Key findings from the WG III 5th Assessment Report and plans for AR6

Jim Skea
Co-Chair, IPCC Working Group III

IPCC outreach meeting
Shinagawa Hotel, Tokyo
14 November 2017

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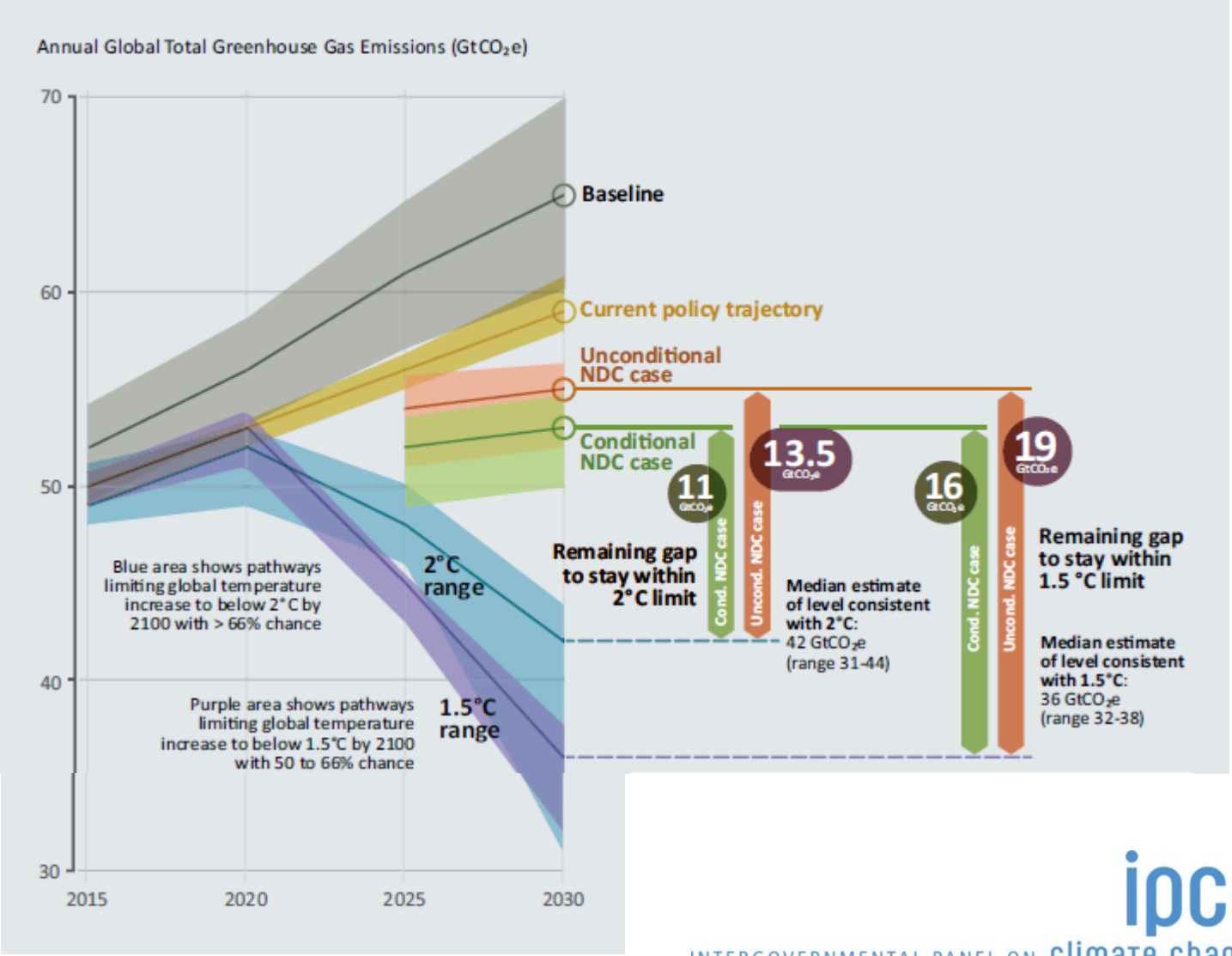
Mitigation in the Paris Agreement: Temperature, emissions and sinks

- "This Agreement aims to strengthen the global response to the threat of climate change…. including ***by holding the increase in the global average temperature to well below 2 °C*** above pre-industrial levels and to ***pursue efforts to limit the temperature increase to 1.5 °C*** above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change"
- "Each Party shall prepare, communicate and maintain successive ***nationally determined contributions*** that it intends to achieve"
- The CoP….shall periodically take stock of the implementation of the Agreement to assess collective progress towards achieving the purpose of the Agreement and its long-term goals (the "***global stocktake***")
- Parties aim to reach **global peaking of greenhouse gas emissions** as soon as possible….. so as to **achieve *a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases*** in the second half of this century,

Mitigation in the Paris Agreement: Enabling elements

- *In the context of sustainable development*
- Developed country Parties should continue to take the lead in *mobilizing climate finance* from a wider variety of sources, instruments and channels
- Parties share a long-term vision on the importance of fully realizing *technology development and transfer* in order to improve resilience to climate change and to reduce greenhouse gas emissions
- Parties….shall *strengthen cooperative action* on technology development and transfer
- A *technology framework* is hereby established to provide overarching guidance to the work of the *Technology Mechanism* in promoting and facilitating enhanced and transfer……

Progress in restricting global warming to 1.5 - 2°C above pre-industrial levels by the end of this century



Source: UNEP

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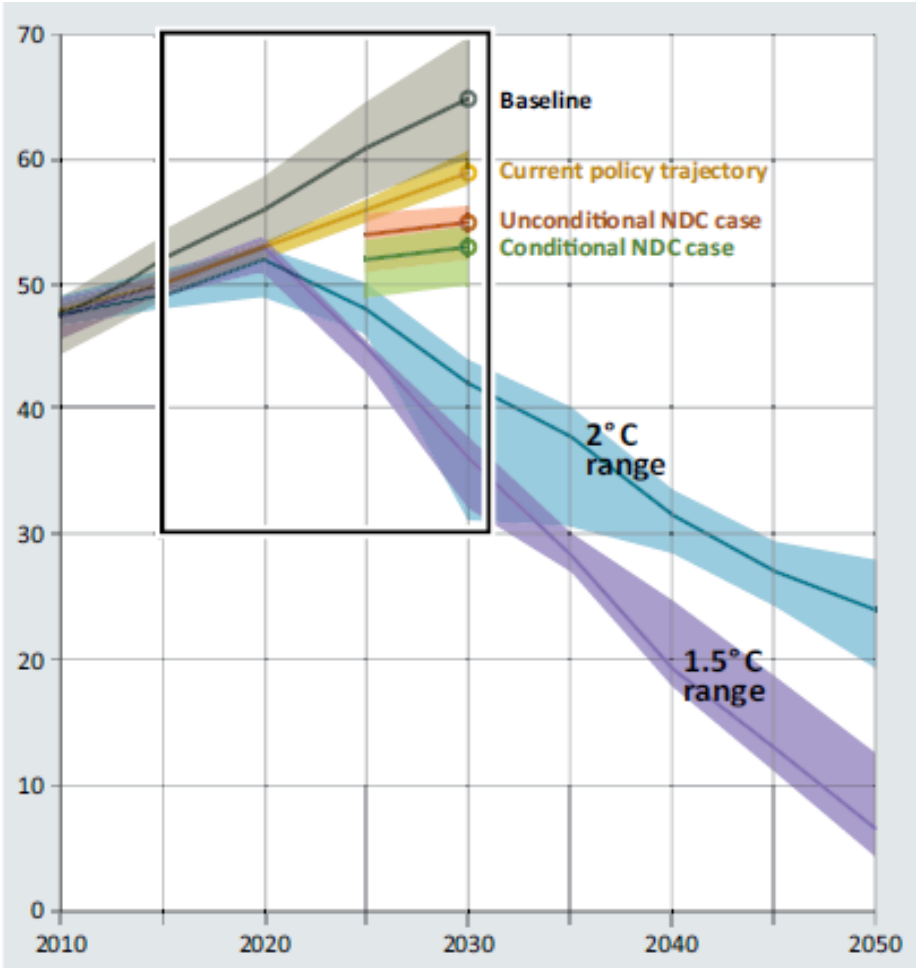
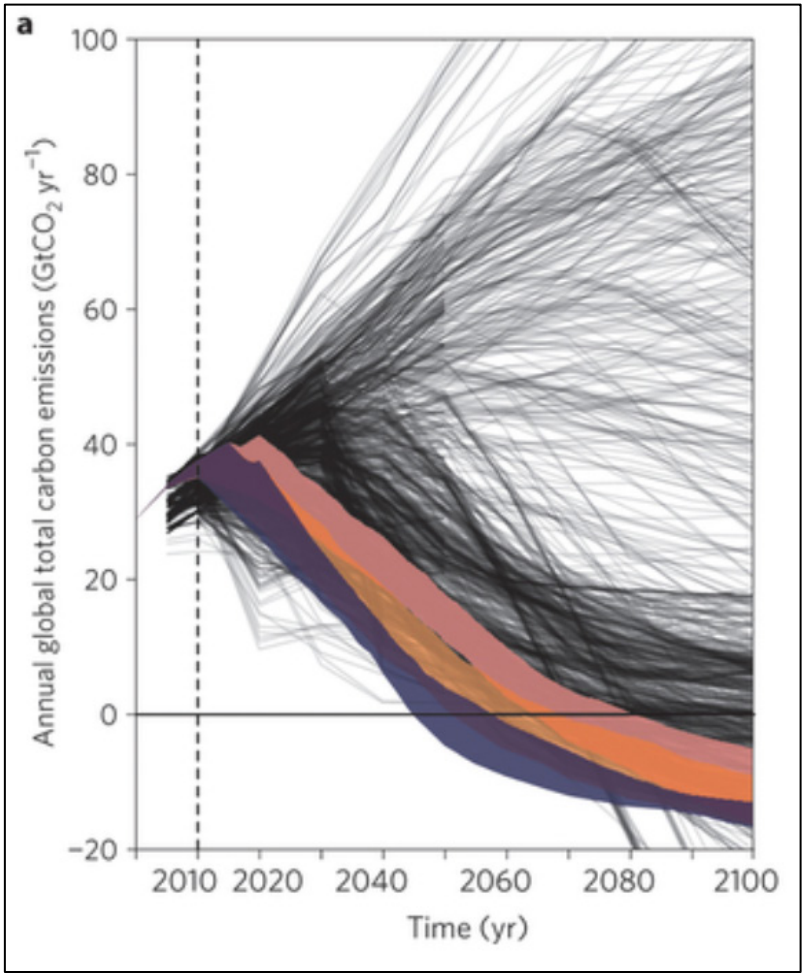
The view to 2050 and beyond



Source: UNEP



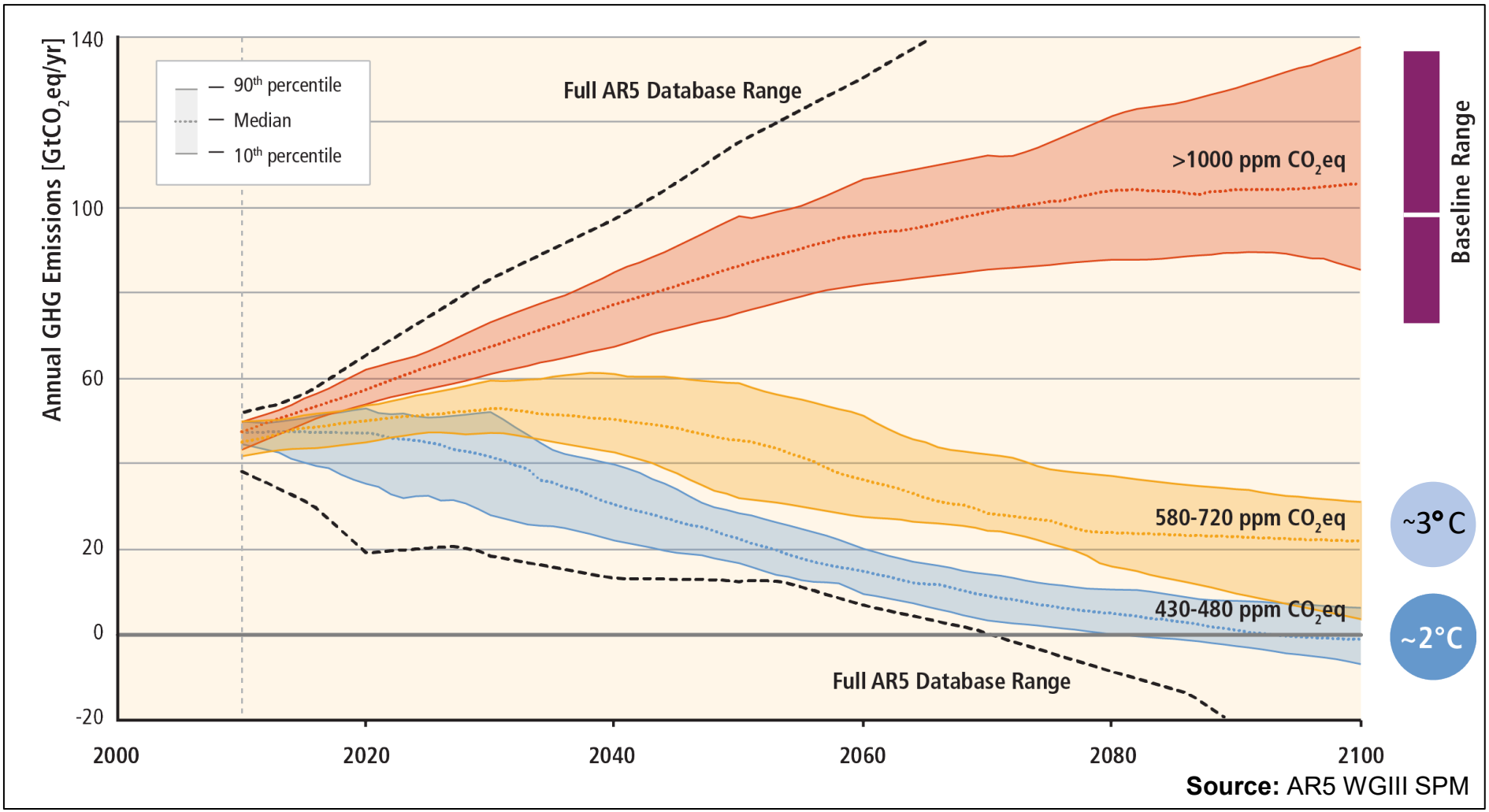
Source: Rogelj et al, 2015

Outline of AR5 WG-III Report

1	Introductory Chapter
2	Integrated Risk and Uncertainty Assessment of Climate Change Response Policies
3	Social, Economic and Ethical Concepts and Methods
4	Sustainable Development and Equity
5	Drivers, Trends and Mitigation
6	Assessing Transformation Pathways
7	Energy Systems
8	Transport
9	Buildings

10	Industry
11	Agriculture, Forestry and Other Land Use (AFOLU)
12	Human Settlements, Infrastructure and Spatial Planning
13	International Cooperation: Agreements and Instruments
14	Regional Development and Cooperation
15	National and Sub-National Policies and Institutions
16	Cross-cutting Investment and Finance Issues

Stabilization of atmospheric concentrations requires moving away from the baseline – regardless of the mitigation goal



Source: AR5 WGIII SPM

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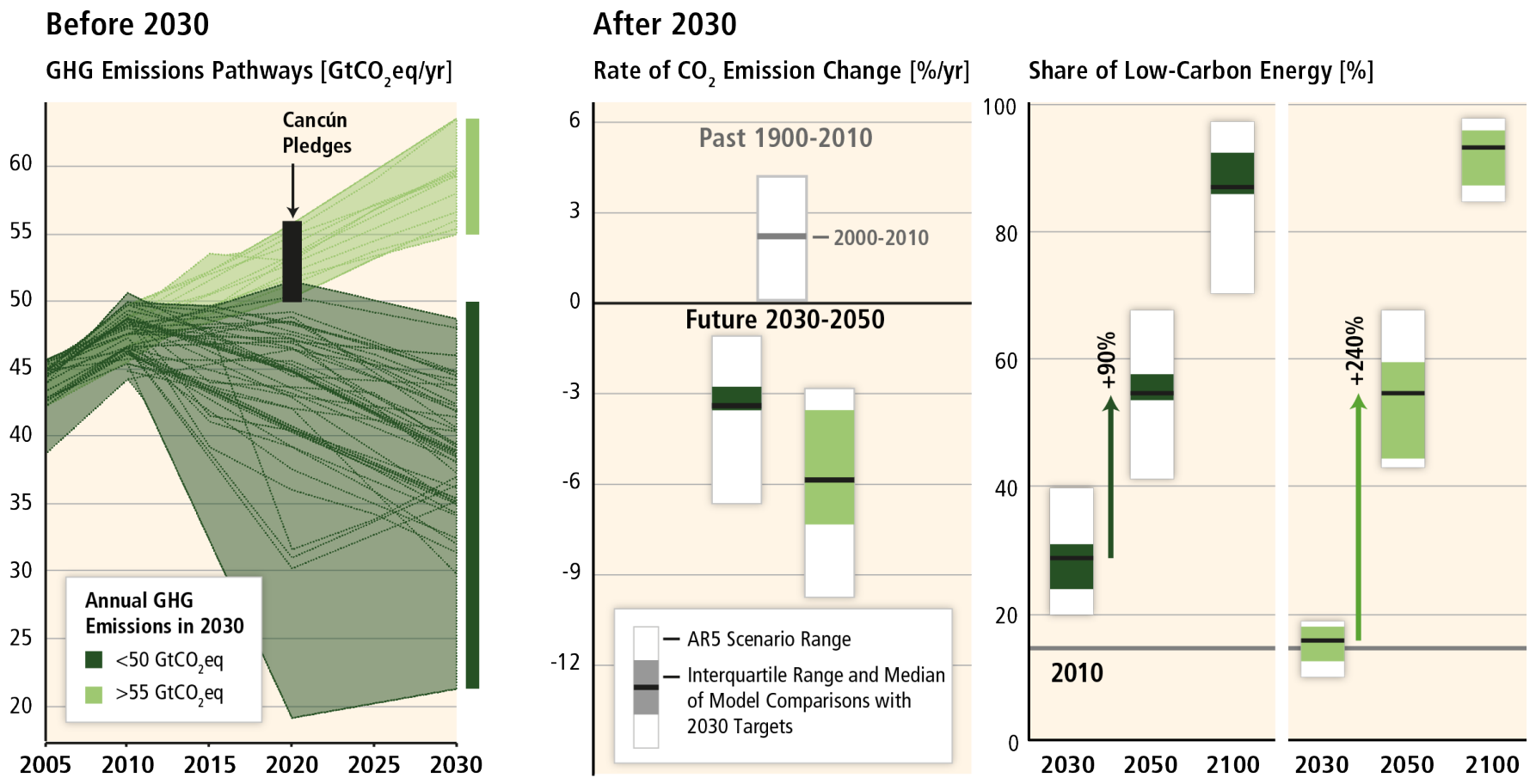
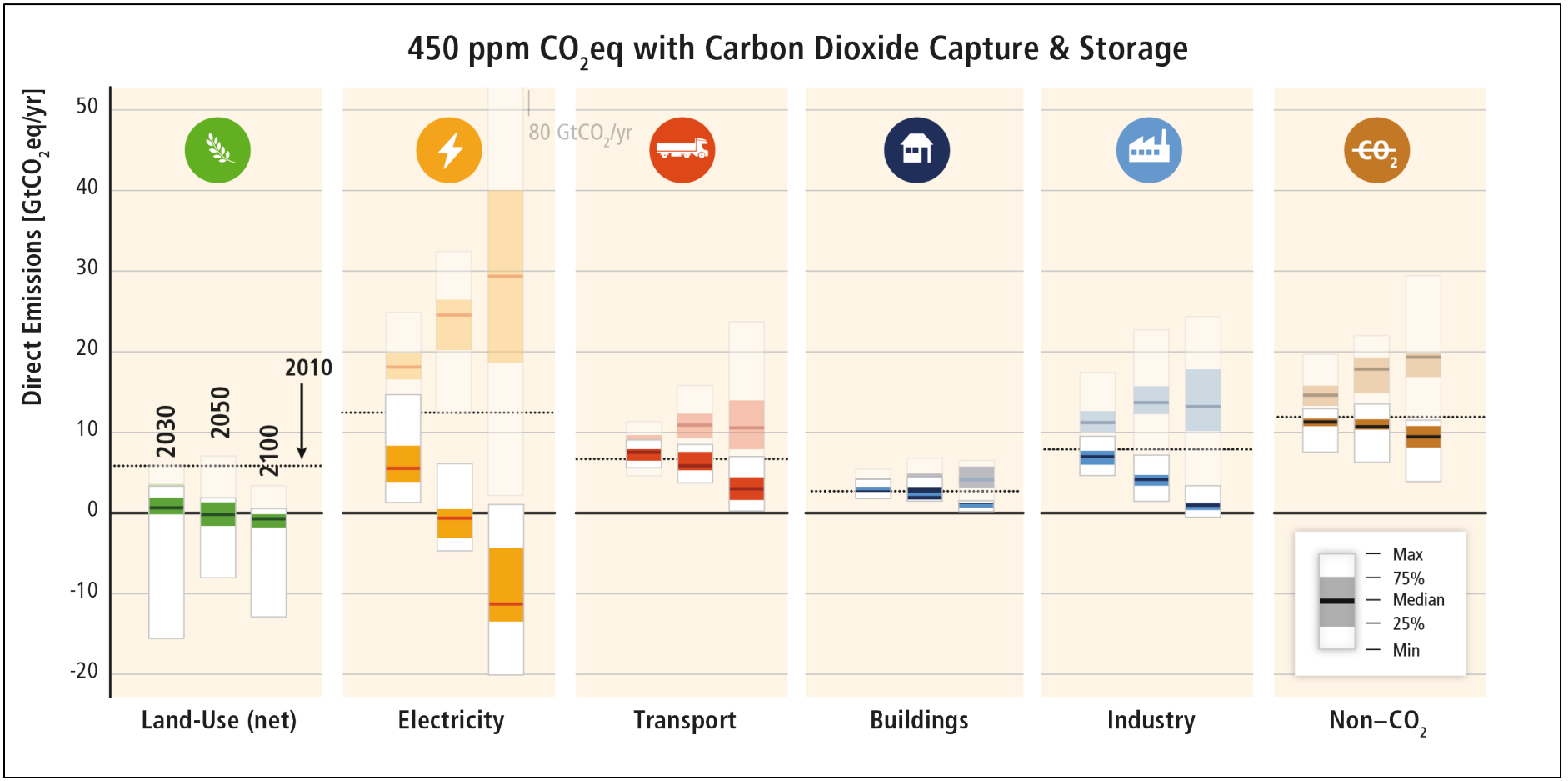
The sooner we act, the easier and the cheaper it will be to reach a given temperature goal



Source: AR5 WGIII SPM

Emission patterns would need to change throughout the economy



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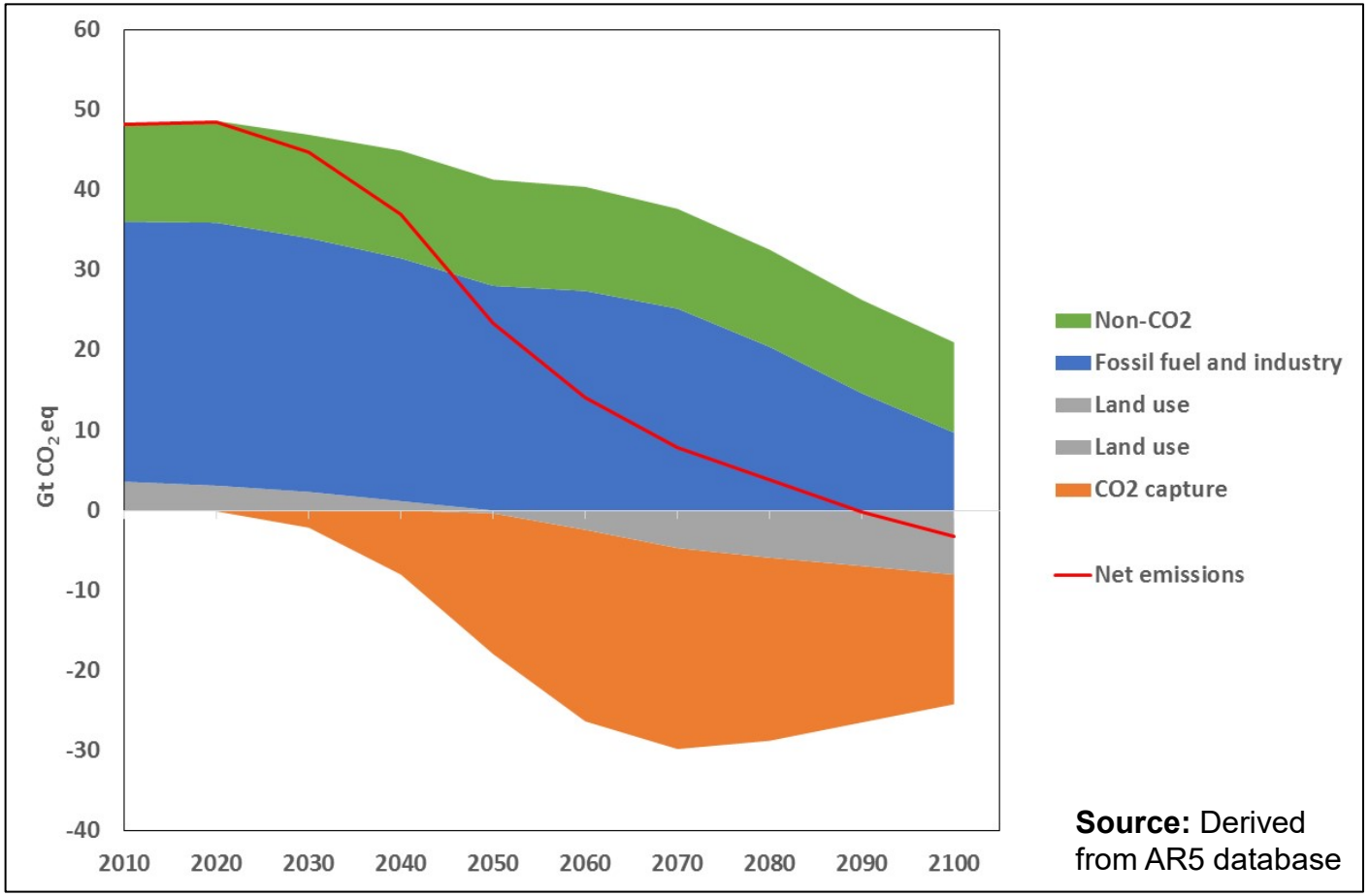
Balancing sinks and sources and long-term low greenhouse gas emission development strategies (Article 4)



Note: One illustrative scenario with a 65% probability of getting below 2°C warming

Mitigation Measures

More efficient use of energy

Greater use of low-carbon and no-carbon energy

- Many of these technologies exist today

Improved carbon sinks

- Reduced deforestation and improved forest management and planting of new forests
- Bio-energy with carbon capture and storage

Lifestyle and behavioural changes

Source: AR5 WGIII SPM

Ambitious Mitigation Is Affordable

- ➜ Economic growth reduced by ~ 0.06% (BAU growth 1.6 - 3%)
- ➜ This translates into delayed and not forgone growth
- ➜ Estimated cost does not account for the benefits of reduced climate change
- ➜ Unmitigated climate change would create increasing risks to economic growth
- ➜ Opportunities for economic diversification

Source: AR5 WGI and WGII SPMs

Main Products during the AR6 cycle

1) The Special Reports

Special Report on Global Warming of 1.5°C (SR15)

PARIS2015

Approval Sept 2018

Special Report on Ocean and Cryosphere (SROCC)

Special Report on Climate Change and Land (SRCCL)

Approval Sept 2019

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Background to SR15

2015 - **COP21 Paris agreement**: the UNFCCC invited the IPCC to develop a Special Report in 2018 on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways.

2016- **43rd Session of the IPCC** (Nairobi, Kenya): The IPCC accepted the UNFCCC's invitation.

Outline of SR15

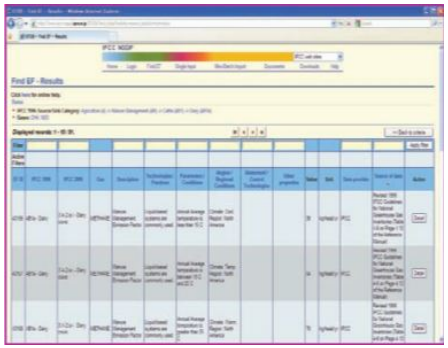
Special Report outline agreed at 44th session of the IPCC (October 2016)

Summary for Policy Makers

Chapter 1:	Framing and context (15 pages)
Chapter 2:	Mitigation pathways compatible with 1.5°C in the context of sustainable development (40 pages)
Chapter 3:	Impacts of 1.5°C global warming on natural and human systems (60 pages)
Chapter 4:	Strengthening and implementing the global response to the threat of climate change (50 pages)
Chapter 5:	Sustainable development, poverty eradication and reducing inequalities (20 pages)

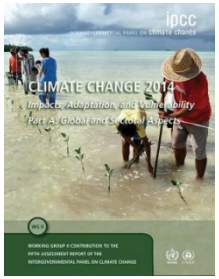
Boxes, Case Studies and Cross-Cutting Themes
FAQs

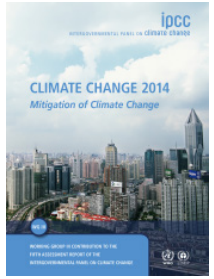
Main Products during the AR6 cycle

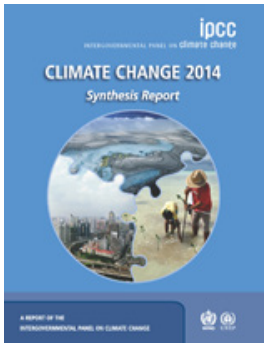


2) A methodology report (inventories)

3) Three Working Group reports







4) A Synthesis Report

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WG-III AR6 Bureau

Position	Name	Country
Co-Chair	Priyadarshi R. Shukla	India
Co-Chair	Jim Skea	United Kingdom of Great Britain and Northern Ireland
WG Vice-Chair	Amjad Abdulla	Maldives
WG Vice-Chair	Carlo Carraro	Italy
WG Vice-Chair	Diriba Korecha Dadi	Ethiopia
WG Vice-Chair	Nagmeldin G. E. Mahmoud	Sudan
WG Vice-Chair	Ramón Pichs-Madruga	Cuba
WG Vice-Chair	Andy Reisinger	New Zealand
WG Vice-Chair	Diana Ürge-Vorsatz	Hungary

Government questionnaire: priority topics for WG III

Policy relevant information on the Paris Agreement goals (well below 2°C, efforts to achieve 1.5°C, climate neutrality); anticipate the global stocktake; transformation pathways to meet 2°C and 1.5°C; social + financial + technological + sectoral + regional implications of pathways	19
Geo-engineering, including limits, negative emissions	7
The role of short-lived climate pollutants and other benefits	6
Options for decarbonization pathways, including solutions from business	6
Links between climate change and SDGs	5
Technological, economic, social, and institutional barriers to realizing mitigation targets and benefits from carbon offset mechanisms	4
Opportunities, challenges, barriers and co-benefits of climate change mitigation policies and measures	3
Impacts on land-use change, including ecosystem restoration, biodiversity and ecosystem functions and services	3

Aspirations of new Bureau

Enhance participation of developing country experts

Deepen engagement between Working Groups

Strengthen links between the insights obtained from high level integrated assessment modelling and the concrete steps required to mitigate climate change

Increase policy relevance and neutrality by incorporating inputs from business, industry and finance

Enhance the relevance for policymakers charged with following through decisions made under the Framework Convention

Connect to domestic challenges such as job creation, economic diversification, health, innovation and technology development, energy access and poverty alleviation

Challenges for AR6

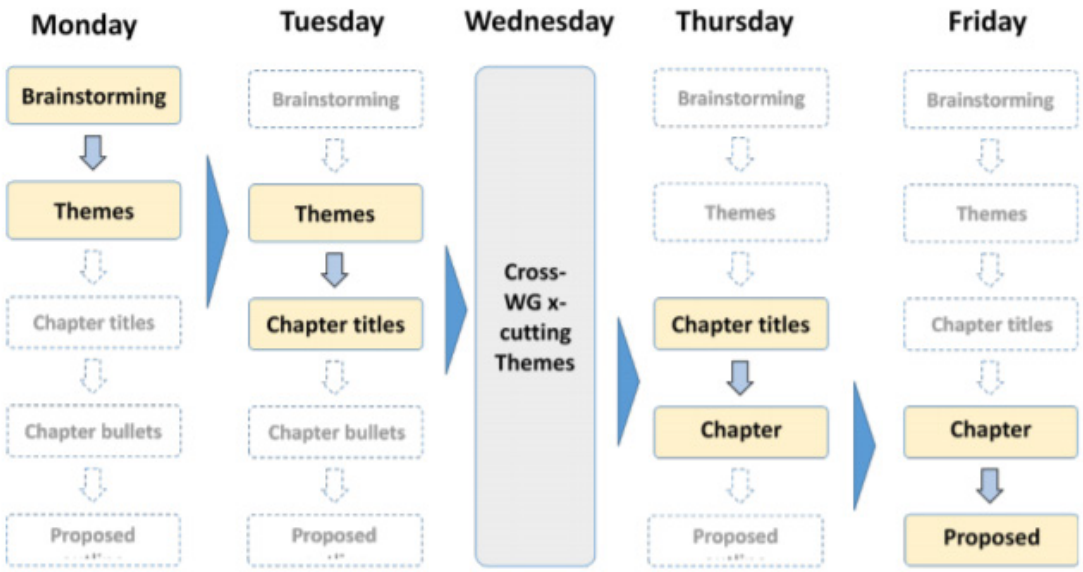
AR5 achieved a systemic view of mitigation opportunities. But there is a need to include a wider range of approaches in the assessment, including national and regional modelling as well as global models.

Challenges for AR6:

- To assess the linkages between high-level climate stabilization goals and scenarios on the one hand and the practical steps needed in the short- and medium-term to make the realisation of these goals possible
- To make greater use of social science disciplines, in addition to economics, especially for gaining insight into issues related to lifestyle, behaviour, consumption, technological choices and socio-technical transitions.
- To link climate change mitigation better to other agreed policy goals nationally and internationally (e.g. the Sustainable Development Goals - SDGs).

AR6 scoping Meeting (1-5 May 2017)

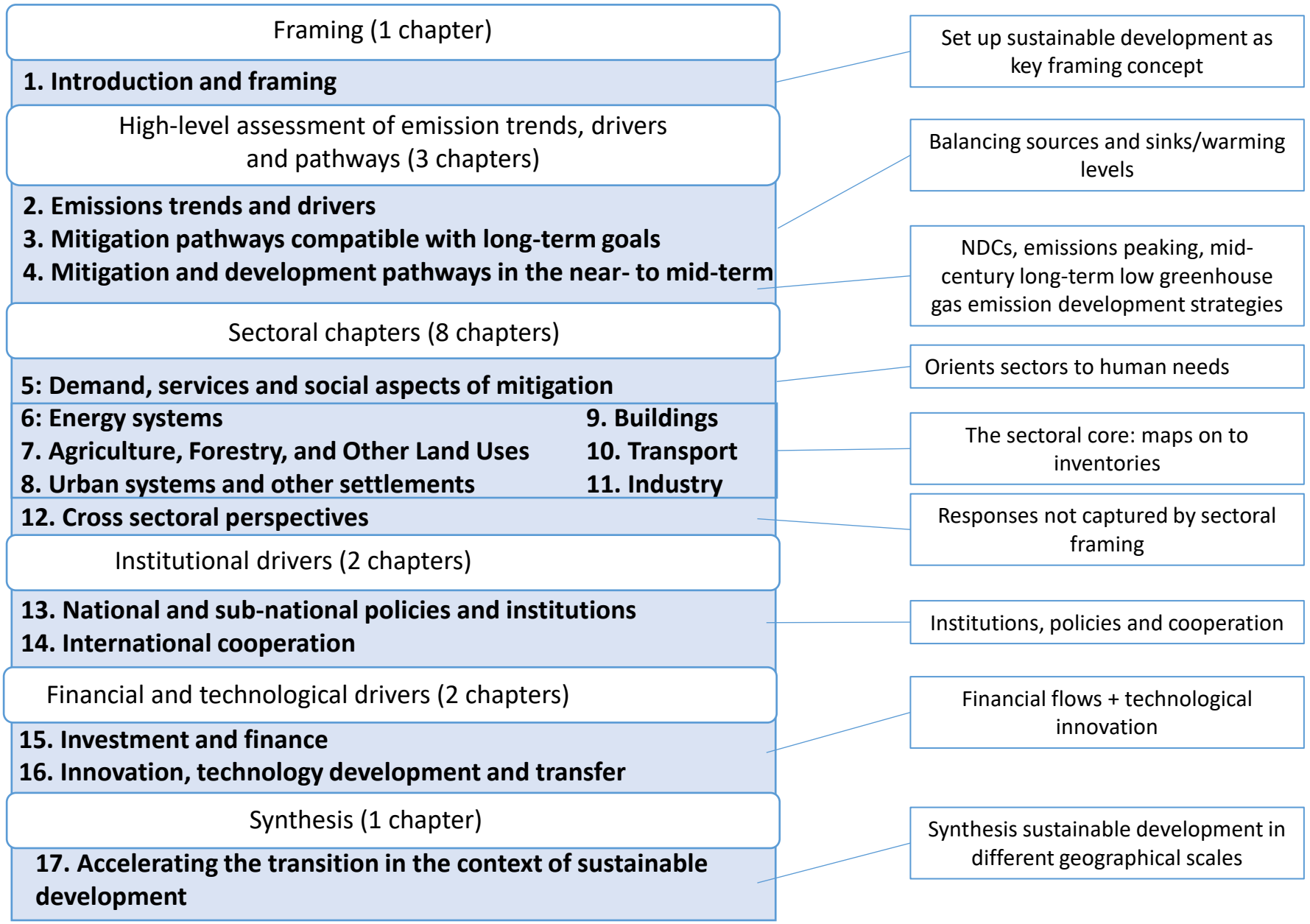
- Structured bottom-up process: no draft outline to start the meeting.
- Outline emerged over the course of the week through interactive series of discussions.



To better inform the scoping of AR6, an expert meeting was held in advance of the meeting to address some of the specific challenges identified for AR6.

Outline approval: 46th session of the IPCC in Montreal (September 2017)

Agreed outline of WG III AR6



Chapter 6: Energy systems

Sectoral chapters

- 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-CO2 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

Timeline for WGIII contribution to AR6

26-28 April 2017	Expert Meeting on Mitigation, Sustainability and Climate Stabilization Scenarios
1-5 May 2017	AR6 Scoping Meeting
6-10 Sept	**Panel consideration of outline for AR6**
15 Sept – 27 Oct 2017	Call for CLA/LA/RE Nominations
29-30 Jan 2018	Decision on selection of CLA/LA/RE
1-5 Apr 2019	1st Lead Author Meeting (LAM1)
30 Sep – 4 Oct 2019	2nd Lead Author Meeting (LAM2)
9 Dec 19 – 31 Jan 20	1st Order Draft (FOD) Expert Review
30 Mar – 3 Apr 3 2020	3rd Lead Author Meeting (LAM3)
1 Jun – 24 Jul 2020	2nd Order Draft (SOD) Expert Review
19-23 Oct 2020	4th Lead Author Meeting (LAM4)
1 Feb – 26 Mar 2021	FGD Government Review of SPM
12-14 Jul 2021	IPCC acceptance/adoption/approval

Scoping → Author Selection → Drafting and Review → AR6 Approval

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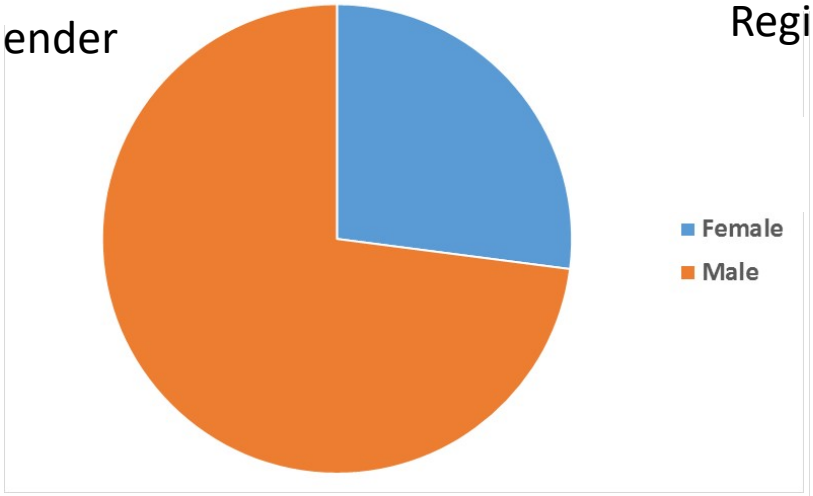
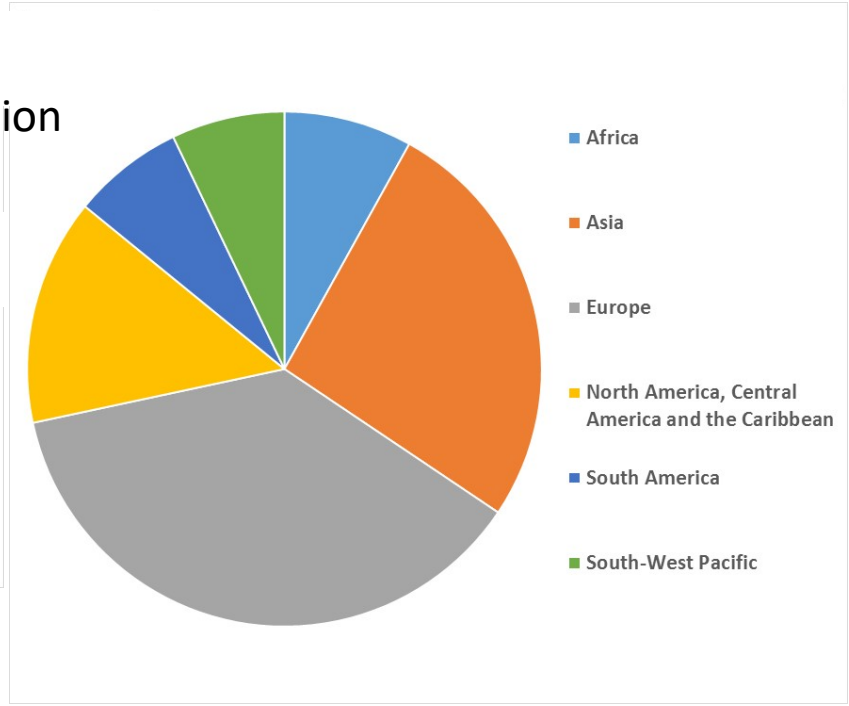
Balance….843 authors nominated by countries + 48 by observers

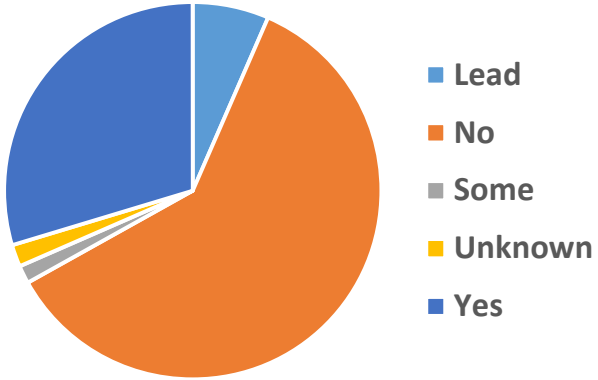
Gender



Region



IPCC experience



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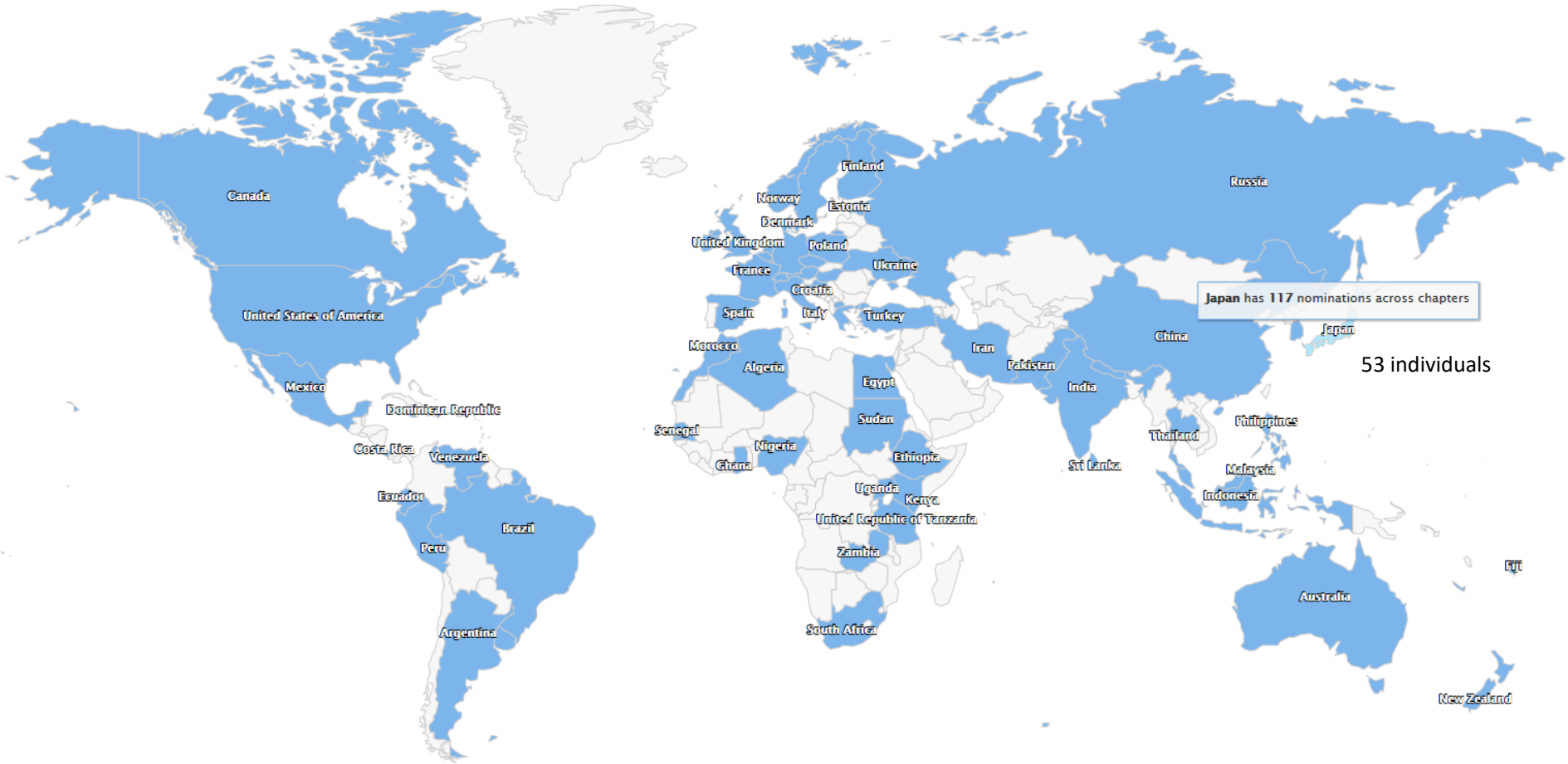
Countries nominating



53 individuals

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Thank you for your attention

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