from land, including interactions in the context of mitigation strategies and pathways
- Assessment of social and policy responses (public and private)
- Mitigation approaches within food production and food security strategies
- Anthropogenic emissions and removals in each of agriculture, forestry, other land uses, and non-managed terrestrial ecosystems, and their implications for mitigation pathways, considering a range of sources of information

## **Chapter 8: Urban systems and other settlements**

- Demographic perspectives, migration, and urbanisation trends
- Consumption, lifestyle, and linkages between urban and rural areas
- Urbanisation wedge in future emissions and mitigation at global and national levels
- City emissions and drivers analysis, city typologies
- Urban emissions and infrastructure lock-in
- Urban mitigation options and strategies
- Low-carbon city scenarios, options and costs
- Urban form, design, and role of spatial planning
- Urban technologies, including disruptive technologies, the use of information and communication technologies, involving use of data
- Waste and waste water management, material recycling
- Innovative strategies and climate actions, urban experimentation, city networks and coalitions
- Urban mitigation governance – levels, barriers, and opportunities
- Policy instruments and infrastructure investments
- Rural settlements: leapfrogging opportunities

## **Chapter 9: Buildings**

- Access to sector specific services (e.g. affordability, energy poverty)
- Services (including comfort, nutrition, illumination, communication)
- Components (building shell, appliances, lightning), system boundaries
- Mitigation options and strategies towards zero carbon buildings: developments since AR5 and emerging solutions
- Systemic interactions, insights from life cycle assessment and material flow analysis
- Scenarios and links with targets (including sectoral targets)
- Sector specific policies and policy packages, financing, and enabling conditions

## **Chapter 10: Transport**

- Access to mobility services, affordability
- Components and system boundaries
- Aviation and shipping (including the treatment of aviation and maritime inventories)
- Mobility services (passengers and goods)
- Mitigation options and strategies towards zero carbon transport: developments since AR5 and emerging solutions
- Mobility trends and drivers (regional specifics)
- Systemic interactions (e.g. energy sector, urban) and insights from life cycle assessment and material flow analysis
- Scenarios and links with targets (including sectoral targets)
- Sector specific policies and policy packages, financing. Enabling conditions

## **Chapter 11: Industry**

- Industrial development patterns and supply chains
- Maximising material and resource efficiency, closing loops
- Evolving demand for industrial products in the context of cross sectoral demand and supply developments
- Mitigation technologies and efficient system options, covering process emissions, industrial waste and carbon capture and utilisation
- Scenarios, mitigation options and cross system implications
- Implications of ambitious climate targets and sustainable development for future policy

## **Chapter 12: Cross sectoral perspectives**

- Scope of the chapter
- Summary of sectoral costs and potentials
- Comparison of sectoral costs and potentials with integrated assessments
- Summary of sectoral co-benefits and trade-offs
- Aspects of GHG removal techniques not covered in chapters 6 to 11 (land based, ocean based, direct air capture): status, costs, potentials, governance, risks and impacts, co-benefits, trade-offs and spill-over effects, and their role within mitigation pathways
- Impacts, risks and opportunities from large-scale land-based mitigation: land, water, food security; use of shared resources; management and governance

- Emissions intensity of food systems and mitigation opportunities across the food system (production, supply chain, demand and consumption) including emerging food technologies
- Policies related to food system and food security including food waste and food demand
- Links to adaptation and sustainable development (including co-benefits, synergies and trade-offs)

### **Chapter 13: National and sub-national policies and institutions**

- Cross-country insights from implementation of policies, including national and, where appropriate, sub-national plans and strategies
- Trends in national climate legislation, strategies and institutions, in the context of sustainable development
- Building agreement - stakeholder engagement and public opinion formation, media roles, policy frames and normative change
- Governance systems and climate action – comparative case analysis
- Assessment of policy instruments and regimes- links to multiple objectives of sustainable development (including co-benefits synergies and trade-offs)
- Integrated analysis of sectoral policies – integration with national policy, interactions across sectors, policy packages, enabling conditions, and infrastructure planning and investment
- Institutions for climate governance – lessons from cross country experience, including for capacity building, coordination, implementation, and monitoring
- Subnational climate action, including cities and states/provinces - prevalence and lessons from comparative cases
- Partnerships for climate governance – multi-sectoral networks of government, civil society and private sector, private governance, community-led and indigenous governance
- Interactions between national actions across countries, including spill-overs (e.g.: transboundary infrastructure, trade)
- Metrics to monitor climate action in the context of sustainable development (including co-benefits, synergies and trade-offs) – national, sub-national, and local
- Mitigation and adaptation linkages

### **Chapter 14: International cooperation**

- Key findings from AR5 and recent developments
- International cooperation and institutions, including linkages with non-climate international organisations and processes
- International sectoral agreements and approaches
- Implementing mitigation pathways
- Enabling institutions for finance and investment
- Capacity building institutions and approaches
- International partnerships, including business partnerships
- International co-operation at the regional, sub-national and city level, as appropriate
- Transparency and accountability frameworks
- Lessons of implementation from relevant international agreements outside the climate arena
- Links to development policy and relevant international environmental agreements
- International climate policy and co-operative approaches
- Ethics and governance of solar radiation management, associated risks

## **Chapter 15: Investment and finance**

- Key findings from AR5 and recent developments
- Definitions of climate finance
- Scenarios of and needs for investment and financial flows related to mitigation pathways and climate change action at the global and regional scales
- Scenarios of and needs for investment and financial flows related to mitigation pathways and climate change action in developing countries
- Investment patterns, and financing for climate resilient development, consistent with different mitigation pathways
- Enabling conditions for changing finance and investment patterns
- Public climate finance flows, including multilateral and bilateral, taking into account the scaling up of such flows
- International private flows of climate finance
- Links between national and international finance including developments in financial mechanisms and public-private partnerships
- National and sub-national climate finance mobilization and flows, within and across countries, including links to climate policy
- Emerging trends (community involvement in climate finance, sustainable investment criteria by institutional investors)
- Climate-related investment opportunities and risks
- Linkages between finance and investments in adaptation and mitigation, and implications for sustainable development
- Case studies

## **Chapter 16: Innovation, technology development and transfer**

- Key findings from AR5 and recent developments
- Role of innovation, technology development, diffusion and transfer in contributing to sustainable development and the aims of the Paris Agreement, including mitigation pathways
- Innovation and technology as systemic issues, evaluating literature on cases of technological innovation systems and innovation policy
- Assessment of international institutions partnerships and cooperative approaches relevant to technology, innovation and R&D
- Capacity for transformative change, including capabilities for innovation, engineering, governance, R&D cooperation and deployment incentives
- Assessment of experiences with accelerating technological change through innovation policy for climate change at the national level, including successful case studies
- Specific challenges in emerging economies and least-developed countries, e.g. SIDS and land-locked countries
- Acceptability and social inclusion in decision-making, communication and information diffusion
- Characterisation and implications of new disruptive technologies
- Links to adaptation and sustainable development (including co-benefits, synergies and trade-offs)

## **Chapter 17: Accelerating the transition in the context of sustainable development**

- Learning from integrative perspectives on sustainable development and climate change responses (synergies and trade-offs)
- Pathways for joint responses to climate change and sustainable development challenges
- Climate change mitigation responses in the context of multi-objective policies across scales
- Climate change mitigation response capacities and enabling conditions, including technology, finance & cooperation for sustainable development
- Mitigation-adaptation interlinkages, including potential synergies & conflicts
- Regional perspectives on climate change mitigation, including regional case studies on mitigation-adaptation interactions
- Other emerging issues dealing with climate change responses and sustainable development in relation to the Agenda for Development 2030 and beyond
- Uncertainties and knowledge needs

### **Annex A: Glossary**

### **Annex B: Definitions, units and conventions**

### **Annex C: Scenarios and modelling methods**

### **Annex D: Contributors to the IPCC WG III Sixth Assessment Report**

### **Annex E: Expert reviewers and government reviewers**

### **Decision IPCC/XLVI-5. Alignment of the Cycles of the IPCC and the Global Stocktake**

*The Intergovernmental Panel on Climate Change,*

1 - Decides to establish a task group on the alignment of the cycles of the IPCC and the global stocktake foreseen under the Paris Agreement. The task group will be co-chaired by France and Mexico.

2 - Requests the Co-Chairs of the task group, together with the IPCC Secretariat, to prepare a proposal for the terms of reference of the task group to be decided upon at the 47<sup>th</sup> Session of the IPCC.

3 - Requests the IPCC Secretariat to solicit views from Members of the IPCC on the terms of reference for the task group, and on the alignment of the cycles of the IPCC and the global stocktake foreseen under the Paris Agreement, to inform the work of the Co-Chairs.

### **Decision IPCC/XLVI-6. Short-lived Climate Forcers**

*The Intergovernmental Panel on Climate Change decides,* to approve the proposal for an expert meeting on Short-lived Climate Forcers to discuss issues on estimation of emissions and estimations of climate effects (i.e. Option 2 in the submission).

### **Decision IPCC/XLVI-7. Admission of Observer Organizations**

*The Intergovernmental Panel on Climate Change decides,* to admit the following new Observer Organizations:

- (1) Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (2) Heinrich Boell Foundation (HBF)
- (3) International Development Research Centre (IDRC)
- (4) Center for International Forestry Research (CIFOR)
- (5) Food & Water Watch
- (6) Research and Development Centre, Nepal
- (7) Imperial College London
- (8) Canadian Nuclear Association
- (9) European Marine Board (EMB)
- (10) Stockholm Resilience Centre
- (11) Global Change Impact Studies Centre (GCISC)
- (12) ParlAmericas

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

*The Intergovernmental Panel on Climate Change,*

- 1 - Decides to extend the mandate of the Ad Hoc Task Force on the Future of the Task Group on Data and Scenario Support for Impact and Climate Analysis (ATF-TGICA) until the 47<sup>th</sup> Session of the IPCC.
- 2 - Requests the TGICA to continue with its work under the current chairmanship and membership until the new mandate is decided by the Panel at its 47<sup>th</sup> Session.

**Decision IPCC/XLVI-9. Any Other Business – IPCC Expert meeting on assessing climate information for regions**

*The Intergovernmental Panel on Climate Change,*

- 1 - Decides that an expert meeting on regional issues be held, to develop practical guidelines for the assessment of regional information in the Sixth Assessment Report (AR6).
- 2 - Requests that the working groups jointly further refine and agree on the proposal in the context of the Executive Committee of the IPCC.
- 3 - Decides to approve the provisional budget for the meeting.

**Decision IPCC/XLVI-10. Any Other Business –Technical Summary of the Special Report on Global Warming of 1.5°C**

*The Intergovernmental Panel on Climate Change decides,* that the Technical Summary 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 will be produced in the six official languages of the United Nations.

**Decision IPCC/XLVI-11. Place and date for the 47<sup>th</sup> Plenary Session of the IPCC**

*The Intergovernmental Panel on Climate Change decides,* that the 47<sup>th</sup> Session of the IPCC will be held in Paris early in 2018 on a date agreed between the government of France and the Secretariat of the IPCC.

The Panel notes that the next Bureau meeting will be held the last week of January 2018 in Geneva.

**INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE**

**46<sup>TH</sup> SESSION OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE  
Montreal, Canada, 6 – 10 September 2017**

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