

## SUMMARY OF THE 31ST SESSION OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE: 26-29 OCTOBER 2009

The 31st session of the Intergovernmental Panel on Climate Change (IPCC) was held from 26-29 October 2009 in Nusa Dua, Bali, Indonesia, with approximately 350 participants in attendance.

The meeting focused primarily on the scoping of the Fifth Assessment Report (AR5). During the meeting, the IPCC's three Working Groups (WGs) convened in parallel sessions to approve the proposed chapter outlines of WG contributions to the AR5, which had been developed by the participants of the AR5 scoping meeting held in Venice, Italy, from 13-17 July 2009. The Panel then accepted the outlines of the WG reports and considered a number of other issues relevant to the scope of the AR5. In particular, delegates agreed to treat Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC) as a cross-cutting theme in the AR5, as well as revise the timetable for the preparation of the report.

The Panel also considered progress on the implementation of decisions taken at IPCC-30 with regard to involving scientists from developing countries and countries with economies in transition (EITs), use of electronic technologies and the longer-term future of the IPCC. The Panel also granted special observer status to the European Community (EC) and addressed progress reports on the development of new scenarios and on the IPCC Peace Prize Scholarship Fund.

### A BRIEF HISTORY OF THE IPCC

The IPCC was established in 1988 by the World Meteorological Organization (WMO) and the UN Environment Programme (UNEP). Its purpose is to assess scientific, technical and socioeconomic information relevant to understanding the risks associated with human-induced climate change, its potential impacts, and options for adaptation and mitigation. The IPCC does not undertake new research, nor does it monitor climate-related data, but it conducts assessments on the basis of published and peer-reviewed scientific and technical literature.

The IPCC has three Working Groups: Working Group (WG) I addresses the scientific aspects of the climate system and climate change; WG II addresses the vulnerability of socioeconomic and natural systems to climate change, impacts of climate change, and adaptation options; and WG III addresses options for limiting greenhouse gas emissions and mitigating climate change. Each WG has two Co-Chairs and six Vice-Chairs, except WG III, which for the Fifth Assessment cycle has three Co-Chairs. The Co-Chairs guide the WGs in fulfilling their mandates given to them by the Panel, and are assisted in this task by Technical Support Units (TSUs).

The IPCC also has a Task Force on National Greenhouse Gas Inventories (TFI). The Task Force oversees the IPCC National Greenhouse Gas Inventories Programme, which aims

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to develop and refine an internationally-agreed methodology and software for the calculation and reporting of national greenhouse gas emissions and removals, and to encourage the use of this methodology by countries participating in the IPCC and by parties to the UNFCCC.

The IPCC Bureau is elected by the Panel for the duration of the preparation of an IPCC assessment report (normally 5-6 years). Its role is to assist the IPCC Chair in planning, coordinating and monitoring the work of the IPCC. The Bureau is composed of climate change experts representing all regions. Currently, the Bureau comprises 31 members: the Chair of the IPCC, the Co-Chairs of the three WGs and of the Bureau of the TFI (TFB), the IPCC Vice-Chairs, and the Vice-Chairs of the three WGs. The IPCC Secretariat is located in Geneva, Switzerland, and hosted by the WMO.

**IPCC PRODUCTS:** Since its inception, the IPCC has prepared a series of comprehensive assessments, special reports and technical papers that provide scientific information on climate change to the international community, including policymakers and the public, and are subject to extensive review by experts and governments. This information has played an important part in framing of national and international policies.

The IPCC has so far undertaken four comprehensive assessments of climate change, each playing a key role in advancing the negotiations under the UNFCCC: the First Assessment Report was completed in 1990, the Second Assessment Report in 1995, the Third Assessment Report in 2001, and lastly, the Fourth Assessment Report (AR4), completed in 2007. At its 28th session in 2008, the IPCC decided to undertake a Fifth Assessment Report (AR5) and to complete it in 2014.

The AR4 is structured into three volumes; each volume comprises of a Summary for Policymakers (SPM), a Technical Summary and underlying assessment report. All sections underwent a thorough review process, which took place in three stages: a first review by experts, a second review by experts and governments, and a third review by governments. The SPM was approved line-by-line by the Panel. The AR4 also includes a Synthesis Report (SYR), highlighting the most relevant aspects of the three WG reports, and a SPM of the SYR, which was also approved line-by-line by the Panel. Overall, more than 450 lead authors, 800 contributing authors, 2500 expert reviewers and 130 governments participated in the elaboration of the AR4.

In addition to the comprehensive assessments undertaken, the IPCC produces special reports, methodology reports and technical papers, focusing on specific issues related to climate change. Special reports prepared by the IPCC include: The Regional Impacts of Climate Change: An Assessment of Vulnerability (1997), Aviation and the Global Atmosphere (1999), Land Use, Land-use Change and Forestry (2000), Methodological and Technical Issues in Technology Transfer (2000), Safeguarding the Ozone Layer and the Global Climate System (2005), and Carbon Dioxide Capture and Storage (2005). Work is currently underway on two more special reports: one on Renewable Energy Sources and Climate Change Mitigation, carried out under the leadership of WG III

and to be released in 2011, and the other on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation under WG I, which will be finalized in 2011.

Technical papers have been prepared on Climate Change and Biodiversity (2002) and Climate Change and Water (2008), among others.

The IPCC also produces methodology reports or guidelines to assist countries in reporting on greenhouse gases. The IPCC Guidelines for National Greenhouse Gas Inventories were first released in 1994, and a revised set was completed in 1996. Additional Good Practice Guidance reports were approved by the Panel in 2000 and 2003, and a guide with Definitions and Methodological Options to Inventory Emissions from Direct Human-induced Degradation of Forests and Devegetation of other Vegetation Types was completed in 2003. The latest version, the 2006 IPCC Guidelines on National Greenhouse Gas Inventories, was approved by the Panel in 2006.

For all this work and its contribution to “build up and disseminate greater knowledge about man-made climate change, and to lay the foundations that are needed to counteract such change,” the IPCC was awarded the Nobel Peace Prize, jointly with former US Vice President Al Gore, in December 2007.

**IPCC-28:** This session was held from 9-10 April 2008 in Budapest, Hungary, with discussions centering on the future of the IPCC, including key aspects of its work programme such as WG structure, main type and timing of future reports, and the future structure of the IPCC Bureau and the TFB. The IPCC agreed to prepare the AR5 and to retain the current structure of its WGs. In order to enable significant use of new scenarios in the AR5, the Panel requested the Bureau to ensure delivery of the WG I report by early 2013 and completion of the other WG reports and the SYR at the earliest feasible date in 2014. The Panel also agreed to prepare a Special Report on renewable energy to be completed by 2010.

**IPCC-29:** This session, which commemorated the IPCC’s 20th anniversary, was held from 31 August to 4 September 2008 in Geneva, Switzerland. During the meeting, the Panel elected the new IPCC Bureau and the TFB, and re-elected Rajendra Pachauri as IPCC Chair. The Panel also continued its discussions on the future of the IPCC, agreed to create a scholarship for young climate change scientists from developing countries with the funds from the Nobel Prize and asked the Bureau to consider a scoping meeting on a Special Report on extreme events and disasters, which took place 23-26 March 2009, in Oslo, Norway.

**IPCC-30:** This session was held from 21-23 April 2009 in Antalya, Turkey. At the meeting, the Panel focused mainly on the near-term future of the IPCC and the scoping of the AR5, and developed a number of proposals in this regard. The proposals relevant to the scope of the report were forwarded as guidance to the AR5 scoping meeting, which was held in Venice, Italy, from 13-17 July 2009, and gathered climate change experts to propose the chapter outlines of WG contributions to the AR5.

## IPCC-31 REPORT

IPCC Chair Rajendra Pachauri opened IPCC-31 on Monday morning, 26 October 2009, and emphasized that the IPCC scientific assessment is increasingly seen against the backdrop of economic and social consequences of climate change. Noting the intense effort already made on the AR5 since IPCC-27 in 2007 in Valencia, Spain, he underscored that this collective effort is represented by the proposed chapter outlines for the three WG reports. The Panel paid tribute in memory of Wolfram Krewitt, a member of the IPCC and a Coordinating Lead Author of the Special Report on renewable energy.

Rachmat Witoelar, Chair of the National Council of Climate Change, Indonesia, welcomed delegates to Bali and noted the importance of scientific assessment for mitigation and adaptation in developing countries. He called on delegates to be guided in their deliberations by political leadership and the moral compass of future generations.

Sri Woro Harijono, Deputy Secretary-General of the Meteorological, Climatological and Geophysical Agency, Indonesia, highlighted the importance of strengthening research on the interaction between climate change and such phenomena as monsoons, El Niño, the North Atlantic Oscillation, Indonesian Throughflow and tropical cyclones.

Yan Hong, WMO, stressed the importance of disaster management as the most cost-effective adaptation strategy in developing countries. He recounted the success of World Climate Conference-3, held from 31 August - 4 September 2009 in Geneva, Switzerland, which agreed to establish a Global Framework for Climate Services.

Joseph Alcamo, UNEP, noted that the Programme's work on the links between climate change and other environmental problems complements the Panel's activities. Stressing the need to close the science-policy gap, he said that the IPCC needs to be more engaged with the policy arena.

Following the opening ceremony, Chair Pachauri introduced the agenda for the meeting (IPCC-XXXI/Doc.1 and Rev.1).

On the subject of the election of a new Vice-Chair, Chair Pachauri noted that while the current IPCC Vice-Chair Ogunlade Davidson (Sierra Leone) had expressed his intention to resign from the Bureau, due to a conflict of interest with his new position as Minister of Energy and Water Resources in Sierra Leone, he had not made any formal submission and that for this reason the IPCC would be unable to undertake an election to replace him. Switzerland, Belgium, Sudan, Libya and Bangladesh emphasized that the IPCC cannot wait for the election for an unlimited time. Belgium requested that the agenda item be kept open in case an official submission arrives before the end of the meeting, and delegates then adopted the agenda without amendment. During the closing plenary, Secretary Christ updated delegates that she had managed to contact Vice-Chair Davidson and that he said he would take his resignation under consideration and respond in writing. Chair Pachauri also added that he personally made a number of subsequent attempts to contact him to confirm Vice-Chair Davidson's intention to resign, but without success.

The agenda was adopted by the Panel without amendment.

## APPROVAL OF THE DRAFT REPORT OF THE 30TH SESSION

The draft report (IPCC-XXXI/Doc.3) was approved by delegates with one amendment from the UK to reflect his country's proposal for a special report on climate change impacts on marine ecosystems, including ocean acidification.

## SCOPING OF THE IPCC 5TH ASSESSMENT REPORT

IPCC Secretary Renate Christ introduced the relevant documents (IPCC-XXXI/Docs.4 and Add.1, Doc.10, Inf.3 and Inf.5), and Chair Pachauri welcomed initial comments on the overall process and scope of the AR5, including on cross-cutting issues.

France, with Germany, Venezuela and Sweden, suggested including social structures and systems as either cross-cutting themes or in dedicated chapters in the reports by WGs II and III. Venezuela called for including indigenous and cultural aspects and Austria stressed that uncertainty should be dealt with in an as consistent a manner as possible across all WGs. New Zealand, with Germany, Sweden, Belgium, Japan, the Netherlands and Norway, supported the inclusion of scenarios as a cross-cutting theme. New Zealand and Brazil also called for addressing greenhouse gas metrics in a cross-cutting manner, and Japan suggested that greenhouse gas metrics be dealt with by WG I first. Switzerland supported including greenhouse gas metrics, observations and modeling as a cross-cutting theme on methodological issues. Germany, with Denmark, the Netherlands, Spain and Norway, noted the importance of addressing key vulnerabilities under Article 2 of the UNFCCC (preventing dangerous climate change), and Japan suggested that Article 2 be considered in the SYR.

The UK, supported by the Netherlands, asked to reassess the suggested approach of IPCC-30 on handling regional issues and proposed that regional aspects could be dealt with in the SYR. New Zealand, with the US, emphasized the importance of the regional chapters under WG II. India said regional treatment should include, *inter alia*: monsoons; glacial melt; climate variability; human health; and sub-regional assessment including socioeconomic and cultural aspects.

China drew special attention to the treatment of uncertainty, especially with regard to keeping greenhouse gases at a certain level, and more analysis of social cost methodologies in economic assessments. The Netherlands asked for a progress report from the catalytic group on scenarios, set up at IPCC-30, and clarification on their relationship to the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA).

Sweden recommended addressing the interlinkages between air pollution and climate change. The US recommended focusing work at the meeting on the WGs' outlines rather than the scope of the SYR.

Switzerland emphasized the importance of addressing uncertainty, such as the definition of confidence levels, in a consistent manner across the WGs. Spain noted the need to maintain coherence in the outlines of the three WG reports, and Germany requested clarification on what constitutes an official

cross-cutting theme versus other issues that appear within the scope of work of all WGs. India underscored addressing cross-boundary carbon fluxes and noted that water issues were not comprehensively addressed under WG II in the AR4.

Chair Pachauri suggested a contact group, co-chaired by Øyvind Christopherson (Norway) and Saut Lubis (Indonesia), be set up at this meeting to address the treatment of issues relating to Article 2 of the Convention, which would submit a concept note by Wednesday morning. On scenarios, Chair Pachauri proposed that the catalytic scenario group coordinate with the WG Co-Chairs, and the WG II and III expert meeting on Socioeconomic Scenarios, to be held in October 2010, to address scenarios as a cross-cutting theme. On greenhouse gas metrics, he said that to include all views, a cross-working group, co-chaired by WG I Co-Chair Thomas Stocker (Switzerland) and two Vice-Chairs from WGs II and III, would be set up. On regional aspects, he said close coordination between WGs I and II would be ensured. He proposed the Panel keep the numerical sequence of WG reports but ensure iterative interaction between all three WGs so that output on regional details from WG III can be taken into account in the regional assessment of WG II and the SYR. These proposals were accepted by delegates.

The session of the Panel was then suspended and the parallel sessions of three WGs convened from Monday to Wednesday to focus on the proposed chapter outlines of WG contributions to the IPCC AR5. The discussions of the three WG sessions are described below. The Panel reconvened on Wednesday night to finalize the chapter outlines of the three WGs and address other agenda items.

**WG I SESSION:** On Tuesday morning, WG I Co-Chairs Thomas Stocker (Switzerland) and Dahe Qin (China) opened the 11th session of WG I. Chair Pachauri reminded delegates that, in addition to updating the state of scientific knowledge, the AR5 should fill gaps in understanding and include regional detail.

Co-Chair Stocker presented the current state of the outline (WG-I: 10th/Docs.2 and 3, and Inf.1), highlighting the four pillars of the report: near-term climate change, long-term projections, climate phenomena across time-scales and an atlas of global and regional climate projections.

Co-Chair Stocker then opened the floor for general questions, including: ordering of integration chapters; joint work between WGs I and III; modeling of regional climate phenomena and subregional modeling to capture small scale variability; coastal processes; the regional atlas and whether this information will also be in the relevant chapters; and consistent treatment of uncertainty, using “calibrated” language from the AR4. Norway, supported by Germany and Sweden, asked for the inclusion of air pollution. South Africa raised concern about gaps in observational systems records, to which Co-Chair Stocker responded that it will be addressed in the Introduction to the WG I report and Technical Summary as a wider contextual issue. Parties were reminded by Co-Chair Stocker that the bullets under the chapter headings are not meant to be sub-headings, but rather to provide guidance for authors.

The delegates then went through the WG I outline chapter by chapter, addressing both chapter headings and the specific bullets under each chapter heading.

On Chapter 2 on Observations: atmosphere and surface, the UK requested the inclusion of changes in soil temperature and moisture. Many delegates supported a section on atmospheric composition to ensure an early reference in the report to observed greenhouse gases. Belgium, Spain and Indonesia called for including wind speeds in the bullet on atmospheric circulation to highlight the importance of this data for the wind energy industry. The US requested inclusion of trace gases. The chapter outline was agreed with an amendment to add a section on changes in atmospheric composition, adding “wind” to the bullet on atmospheric circulation, and adding soil temperature to the bullet on surface temperature.

The outline for Chapter 4 on Observations: cryosphere, was approved with an amendment to add “sea ice” to the bullet on dynamics of ice sheets, ice shelves, ice caps and glaciers to address parties’ concerns that the topic was not included elsewhere.

On Chapter 6 on Carbon and other biogeochemical cycles, Co-Chair Stocker noted that this topic was last addressed in the TAR and that the aim here was to emphasize the new literature on the carbon cycle, its feedbacks and interaction with other cycles.

On Chapter 7 on Clouds and aerosols, Co-Chair Stocker noted that the “time is mature” for this topic to have its own dedicated chapter. China’s proposal to delete the specific reference to black carbon was met with strong opposition from the US, UK, Austria and Canada. The US proposed addressing black carbon in a sub-chapter. Canada said the policy action is far ahead of the science on this issue, stressing the need for authoritative science on black carbon. China agreed to keep the original reference, stating that they appreciate the need for an assessment of black carbon but noted that many aerosols also play an important role.

The UK suggested adding a bullet on contrails and cosmic rays to improve the understanding of policymakers on these issues. A small group drafted language to add these two issues to the bullet on direct and indirect aerosol forcing and effects, which was agreed.

On Chapter 9 on Evaluation of climate models, delegates discussed how best to capture ideas on the range of models, downscaling methods, the strengths and weaknesses of ensembles, and couplings.

On Chapter 11 on Near-term climate change: projections and predictability, delegates made a number of interventions on using the word “prediction” versus “projections” and “air pollution” versus “air quality.” The Panel agreed to keep the original formulation of projections, to recognize the limitations in prediction and understanding of uncertainty, and air quality, as a broader term, which includes air pollution. Other discussions centered on definitions of near- and long-term time horizons, and on adding climate hotspots, such as the Mediterranean, to the bullet on regional climate change, variability and extremes.

On Chapter 13 on Sea level change, Co-Chair Stocker noted that this chapter was last addressed in the TAR and is meant as a response to the important developments on this issue just after the AR4. Delegates discussed inferences from the paleo-climate record, resulting in the amendment of the first bullet to mention past instead of observed sea level change.

All other chapter outlines were approved without amendment.

Co-Chair Stocker then introduced a proposed new Annex I to the WG I report containing an atlas of global and regional climate projections, noting that this will be a new product intended as a flexible and interactive electronic device in addition to the hard-copy report. He clarified that the editorial team would include the Coordinating Lead Authors of Chapter 11 on near-term climate change projections and Chapter 12 on long-term climate-change projections, to which Belgium suggested, and it was agreed, that Coordinating Lead Authors for Chapter 14 on climate phenomena should also be included. The US and the UK were concerned that there is currently no formal review of the atlas and delegates decided that this would be taken up in the plenary session.

On the ongoing work of the WG, the Netherlands noted the need for coordination with WGs II and III, and Australia called for inclusion of the issue of waves in the scope of the workshop on sea level and ice sheet stability to be held in June 2010 in Malaysia, in conjunction with the World Climate Research Programme.

In the closing of the session on Wednesday, Co-Chair Stocker said that the next WG session would take place in September 2011 to approve the Summary of the Special Report on extreme events and disasters.

**WG II SESSION:** WG II convened its 9th session from Monday to Tuesday, focusing on the proposed chapter outlines of the WG contribution to the AR5 (WG-II: 9th/Doc.2 and Inf.1). Opening the discussions on Monday, WG II Co-Chair Christopher Field (US) gave an overview of the proposed outline, noting that it builds on the structure of the AR4 and is organized into two parts: Part A on Global and sectoral aspects and Part B on Regional aspects.

On the general structure, several countries, including Australia and Italy, noted the need for further rationalization of the outline. Italy, with South Africa and others, noted that agriculture should be clearly identified in the outline, with Italy also suggesting to include a chapter on transportation. The UK noted the need to frame the discussion in WG II in terms of risk and risk management. France proposed greater attention to social factors of adaptation, such as capacity building and knowledge sharing, and Brazil suggested clearly distinguishing between different needs and capabilities of countries for adaptation.

China said that the WG II report should focus on impacts, vulnerability and adaptation, and should not over-integrate information from other WGs. Austria highlighted the importance of workshops for regional assessment and taking into account the Nairobi Work Programme under the UNFCCC. Several countries noted regional diversity, with Niger and Kiribati stressing subregional assessment and India underlining the need to cover mountains and glaciers.

Governments then moved to discussions on proposed sections and chapters for the WG II report.

On the section on the context for the AR5 (Chapters 1 and 2), Canada, the UK and the US underlined the importance of addressing vulnerability to climate change, with the US noting that discussions on vulnerabilities in sectoral chapters should be linked to those in a separate chapter on key vulnerabilities. To the US concern about the status of bullets, Co-Chair Field replied that bullets under chapter headings in the outline summarize issues to be covered by chapters and reflect the order in which authors should move forward.

Switzerland, with Indonesia, suggested accommodating disasters in the outline, with the US opposing this and Co-Chair Field assuring that extremes and disasters would not be lost in the report. China suggested that not only vulnerabilities and risk should be assessed but also impacts, and they were added to the outline.

On Chapter 1 on Points of departure, China noted the availability of new scenarios and the need for input from other WGs.

On Chapter 2 on Foundations for decisionmaking, Switzerland noted the need for consistency with other WGs, in particular with WG III, and Canada said this chapter draft should be made available early in the process so that its material can be consistently used in other chapters. Japan proposed including a bullet on treatment of uncertainties, and this was added to the outline.

On the section on Natural and managed resources and ecosystems, and their uses (Chapters 3-7), South Africa, with Thailand, suggested that terrestrial ecosystems should be a stand-alone chapter, and Thailand suggested referring to inland water systems instead of freshwater systems in line with the Convention on Biological Diversity. The Republic of Korea proposed referring to systems rather than to ecosystems, and Canada suggested addressing cryosphere in the chapter on freshwater resources. Several countries noted the need to be more policy relevant, with Switzerland suggesting clearer references to agriculture, fisheries and forestry as well as mountains. These proposals were taken on board by the WG.

The Republic of Korea proposed that Chapter 5 on Coastal systems and low-lying areas be more integrated and include chemical and biological processes, to which Co-Chair Field replied that the outline should not go into specifics in order to give sufficient flexibility to authors.

On the section on Human settlements, industry, and infrastructure (Chapters 8-10), Co-Chair Field recalled strong guidance from governments to expand on the treatment of these issues. For Chapter 10 on Key economic sectors and services, the UK highlighted systemic risks and insurance, and South Africa, with Thailand, suggested adding agriculture. To the latter point, Co-Chair Field replied that this topic is covered elsewhere and a reference in the outline would be included. India noted the importance of covering transportation and energy, and Co-Chair Field said these sectors are included under the bullet point on networked infrastructure.

On the section on Human health, well-being, and security (Chapters 11-13), delegates discussed which vulnerable populations should be included in the chapter on human health, apart from children. Thailand, with the UK, supported including a gender dimension, and the Democratic Republic of Congo referred to the elderly. On Chapter 12 on Human security, Venezuela proposed including local communities. These points were added to the outline.

On the section on Adaptation and development (Chapters 14-17), the US noted that the title of the section is misleading since development issues are addressed in a separate chapter, and the title was changed to Adaptation. Delegates then discussed whether case studies should focus on all or particular groups of countries, such as the Least Developed Countries.

On the section on Multi-sector impacts, risks, vulnerabilities, and opportunities (Chapters 18-20), discussions focused on the clarification of the chapter outline, with Canada noting the importance of the section as an integrated material. Governments also addressed the importance of defining key vulnerabilities in the report, and the US raised concern with the lack of a definition on key risks, and a reference to these was deleted from the outline.

On Part B on Regional aspects, Co-Chair Field noted that this part belongs to the WG II report but will contain inputs from WGs I and III, and that despite the division into two parts, the WG II report will have one SPM and one Technical Summary. He also said that the regional division is the same as in the AR4, with an addition of a chapter on International waters.

Sierra Leone suggested addressing differences as well as similarities between regions in the introductory chapter to Part B. Australia noted the importance of the consistent treatment of uncertainties, and several countries, including France and Italy, supported adding trans-regional hotspots, such as the Mediterranean.

Delegates then discussed the scope, and appropriateness of the wording "international waters," with Switzerland noting that this is a legal term. Delegates agreed to change the chapter title to "Open oceans." South Africa said this should include seas, and Norway noted the importance of addressing ocean acidification.

IPCC Vice-Chair Jean-Pascal van Ypersele (Belgium) proposed that the introductory chapter for Part B addresses not just regional projections but also their limitations, and authors take into account outcomes of discussions on regional division conducted at IPCC-30.

On Frequently Asked Questions (FAQ) to the WG II report, New Zealand recommended that lead authors "tease out some of these questions." Austria stressed that some questions, such as those related to low-frequency high-impact events, are difficult to answer, but that answers are necessary to avoid maladaptation. The US supported a process in which the questions emerge rather than asking questions in advance of the process.

On how the WG II report will address cross-cutting issues (WG-II: 9th/Doc.3 and Inf.1), Co-Chair Field noted a number of joint meetings planned in collaboration with the other two WGs. Austria suggested governments nominate lead authors with appropriate background knowledge on cross-cutting issues.

Japan stressed the need for explicit discussion on uncertainties, and Co-Chair Field highlighted the link between the treatment of uncertainty and decision-making under uncertainty, with the UK also stressing the communication of uncertainty.

Delegates then approved the revised chapter outlines for the WG II contribution to the AR5.

In closing the session, Co-Chair Field informed delegates that there will be a joint WG I and II session to endorse the Special Report on extreme events and disasters in September 2011.

**WG III SESSION:** WG III held its 10th session from Monday to Wednesday. In the opening of the session, WG III Co-Chairs Ottmar Edenhofer (Germany), Youba Sokona (Mali) and Ramon Pichs-Madruga (Cuba) introduced the schedule of work and relevant documents (WG-III: 10th/Docs.1 and 3, and Inf.1) and provided an overview of how the chapter outlines have changed in response to government input.

In general comments on the AR5 WG III outline, the Netherlands raised concern about the time horizons that are relevant to policymakers and made a plea to include human dimensions in all sectoral chapters. Sudan said a developmental perspective must be incorporated. France noted that some parts of the outline seem to deal with adaptation rather than mitigation and underlined the social aspects in multiple chapters. He suggested highlighting emerging technologies. The UK, supported by Canada, suggested adding a section covering what policies are working effectively in countries. Australia called for an analysis of revenue foregone in a cost-benefit analysis of mitigation options. The US noted that a number of chapters covered technology transfer and finance. Switzerland emphasized that this should not be an academic exercise but rather be practical and pragmatic in order to provide policy relevant information to policymakers who will be in the process of implementing binding quantified emission limitation and reduction objectives.

On the section on Framing issues (Chapters 2-5), the UK, supported by Germany, suggested the framing issues be more practical and renamed "concepts and analytical approaches." Switzerland emphasized that the chapters on ethics and sustainability should provide disaggregated information, which should be carried through as a methodology in the chapters on sectors and trends. The US expressed concern over the interdependence of chapters and called for some consolidation and Japan agreed that Chapters 2-5 were interrelated. In response to a query from the Netherlands, Co-Chair Edenhofer clarified that the section on Framing issues should not comprise more than 10-20% of the total WG III report.

Delegates then moved through the outline chapter by chapter to revise and approve the chapter outlines.

A contact group on the WG III Framing issues was held on Tuesday morning to reorder and streamline the chapters. Discussions centered on whether to integrate the chapters on economics and ethics and how to improve the flow of the chapters to move from specific to general principles. South Africa and Mexico expressed concern with combining the

economics and ethics chapters noting that these disciplines are “uneasy bedfellows.” Norway and the US supported including cultural dimensions.

Delegates agreed to the integration of Chapter 3 on Socio-economic analyses and ethics, which integrates the original chapters on economic analyses and ethics from the proposed outline. Canada stressed the need for a multidisciplinary approach to policy choices. To address the concern of the UK that the chapter heading did not reflect its contents, the title was modified to Social, economic and ethical concepts.

The Chapter 4 outline on Integration: sustainable development and equity, was approved with amendment to the bullet on quality of living and carbon accounting to replace “quality of living” with “consumption patterns.”

On the section on Pathways for mitigating climate change (Chapters 6-13), the UK proposed a new chapter on global perspectives (such as on emissions, projections, mitigation options and international efforts for stabilization of greenhouse gases) to help policymakers. The Netherlands recommended including global information in the Technical Summary. After further informal discussions on the structure of the section, it was restructured to reflect issues from a global to specific manner in order to make the final report more accessible to policymakers. Delegates agreed to the structure of the section as a whole.

Chapter 5 on Drivers, trends and mitigation was then discussed. The US, with the UK, questioned the inclusion of food production in the overview chapter. The UK accepted replacing food production with key drivers of global change and parties agreed. Spain suggested adding analysis of jobs and knowledge transfer into this chapter. Sweden, with Norway and the Netherlands, opposed by Sudan, requested the inclusion of air pollution in relation to co-benefits and this was reflected in the amendment to the outline.

The Chapter 6 outline on Assessing transformation pathways was adopted with an amendment to include macroeconomic impacts. Delegates agreed that concerns on the coherence of the definitions of short- and long-term will be addressed through coordination with WG I.

On Chapter 7 on Energy systems, delegates emphasized the importance of energy efficiency, which was added to the bullet on mitigation technology options and practices. The chapter outline was agreed to as amended, also including physical barriers in the list of barriers and reflecting that essential knowledge on individual sectors is often missing.

The outline of Chapter 8 on Transport was approved with an amendment to reflect that transport includes freshwater transport. Spain, with Saudi Arabia and Chile, and opposed by France, requested inclusion of efficiency, which was added to the bullet on mitigation technology options and practices.

On Chapter 10 on Industry, Switzerland and the UK requested inclusion of dematerialization (the reduction of materials in consumer goods, manufacturing or products), while Saudi Arabia said that this idea could be captured by the term “innovation” in materials. Switzerland, supported by Spain, stressed that the tourism industry should be included as a bullet in this chapter. Saudi Arabia, with Canada and the Netherlands, said that this

chapter referred to manufacturing and services. South Africa, Mexico, Saudi Arabia and the Netherlands noted that tourism is best captured under chapters on buildings, land use and transport sectors. South Africa said that if tourism is included then mining should be as well. The chapter outline was finally agreed to with an amendment to include tourism.

On the outline for Chapter 11 on Agriculture, forestry and other land use (AFOLU), delegates discussed inclusions of biodiversity, biochar, animal husbandry and timber. Following informal consultations, the Netherlands presented consensual language on AFOLU, noting the inclusion of biochar and that some of the other earlier suggestions can be reflected in the guidance for authors rather than in the outline. Guatemala noted the relevance of the IPCC expert meeting on Revisiting the Use of Managed Land as a Proxy for Estimating National Anthropogenic Emissions and Removals, held in May 2009 in Saõ Paulo, Brazil, and the delegates agreed to include a reference to the meeting report.

On the outline of Chapter 12 on Human settlements, infrastructure and spatial planning, parties noted that, compared to other chapters, this one seemed to have many missing issues, such as urban green spaces, sprawl and densification, among others. Delegates agreed to the chapter outline with a recommendation to the Bureau and authors to revisit the outline following the WG II/III expert meeting on Human settlements and infrastructure to be held in April 2010 on this issue.

On Section 4 on Assessment of policies, institutions and finance (Chapters 14-17), a contact group was held Wednesday morning to restructure the section. The contact group recommended starting at the national level and then moving to the international level as well as providing for cross-references between both levels. The group also agreed that investment and finance issues should be addressed in all chapters but that a separate cross-cutting chapter should remain in the outline.

On Chapter 14 on International cooperation: agreements and instruments, the Netherlands proposed adding bullets on market mechanisms and analysis of mitigation effort sharing. Switzerland opposed adding the latter point as this would prejudice the outcome of the assessment, and delegates agreed to draw authors’ attention to this issue in the guidance. Canada underscored that the bullet on trade should be broadly construed as examining the way that climate change and trade agreements affect each other. Sudan, with Saudi Arabia, proposed a separate bullet on capacity building, and this was agreed to.

In Chapter 16 on National and sub-national policies, New Zealand noted that some of the elements had international implications. The US noted that the chapter did not include research and development policies. UN-Habitat noted the proliferation of sub-national policy literature and questioned the combination of the national and sub-national chapters.

Switzerland noted that it is difficult to identify a threshold between developed and developing countries. The Netherlands, the UK and Mexico supported analyzing development levels, with the Netherlands suggesting the wording “between and within developing countries” and Mexico proposing paying attention to the least developed countries. Saudi Arabia stressed

the clear difference between developed and developing countries, reflected in the UNFCCC differentiation between Annex I and non-Annex I parties. After further informal discussions, delegates agreed that the chapter would address an assessment of the performance of policies and measures in developed and developing countries, taking into account development level and capacity.

Mexico proposed adding the role of non-governmental organizations, and Malaysia the role of stakeholders to this chapter outline, and this was agreed to by delegates.

On Chapter 17 on Investment and finance, Japan said these were determined by political will and are not subject to scientific analysis and that this should be addressed by policymakers. He therefore proposed deleting Chapter 17 from the outline of the WG III report. Delegates discussed the bullet on financing mitigation activities, with several countries noting this should refer to both developed and developing countries and China noting that financing mitigation activities in developing countries is a priority. The Netherlands suggested splitting the bullet into two, relating to developed and developing countries, respectively, which was agreed to. The chapter outline was then approved.

Delegates then approved the inclusion of FAQs in the all of the individual chapter outlines.

#### FINALIZATION OF THE AR5 SCOPE AND OUTLINE:

On Wednesday night, the Panel reconvened in plenary session to finalize the agenda item on the scoping of the AR5. The WGs reported back to the Panel on actions taken at their respective sessions with regard to the chapter outlines of their contributions to the AR5.

On WG I, Co-Chair Qin presented the revised outline, noting the smooth progress of the discussions. Co-Chair Stocker highlighted an annex with an Atlas of global and regional climate projections, which will provide comprehensive information on selected variables at a range of time horizons and scenarios. He said the atlas will be based on information that is assessed in Chapters 11 and 12 on near- and long-term climate projections, respectively, and Chapter 14 on climate phenomena. He proposed the review of the annex be conducted by the review editors of these chapters to ensure scientific rigor, which was agreed by the panel. The US queried if this would mean that the atlas is subject to acceptance by the Panel like other chapters, and this was confirmed by Secretary Christ.

On WG II, Co-Chairs Field and Vicente Barros (Argentina) presented the revised outline for WG II, noting the changes, specifically, the distinction between observed and projected impacts; highlighting uncertainty and interacting stressors; improvement to the section of food security and assessment of social impacts; and zooming in on subregions.

On WG III, Co-Chairs Edenhofer, Pichs-Madruga and Sokona presented the revised outline, noting that it had been substantially improved and that the Co-Chairs are committed to ensure that top-down and bottom-up perspectives are represented.

All three WGs revised outlines were accepted by the Panel.

On the cross-cutting theme of UNFCCC Article 2, contact group Co-Chair Christopherson said that the group met five times during this session and discussions resulted in a two-page

concept note as a starting point for work on this theme. He said that the concept note outlines an aim, background and the scope for the cross-cutting theme with an indicative list of WG chapters that would be relevant to Article 2. He further noted that the contact group proposed a cross-WG meeting in early 2010. Chair Pachauri proposed an additional expert meeting before the scoping meeting of the SYR and took it upon himself to take responsibility for this cross-cutting issue. Chair Pachauri said Article 2 was especially difficult since the IPCC cannot be policy prescriptive and that the definition of “dangerous” is a value judgment that must be left to policymakers.

Austria highlighted the importance of the coordination of scenarios among WGs including stabilization levels and welcomed this reference in the concept note. Saudi Arabia asked for the inclusion of water availability and water security as well as co-benefits, tradeoffs and spillover effects. This suggestion was added to the concept note, and Chair Pachauri reminded delegates that this was the beginning of the process and that the expert meeting will decide which chapters are relevant to Article 2.

The Netherlands suggested that all three WGs should also ensure consistent treatment of issues, such as, *inter alia*, time horizons, and gaps and knowledge. The Russian Federation underlined that information on real cumulative contributions by all parties of the UNFCCC to the stabilization of greenhouse gases will play a key role, and that there are other important issues to address such as specificities of countries with a so-called harsh climate. Mali and Malaysia highlighted the importance of using grey literature in all WGs.

On a question from Switzerland on preparing the guidelines to authors, Chair Pachauri noted that transparency will be ensured and the guidelines will be made available in due time.

On the timetable for the AR5, Chair Pachauri noted that the AR5 scoping meeting in Venice proposed that the gap between the finalization of the WG I report and the SYR does not exceed 12 months to ensure that the SYR is up to date. New Zealand suggested that approval sessions for WG reports not be scheduled too close to UNFCCC meetings. The UK, with Slovenia, noted that holding approval sessions just after UNFCCC meetings minimizes the impact of IPCC products. The UK also expressed concern with scheduling two sessions – IPCC-32 in October 2010 and WG III session for approval and acceptance of the Special Report on renewable energy in December 2010 – too close to each other.

After further consultations, on Thursday morning Secretary Christ presented the revised timetable for the AR5 with: WG I’s approval session in September 2013; WG II’s approval session in mid-March 2014; WG III’s approval session in early April 2014; and approval of the SYR in mid-September 2014. She noted that the nomination of authors would begin in early January and close in early March 2010 with a Bureau meeting to generate the list of lead authors in early May 2010. She further noted that the approval of the Summary for the Special Report on renewable energy will move from December 2010 to February 2011 and will be held in Abu Dhabi, the United Arab Emirates.

Chair Pachauri urged national focal points to take a proactive approach to nominate the best available experts. Bangladesh recommended capacity building and training for focal points to facilitate their work. The Panel then approved the revised timetable for the AR5.

#### **IPCC PROGRAMME AND BUDGET FOR 2010-2014**

This agenda item was taken up by the Panel in the plenary on Monday and then addressed by the financial task team on Wednesday, co-chaired by Conchita Martinez (Spain) and Ismail Elgizouli (Sudan).

In the plenary on Monday, Chair Pachauri noted his concern with several countries' financial contributions not being provided in a timely manner.

On Wednesday night in plenary, Secretary Christ asked for further guidance from the Panel on the development of the budget (IPCC-XXXI/Doc.2), which addresses the next three years and also includes the indicative budget for the full assessment cycle up to 2013. She said the contingency in this year's budget has completely been used and suggested increasing the budget to add 10 trips in 2010 for the cross-working group meeting on uncertainty and risks.

Following discussions in the financial task team, Co-Chair Martinez presented the revised budget to the Panel (IPCC-XXXI/Doc.2/Rev.1), highlighting the proposal from Mali for providing travel funds to developing country/EIT government representatives to accompany Bureau members and the issue of a budget for a TSU for the SYR from June 2010, which would add 100,000 Swiss Francs. She also noted their efforts to stabilize the budgets and the need for additional funds for 2008-2009.

The Netherlands expressed concern over the growing gap between income and expenditure, given the current financial crisis and the difficulty governments have in raising funds and asked if there were plans for targeted fundraising. Chair Pachauri acknowledged that they have approached governments and are hopeful of generous support in response.

The UK suggested merging the 33rd and 34th sessions of the IPCC to reduce costs. Secretary Christ said two sessions are needed as the financial year will not be closed by IPCC-33, but that the Panel meetings could be held back-to-back with approval sessions for the Special Report on renewable energy and the Special Report on extreme events to save costs. Austria noted that this would result in two week-long meetings in 2011, to which Pachauri replied that this was easier and more cost-effective than the alternative.

Norway announced that they will sponsor both the Special Report on extreme events' second lead author meetings in March 2010 in Hanoi, Vietnam, and government/expert review meeting in January 2011 in Bangkok, Thailand. They also announced their special contribution of 350,000 Swiss Francs to the IPCC Trust Fund. The budget was then adopted by the Panel.

#### **ADMISSION OF OBSERVER ORGANIZATIONS**

Secretary Christ presented the list of new observer organizations for consideration and acceptance by the Panel (IPCC-XXXI/Doc. 5) and a revised proposal by the EC for special observer status (IPCC-XXXI/Doc. 6). IPCC Deputy

Secretary Gilles Sommeria noted that three new organizations had applied for observer status since IPCC-30: Global Biodiversity Information Facility (GBIF), International Council for Local Environmental Initiatives (ICLEI) and African Center of Meteorological Applications to Development (ACMAD). He also said that two applications, from Energy Research Austria and the Industrial Technology Research Institute, submitted for IPCC-30, were pending due to reservations expressed by Austria and China, respectively. Austria informed the Panel that they recommend granting observer status to Energy Research Austria. China suggested suspending the application process of the Industrial Technology Research Institute for observer status with the IPCC since no consensus had been reached on the Institute's logo, which indicates their location in Taiwan rather than in the province of Taiwan. Madagascar and Niger supported the application of the ACMAD, noting its important capacity building role in the region. The Panel accepted the applications by GBIF, ICLEI, ACMAD and Energy Research Austria for observer status with the Panel.

On the revised proposal by the EC, two contact group meetings, co-chaired by Andrej Kranjc (Slovenia) and Hiroshi Ono (Japan), were held during the week. On Wednesday night, Co-Chair Kranjc explained to the Panel that the proposal is to grant the EC the following procedural rights at IPCC sessions: the right to speak in turn, rather than after all participant states have been acknowledged; right to reply; and right to introduce proposals. He said that these rights would be exclusive and that they do not imply rights to vote and be elected. He further informed the Panel that the contact group discussions resulted in no objections to the proposal among the participants. Chair Pachauri noted that the proposal is in conformity with the IPCC procedures, and the Panel accepted the revised proposal.

#### **MATTERS RELATED TO UNFCCC**

Rocio Lichte, UNFCCC Secretariat, briefed the delegates on the developments in the climate change negotiations, noting that only five days of real negotiating time remain until the 15th Conference of the Parties (COP-15) in December 2009, in Copenhagen, Denmark. She noted that the AR5 will play an important informing role for many aspects of implementation of an agreed outcome in Copenhagen. She also noted ongoing discussions on the treatment of the 2006 IPCC National Greenhouse Gas Inventory Guidelines and said that the UNFCCC looks forward to the IPCC's engagement in the research dialogue at the 32nd meeting of the Subsidiary Body on Scientific and Technological Advice in June 2010 and to outcomes of the Special Reports on extreme events and disasters, and on renewable energy.

Switzerland noted the importance of the presence of the IPCC at UNFCCC meetings and asked how the Panel will take part in the November UNFCCC meeting in Barcelona, Spain. To this, Secretary Christ answered that efforts are always made to ensure that a critical mass of IPCC experts are present at the negotiations and outlined plans for a side event on the findings of the AR4 in Barcelona and a possible high-level presentation at COP-15.

## **RULES OF PROCEDURE FOR THE ELECTION OF THE IPCC BUREAU AND ANY TASK FORCE BUREAU**

Secretary Christ introduced relevant documents (IPCC-XXXI/ Docs.15 and 18), and the UK reported back on the task group's proposals for changes to the rules of procedure. The changes concern: the review of the size, structure and composition of the Bureau before the next election, especially representation of regional groups at senior positions; whether Vice-Chairs need to be representational; provisions for the nomination of a replacement of the IPCC Chair; and the functions of the nomination committees.

The Netherlands suggested preparing an election guide to make the election process clearer. On regional balance, Austria said highly qualified chairs were needed over regional representation and that the Nobel Prize funds for capacity building was an effective step towards better representation.

## **IMPLEMENTATION OF DECISIONS BY IPCC-30**

**INVOLVING DEVELOPING COUNTRY/EIT COUNTRY SCIENTISTS (DECISION 7):** Masaya Aiba, IPCC Secretariat, presented a study conducted by the Secretariat on the participation of developing countries and EITs in previous assessment reports (IPCC-XXXI/Doc.11). The results demonstrated the under-representation of developing country/EIT experts and grey and non-English literature from these countries and highlighted the lack of regionally balanced representation in the development of scenarios.

Vice-Chair van Ypersele presented draft recommendations including: enhancing awareness and activities of national focal points; ensuring the nomination and selection process facilitates the selection of developing country/EIT experts; increasing financial support for attendance of experts; organizing more regional meetings; encouraging national focal points' participation in outreach; encouraging inclusion of more young authors; and increasing participation of developing country and EITs in scenario development.

Chair Pachauri suggested that these draft recommendations be submitted to the Bureau for further discussion. Sudan, with Sierra Leone and Indonesia, noted the need to make better use of focal points for communications with experts rather than offices of foreign affairs. Sierra Leone said the IPCC should work with the WMO to build capacity of developing country experts, and Germany suggested using existing partnerships between research institutions in developed and developing countries to assist in these efforts. Spain recommended updating the report to allow for response by more countries. Madagascar noted that the current IPCC selection process gives priority to those with experience in the process, which inhibits the inclusion of young authors and experts from developing countries and EITs.

Vice-Chair van Ypersele noted that it might not be possible to implement Spain's proposal but that it could be included in the revised proposal for the Bureau. Secretary Christ clarified that communications are currently being sent through the permanent missions in Geneva and through national focal points. She recommended that countries that had not nominated a national focal point do so, to ensure that they are kept up to date.

The delegates agreed to forward these points to the Bureau for further discussion and to make a recommendation to IPCC-32.

**USE OF ELECTRONIC TECHNOLOGIES INCLUDING A SEARCHABLE VERSION OF THE AR4 (DECISIONS 10 AND 11):** Co-Chair Stocker gave an overview of the progress report (IPCC-XXXI/Doc.12) that proposed that all new materials should be freely available, public, in PDF format to ensure high resolution, as well as be available in DVD or external drive format. He stressed that not all current possibilities are compatible with the assessment process, especially products that allow for potential modification. He further noted that all electronic databases accessible by the public cannot be developed or distributed by the IPCC. New Zealand suggested that video-loops of map information based on composites would appeal to younger policymakers. Vice-Chair van Ypersele said there was synergy with TGICA capabilities and suggested the Co-Chairs of the TGICA be involved in this work.

**ISSUES TO BE ADDRESSED IN THE LONGER TERM FUTURE (DECISION 13):** Vice-Chair van Ypersele gave an overview of the status of the agenda item on the future of the IPCC noting that the decisions made at IPCC-30 addressed the near-term future of the IPCC, in particular in relation to the AR5. He suggested that other long-term changes be considered two years before the AR5 cycle ends since it was not appropriate to go forward with this during the current assessment cycle. The task group on the future of the IPCC will produce a revised report for the next Bureau meeting.

## **PROGRESS REPORTS**

**SPECIAL REPORT ON RENEWABLE ENERGY:** Co-Chair Edenhofer updated delegates on the preparation of the Special Report (IPCC-XXXI/Doc.8), noting the replacement of Coordinating Lead Author Wolfram Krewitt, who passed away, with Ralph Sims. He informed the delegates on the second lead author meeting, held in September 2009 in Oslo, Norway, which resulted in the addition of a chapter on hydropower, among other outcomes. He further noted two proposed expert meetings: one on modeling renewable energy and another with the participation of business stakeholders. This was followed by a discussion on the attendance of meetings (invitees, finance for experts' travel, and representation by developing countries). The UK, supported by Spain, proposed that focal points should be made aware of who is invited to facilitate the process of sending experts to meetings.

**SPECIAL REPORT ON EXTREME EVENTS AND DISASTERS:** Co-Chair Barros updated delegates on the Special Report on extreme events and disasters (IPCC-XXXI/Doc.7), noting that the selected lead authors and review editors represent an excellent balance in terms of regional representation and gender. He said that the first lead author meeting will be held in Panama City, Panama, from 9-12 November 2009, and the second meeting is tentatively scheduled for March 2010 in Vietnam.

**TFI:** Thelma Krug, TFB Co-Chair, updated the Panel on the work of the Group (IPCC-XXXI/Doc. 9), noting that the main outcome of a recent expert meeting on "Revisiting the

Use of Managed Land as a Proxy for Estimating National Anthropogenic Emissions and Removals,” which was held in São Paulo, Brazil, on 5-7 May 2009, was that there were no grounds for altering the advice to use managed land as a proxy for anthropogenic emissions and removals. She also said that the Group had just held a joint meeting with the Food and Agriculture Organization on agriculture, forestry and other land-use data and that the expert meeting on software for the 2006 Guidelines on National Greenhouse Inventories is planned for 18-20 November 2009 in Geneva, Switzerland.

**TGICA:** TGICA Co-Chair Richard Moss presented the progress report (IPCC-XXXI/Doc.14) and put forward suggestions from the outgoing members of the AR4 TGICA, including the operation of the Data Distribution Center, preparation of guidelines, capacity-building activities and support of the catalytic group on new scenarios.

**DEVELOPMENT OF NEW SCENARIOS:** Christopher Field, WG II Co-Chair and member of the catalytic group on scenarios, updated delegates on progress in the catalytic group, including the extension of representative concentration pathways (RCP) family to 2300, the development of a richer set of socioeconomic storylines and the development of baseline and policy versions for each scenario.

Richard Moss, TGICA Co-Chair and member of the catalytic group on scenarios, reported back on the joint work of the integrated assessment and climate modeling communities, including: a new historical emissions database and three RCPs that are finalized for use in model runs. He highlighted the upcoming release of RCP 6, the extension of time horizons to 2300 and that modeling groups can now run all four pathways, including reference scenarios.

The Netherlands requested that the catalytic group on scenarios prepare a written report for the next plenary session, addressing the extension of RCPs beyond 2100 as raised at IPCC-30, among other issues. He also asked if the TGICA could play a facilitating role, and if further details on the collaboration with the Integrated Assessment Modeling Consortium could be provided to the Panel. Co-Chair Field replied that these requests would be met.

**IPCC PEACE PRIZE SCHOLARSHIP FUND:** Secretary Christ presented a progress report on the IPCC Peace Prize Scholarship Fund (IPCC-XXXI/Doc.13), noting that the fundraising target is set at 10 million Swiss Francs and that the first round of scholarships should be awarded in October 2010. She said that in the process of fundraising it became clear that there was a need to find a more appropriate name for the Fund, suggesting the IPCC Climate Education Programme.

Chair Pachauri expressed confidence that the Fund will get a good response from donors and informed delegates that the UN Foundation has offered to take on the future management of the Fund. Switzerland expressed concern that operating the Fund would impose a heavy burden on the IPCC and suggested collaboration with the United Nations Institute for Training and Research and United Nations University. Belgium noted that there should be criteria for accepting money from

companies, and Chair Pachauri said they had already take this into consideration in the fundraising process. He also noted that further consultations would take place on the name of the Fund.

**OUTREACH:** Secretary Christ presented a progress report on outreach activities (IPCC-XXXI/Doc.16), noting regular updates to the website, outreach events and workshops, and continuous work with the UN Communication Group on Climate Change.

**ONGOING WORK OF WG I:** Co-Chair Stocker introduced the WG I progress report (IPCC-XXXI/Doc.17), highlighting the reports from expert meetings on the Science of alternative metrics and on Detection and attribution of climate change. He also noted progress on the preparation of the expert meeting on Multi-model evaluation, to be held in January 2010 in Boulder, Colorado, US, which will evaluate metrics and multi-models.

#### **OTHER BUSINESS**

Under this agenda item, the EC thanked the Panel for granting them special observer status, and Australia offered to host the fourth lead author meeting on the Special Report on extreme events and disasters in April 2011.

#### **TIME AND PLACE OF THE NEXT SESSION**

The Republic of Korea welcomed participants to the 32nd session of the IPCC to be held in Busan, Republic of Korea, from 11-14 October 2010.

#### **CLOSING PLENARY**

On Thursday morning, Chair Pachauri congratulated Co-Chair Field on his imminent receipt of the Heinz Award. He also noted the sad passing of Vladimir Tarasenko (Belarus) at the UNFCCC Subsidiary Bodies' meeting in June and said he would send a letter of condolence to his family and organization. Indonesia noted the success of IPCC-31 and said they were very fortunate to host this “momentous meeting” in the preparation of the AR5. Malaysia offered to host the WG I workshop on Sea-level rise and ice sheets in June 2010.

Chair Pachauri and Secretary Christ thanked the Government of Indonesia, the local organizing committee, TSUs, Bureau and Secretariat. The session ended with Francis Hayes, WMO Conference Officer, singing his version of Frank Sinatra's “My Way” to the Panel. Chair Pachauri officially closed the session at 12:10 pm.

### **A BRIEF ANALYSIS OF IPCC-31**

#### **POSITIVE START**

Almost two years after the crucial meeting in December 2007 in Bali under the United Nations Framework Convention on Climate Change (UNFCCC), which established a roadmap of negotiations towards a new agreement to address climate change, the Intergovernmental Panel on Climate Change (IPCC) held an important “roadmap” meeting of its own in the same location. The findings of the IPCC Fourth Assessment Report (AR4) played a key role in the launch of negotiations on the future climate change regime, which is supposed to result in an agreed outcome at the upcoming fifteenth Conference of the Parties (COP 15) in December 2009 in Copenhagen. While all

eyes are currently on the negotiation process under the UNFCCC Bali roadmap, the IPCC is also at an important stage of its new assessment cycle. With this in mind, the major focus of the IPCC meeting in Bali was the scope of the Fifth Assessment Report (AR5), which will be finalized in 2013-2014.

Delegates at the 31st session of the IPCC were upbeat following their three-day marathon of parallel day and night meetings under the three Working Groups (WGs) to approve the chapter outlines of respective contributions to the AR5. "Maybe it is the location, but we have finished everything that needed to be done here in Bali," enthused one. The revised chapter outlines seem to be more nuanced and clarified, with several new issues added by governments to make the AR5 more policy relevant and suited to the needs of policymakers. The buoyant mood during the final plenary was evidenced by conference officer Francis Hayes' rendition of Frank Sinatra's "My Way" which included light-hearted references to the late night sessions of this meeting and reflected the delegates' view that their concerns had been reflected into the final outline.

This brief analysis focuses on the discussions on the scoping of the AR5, which was the primary focus of IPCC-31, addressing the changes to the WG chapter outlines to incorporate ideas from policymakers, comparing the issues addressed under the AR5 with their treatment in the AR4, the improvement of regional assessments and the integration of material across WGs. These issues are of critical importance for the emerging structure and work plan of the AR5 and will shape the work of the IPCC up to 2014, when the report will be released.

### **"I DID IT MY WAY"**

In the working groups, governments maintained constant pressure to reorder and reframe the issues to make the report more policy relevant and accessible to policymakers. Scientists already had a chance to work on the chapter outlines at the AR4 scoping meeting held in Venice, Italy, last summer, and now it was the policymakers' turn to have their say.

While there was broad acknowledgement that WG I had to be the driving force behind the work of WGs II and III, governments in the room left the WG I outlines virtually untouched. "I am leaving that one to the scientists, it's the experts' jobs in WGs II and III to integrate the work of WG I and to generate information that we can use to implement our mitigation obligations and meet our adaptation needs," commented one government representative. Others were hopeful that the WG I report will provide a benchmark assessment of mid-term levels of ambition for countries, which are being discussed in the UNFCCC process, and critical new information on irreversible climate change and tipping points.

WG II and particularly WG III made a significant number of changes to their respective outlines for the AR5. In WG II, delegates hoped that these changes will result in a final report that clarifies the challenges they are facing, particularly related to adaptation and vulnerability, the policy options available for addressing them, and disaggregate the data to a scale that makes the information more policy relevant, as well as providing critical new assessment of regional scale issues.

Major revisions of WG III were undertaken to restructure the outline, in particular to make the report more accessible to policymakers. The debate on the performance of national policies and financing drew out distinctions between developed and developing countries and most clearly reflected the long-held political positions that parties to the UNFCCC have maintained on common but differentiated responsibilities.

### **SIMILARITIES AND DIFFERENCES TO THE AR4**

In terms of key differences between the AR4 and AR5, the AR5 will be geared more towards facilitating policy action, rather than just a simple update of AR4.

The AR5 is expected to bring greater focus to certain issues, which were previously either implicitly included in the report or addressed within broader chapters. Clouds and aerosols now have their own chapter under WG I, acknowledging the important role these features have in radiative forcing – the driving force for climate change. Previously this issue had less coverage in the IPCC assessments, especially clouds, while there is a lot of interest on the policy side. This report will go some way to remedying this vital gap. In addition, some issues not covered since the Third Assessment Report (TAR) will be covered, including the carbon cycle and sea level rise. New chapters in Working Group II include oceans, human security, and livelihoods and poverty, and extended coverage will be provided on adaptation, human settlements and economic activities. In addition, the Working Group II report will provide an enhanced regional assessment, with greater regional detail, addressing the critical need for scaled-down data to generate policy, address challenges and avoid maladaptation. Economics and ethics, which implicitly underpinned work, are now explicitly included in the framing section as key principles and methodologies under Working Group III, resolving what many felt to be shortcomings in the AR4 report due to lack of their explicit inclusion.

### **REGIONAL FOCUS**

Regional assessment is at the core of the AR5 for all three working groups. In an effort to improve the regional information on which impacts are based, WG I will produce an interactive electronic atlas of global and regional projections for the other two working groups, which will complement the paper report of the Group. The assessment of regional impacts has long been a weakness in the eyes of many countries as ultimately this is the information that is most vital to developing policy responses to climate change. The atlas will provide for the first time a single data source from which WG II authors can determine what regional impacts are likely to be.

The WG II report will be split into two, Part B of which focuses specifically on regional aspects. Furthermore, this regional part of the WG II report will capitalize on inputs from the other two working groups, and is expected to become a "one-stop shop" on regional climate change. The regional division, which was discussed in detail at the previous session of the IPCC, remains the same as in the AR4 but with an important addition of a chapter on oceans. The AR5 will also look at

subregions and cross-regional hotspots, like the Mediterranean and mega-deltas, to provide much needed information for policymakers in those areas.

WG III is also improving its coverage of regional issues, however, in the context of mitigation, socioeconomic divisions emerged as a controversial issue. One delegate noted the difficulties that WG III will have in comparing regional mitigation given that much depends on the countries' stage of development, as opposed to the region they are situated in, whereas, in WGs I and II the scientific and adaptation issues are more readily comparable at the regional scale. WG III presents a particular challenge due to the economic issues in the chapter, such as mitigation, and financing and investment, which also raise delicate issues in the ongoing UNFCCC negotiations on common but differentiated responsibilities between developed and developing countries. Some felt that the "artificial distinction" between developed and developing countries should be removed. However, developing countries objected to this and ultimately the UNFCCC division remained unchanged in the outline of the AR5.

### **BROADER PERSPECTIVES**

The decision for the late inclusion of UNFCCC Article 2 as a cross-cutting theme also had political sensitivities. This theme was suggested following consideration of the comments from governments on the draft outlines and cross-cutting issues, received after the AR5 scoping meeting in July in Venice. There was some discussion on the sidelines of IPCC-31 questioning whether it should be a "super cross-cutting theme," implicitly addressed, as the concept of dangerous climate change draws in almost all the work of the IPCC. In the opening plenary the Panel decided that they would like to add Article 2 as an explicit cross-cutting theme. A contact group met to draft a concept note to kick-start future work, in which they identified an indicative list of issues for each chapter. They had great difficulty in balancing the need for better scientific information on dangerous climate change while refraining from defining what actually constitutes dangerous climate change, as this is a value judgment that should be left to policymakers.

The importance of addressing uncertainty, both in terms of probability and robustness of results, was a common discussion point. There was also a push for the consistent use of uncertainty language between working groups. This cross-cutting issue will once again be central to all the chapters, with one delegate noting that "it is important to know what we are sure of and equally to know what we are not confident about." This will likely be a common refrain as the drafting of AR5 gets underway.

### **UPCOMING MEETINGS**

**RESUMED AWG-LCA 7 AND AWG-KP 9:** The resumed seventh session of the AWG-LCA and the resumed ninth session of the AWG-KP will take place from 2-6 November 2009 in Barcelona, Spain. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: [secretariat@unfccc.int](mailto:secretariat@unfccc.int); internet: <http://unfccc.int/>

**TWENTY-FIRST MEETING OF THE PARTIES TO THE MONTREAL PROTOCOL (MOP-21):** MOP-21 is scheduled to be held from 4-8 November 2009 in Port Ghalib, Egypt. Parties will, *inter alia*, consider proposed amendments to the Protocol to regulate and phase-down hydrofluorocarbons with a high global warming potential, and to promote the destruction of banks of ozone-depleting substances. For more information, contact: Ozone Secretariat; tel: +254-20-762-3851; fax: +254-20-762-4691; e-mail: [ozoneinfo@unep.org](mailto:ozoneinfo@unep.org); internet: <http://ozone.unep.org/>

**CONFERENCE ON AVIATION AND ALTERNATIVE FUELS:** This conference is organized by the International Civil Aviation Organization (ICAO) and will take place from 16-18 November 2009 in Rio de Janeiro, Brazil. This conference will showcase the state of the art in alternative aviation fuels and potential implementation. For more information, contact: ICAO Air Transport Bureau; tel: +1-514-954-8219, ext. 6321; e-mail: [envcaaf@icao.int](mailto:envcaaf@icao.int); internet: <http://www.icao.int/CAAF2009/>

**EXPERT MEETING ON SOFTWARE FOR THE IPCC 2006 GUIDELINES ON NATIONAL GREENHOUSE INVENTORIES:** This meeting will be held from 18-20 November 2009 in Geneva, Switzerland. For more information, contact: IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-730-8025; e-mail: [ipcc-sec@wmo.int](mailto:ipcc-sec@wmo.int); internet: <http://www.ipcc.ch>

**SEVENTH WORLD FORUM OF SUSTAINABLE DEVELOPMENT:** This conference will take place from 19-20 November 2009 in Paris, France. The theme is "The new world order: after Kyoto and before Copenhagen." For more information, contact: Passages-ADAPes; tel: +33-01-43-25-23-57; fax: +33-01-43-25-63-65/62-59; e-mail: [Passages4@wanadoo.fr](mailto:Passages4@wanadoo.fr); internet: [http://www.fmdd.fr/english\\_version.html](http://www.fmdd.fr/english_version.html)

**SECOND WORKSHOP ON ENERGY EFFICIENCY IN HOUSING:** This workshop will take place from 23-25 November 2009 in Vienna, Austria. Results of the workshop and the related measures presented will feed into and contribute to the development of the Action Plan for Energy Efficient Housing, to be developed under the UN Economic Commission for Europe. For more information, contact: Paola Deda, Secretary to the Committee on Housing and Land Management, UNECE; tel: +41-22-917-2553; fax: +41-22-917-0107; e-mail: [paola.deda@unece.org](mailto:paola.deda@unece.org); internet: <http://www.energy-housing.net>

**UNFCCC COP 15 AND KYOTO PROTOCOL COP/MOP 5:** The fifteenth Conference of the Parties to the UNFCCC and fifth Meeting of the Parties to the Kyoto Protocol are scheduled to take place from 7-18 December 2009 in Copenhagen, Denmark. These meetings will coincide with the 31st meetings of the UNFCCC's Subsidiary Bodies. Under the "roadmap" agreed at COP 13 in Bali in December 2007, COP 15 and COP/MOP 5 are expected to finalize an agreement on enhancing international climate change cooperation, including in the post-2012 period when the first commitment period under the Kyoto Protocol expires. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: [secretariat@unfccc.int](mailto:secretariat@unfccc.int); internet: <http://unfccc.int/>

**INTERGOVERNMENTAL MEETING FOR THE HIGH-LEVEL TASKFORCE ON THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES:** The meeting will take place from 21-22 December 2009 in Geneva, Switzerland. The meeting is being organized by the WMO pursuant to the decision of the World Climate Conference-3, held in Geneva from 31 August to 4 September 2009, for the establishment of the High Level Taskforce on the Global Framework for Climate Services. For more information, contact: WMO Secretariat; tel: +41-22-730 81-11; fax: +41-22-730 81-81; e-mail: hlt@wmo.int; internet: [http://www.wmo.int/hlt-gfcs/index\\_en.html](http://www.wmo.int/hlt-gfcs/index_en.html)

**IPCC WG I EXPERT MEETING ON ASSESSING AND COMBINING MULTI-MODEL CLIMATE PROJECTIONS:** This meeting will take place from 25-27 January 2010 in Boulder, Colorado, US. The main objective of the expert meeting is to explore the possibility of establishing a framework for using and assessing the AR5 model data set and to enhance interaction between WGs I and II at an early stage of the assessment process. It is also relevant in the context of the catalytic role of the IPCC in scenario development. For more information, contact: IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-730-8025; e-mail: [ipcc-sec@wmo.int](mailto:ipcc-sec@wmo.int); internet: [http://www.ipcc.ch/meeting\\_documentation/meeting\\_documentation\\_ipcc\\_workshops\\_and\\_expert\\_meetings.htm](http://www.ipcc.ch/meeting_documentation/meeting_documentation_ipcc_workshops_and_expert_meetings.htm)

**FOURTH INTERNATIONAL RENEWABLE ENERGY CONFERENCE (IREC):** The event will be held from 17-19 February 2010 in New Delhi and Uttar Pradesh, India. The conference will be the fourth global ministerial level conference on renewable energy, following Bonn Renewables 2004, Beijing 2005, and WIREC 2008 (held in Washington, DC, US). The IREC will consist of a ministerial meeting, business-to-business and business-to-government meetings, side events (symposiums, sectoral seminars and workshops) and a trade show/exhibition. For more information, contact: Ministry of New and Renewable Energy, Government of India; e-mail: [ss.madan@nic.in](mailto:ss.madan@nic.in); internet: <http://mnes.nic.in/pdf/irec-mnre.pdf>

**IPCC SCOPING MEETING FOR AR5 SYR:** The scoping meeting for the AR5 SYR will be held in mid-2010, location and date to be determined. It will develop an outline of the SYR and address the treatment of cross-cutting issues in the AR5. For more information, contact: IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-730-8025; e-mail: [ipcc-sec@wmo.int](mailto:ipcc-sec@wmo.int); internet: <http://www.ipcc.ch>

**32ND SESSION OF THE UNFCCC SUBSIDIARY BODIES:** The 32nd sessions on the Subsidiary Bodies of the UNFCCC are scheduled to take place from 31 May - 11 June 2010. The venue of the meeting is likely to be Bonn, Germany. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: [secretariat@unfccc.int](mailto:secretariat@unfccc.int); internet: [http://unfccc.int/meetings/unfccc\\_calendar/items/2655.php?year=2010](http://unfccc.int/meetings/unfccc_calendar/items/2655.php?year=2010)

**THIRTIETH OPEN-ENDED WORKING GROUP OF THE PARTIES TO THE MONTREAL PROTOCOL:** This meeting is tentatively scheduled for 21-25 June 2010 in Bangkok, Thailand. For more information, contact the Ozone

Secretariat; tel: +254-20-762-3850/1; fax: +254-20-762-4691; e-mail: [ozoneinfo@unep.org](mailto:ozoneinfo@unep.org); internet: <http://ozone.unep.org/Events/meetings2010.shtml>

**IPCC-32:** The thirty-second session of the IPCC will take place from 11-14 October 2010 in Busan, Republic of Korea. The Panel is expected to address the progress on the preparation of the AR5, among other issues. For more information, contact: IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-730-8025; e-mail: [ipcc-sec@wmo.int](mailto:ipcc-sec@wmo.int); internet: <http://www.ipcc.ch>

**GLOSSARY**

AR4	IPCC Fourth Assessment Report
AR5	IPCC Fifth Assessment Report
COP	Conference of the Parties
EITs	Economies in Transition
FAQs	Frequently Asked Questions
IPCC	Intergovernmental Panel on Climate Change
SPM	Summary for Policymakers
RCP	Representative Concentration Pathways
SYR	Synthesis Report
TFB	Task Force Bureau on National Greenhouse Gas Inventories
TFI	Task Force Group on National Greenhouse Gas Inventories
TGICA	Task Group on Data and Scenario Support for Impact and Climate Analysis
TSU	Technical Support Unit
WG	Working Group
UNFCCC	United Nations Framework Convention on Climate Change