

IPCC AR6, the Special Report on 1.5°C and the IAM community

Prof PR Shukla and Jim Skea (IPCC WG-III Co-chairs)

Energy Modelling Forum Snowmass 2016
Snowmass CO, July 22 2016

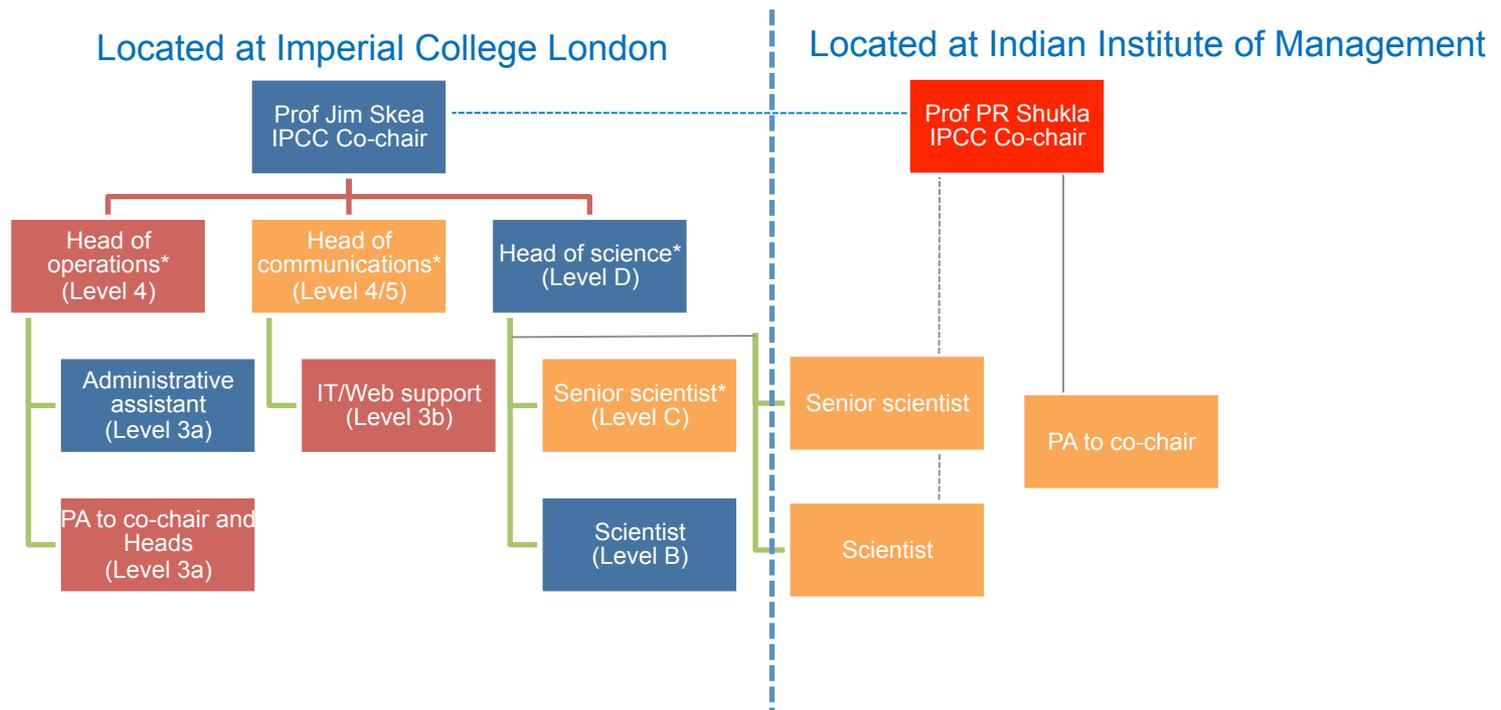
Outline

- **WG-III in AR6**
- Special Reports and AR6 plans
- IPCC and the Paris Agreement
- IAMs in AR6 and the Special Reports

WG-III Bureau elected October 2015

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

WG-III Technical Support Unit



Notes: * = international recruitment



DECC funded



DECC ODA stream



EPSRC funded

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, health, innovation and technology development, energy access and poverty alleviation

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31 proposals for Special Reports during AR6

Cluster A: Land use, desertification, food and agriculture	7 proposals
Cluster B: Cryosphere, oceans and mountains	8 proposals
Cluster C: Health and security	2 proposals
Cluster D: Integrating adaptation and mitigation	5 proposals
Cluster E: Carbon pricing	1 proposal
Cluster F: Scenarios and low-carbon development	4 proposals including UNFCCC 1.5°
Cluster G: Managing climate data and information	1 proposal
Cluster H: Updates policy relevant messages/extreme events	2 proposals
Cluster I: Cities	1 proposal

Special Reports

- The impacts of global warming of 1.5° C above pre-industrial levels and related global greenhouse gas emissions pathways
 - Joint scientific leadership WGs I, II and III
 - Technical Support WG-I
- Climate change, desertification, land degradation, sustainable land management, food security and greenhouse gas fluxes in terrestrial ecosystems
 - Joint scientific leadership WGs I, II, III and the TFI
 - Technical Support WG-III
- Oceans and cryosphere
 - Joint scientific leadership WGs I and II
 - Technical Support WG-II

Currently planned WG-III AR6 schedule

	1.5 degrees	Land Use	WG-III AR6
Call for scoping nominations	April 2016	September 2016	October 2016
Scoping meeting	August 2016	February 2017	May 2017
Plenary approval of outline	October 2016	April 2017	September 2017
LAM1	March 2017	November 2017	May 2019
LAM4	April 2018	February 2019	October 2020
Plenary Approval	September 2018	September 2019	July 2021

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IPCC and the Paris Agreement 2015



Some decisions of COP-21 and CMP-11 and conclusions of SBSTA-43 mention the IPCC explicitly

Several other decisions of COP-21 are relevant to the work of the IPCC



IPCC has an institutional role in the implementation of the Paris Agreement

IPCC and the Paris Agreement 2015 (cont.)

Paragraph 21 of the UNFCCC CoP Decision adopting the Paris Agreement

The Conference of the Parties (CoP):

“21. Invites the Intergovernmental Panel on Climate Change to provide a special report in 2018 on the impacts of climate warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emissions pathways”

IPCC and the Paris Agreement 2015 (cont.)

Paragraph 99 of the UNFCCC CoP Decision adopting the Paris Agreement

The CoP:

“100. Requests the Ad Hoc Working Group on the Paris Agreement to identify the sources of input for the global stocktake referred to in Article 14 of the Agreement and to report to the Conference of the Parties, with a view to the Conference of the Parties making a recommendation to the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement for consideration and adoption at its first session, including, but not limited to:
(b) The latest reports of the Intergovernmental Panel on Climate Change”

Paragraph 100 of the UNFCCC CoP Decision adopting the Paris Agreement

The CoP:

“101. Also requests the Subsidiary Body for Scientific and Technological Advice to provide advice on how the assessments of the Intergovernmental Panel on Climate Change can inform the global stocktake of the implementation of the Agreement pursuant to its Article 14 of the Agreement and to report on this matter to the Ad Hoc Working Group on the Paris Agreement at its second session”

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- **IAMs in AR6 and the Special Reports**

IAMs and AR6: Proposition 1

AR5 WG-III messaging was dominated by IAM results

- IPCC cut and paste into early drafts of the Paris Agreement
- Some pushback – delegations and other research communities
- Reliance on big technical fixes with unknown sustainability consequences
- Lack of insight into “feasibility” and practical “next steps”

IAMs and AR6: Proposition 2

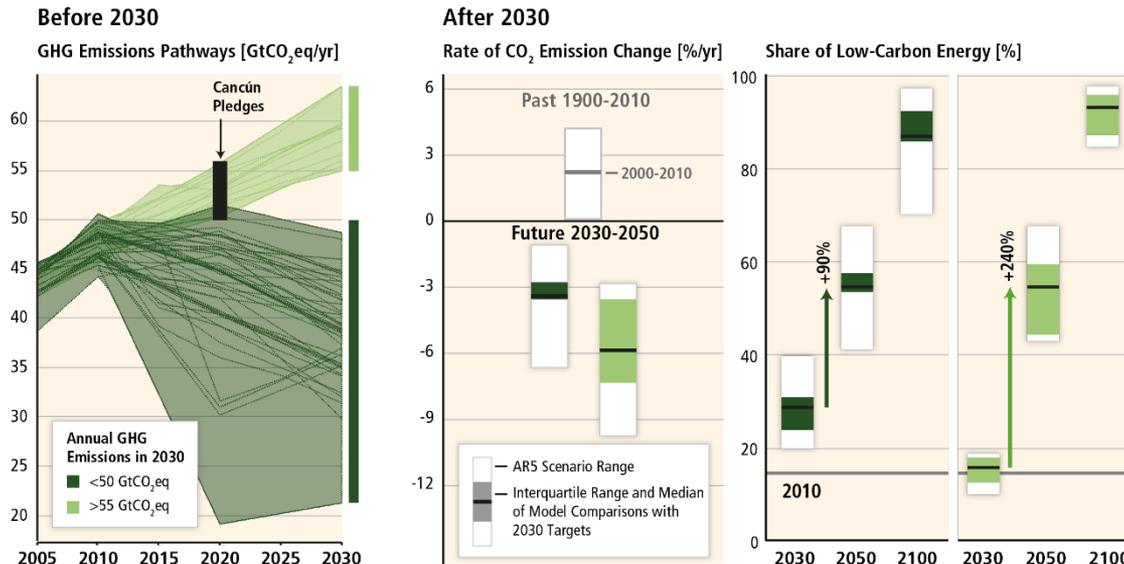
IAMs will play a significant role in the 1.5°C Special Report

- IAMs can squarely address the homework question
- The IAM community is relatively agile and can produce results quickly
- Clear messages on carbon budgets pathway options

IAMs and AR6: Proposition 3

Communicating IAM results is challenging

“Estimated global GHG emissions levels in 2020 based on the Cancún Pledges are not consistent with cost-effective long-term mitigation trajectories that are at least about as likely as not to limit temperature change to 2°C relative to pre-industrial levels (2100 concentrations of about 450 and about 500 ppm CO₂eq), but they do not preclude the option to meet that goal”



IAMs and AR6: Proposition 4

Model Intercomparison Projects (MIPs) are not the only way to present IAM results

- Good for addressing uncertainties associated with structural differences in models – the modellers' view
- Difficult to communicate the dynamics of transformation – the policymakers' need
- Make more use of deep dives into “marker” models and pathways?
- How to select “marker” models and pathways?

IAMs and AR6: Proposition 5

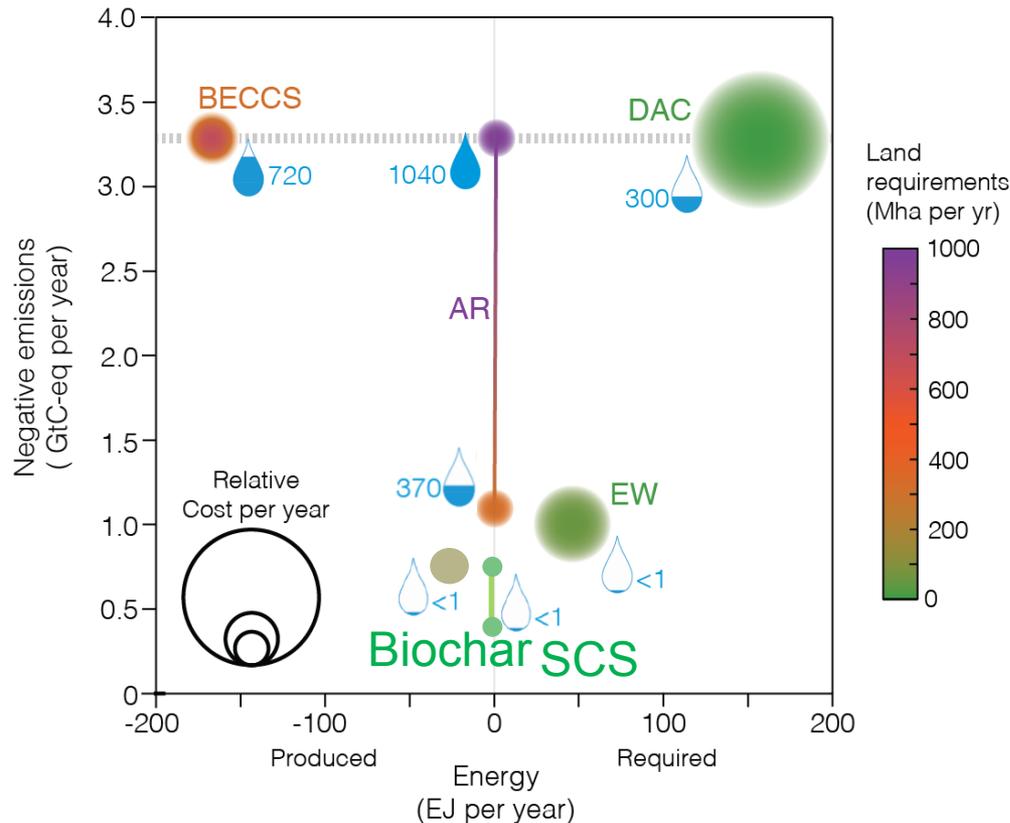
The menu of mitigation options is not yet complete

Negative emission technologies (Smith et al., 2016)

- Direct Air Capture (DAC)
- Enhanced weathering of minerals (EW)
- Afforestation/ Reforestation (AR)
- Bioenergy with carbon capture and storage (BECCS)
- Soil carbon sequestration (SCS)
- Biochar
- (Carbon capture and utilization)

IAMs and AR6: Proposition 6

Need for enhanced understanding of sustainability implications of mitigation measures



IAMs and AR6: Proposition 7

Global IAM modelling exercises need to be complemented by and linked to other perspectives and methods

- National and regional level modelling
- Sectoral studies
- Case studies

IAMs and AR6: Proposition 8

Alternative development models may need to be considered

- Do the SSPs really cover this?
- Do global scenario narratives capture regional diversity and granularity?

Final question

How shall IAM assessments add further value to IPCC AR6 cycle products?

THANK YOU FOR YOUR ATTENTION!

For more information:

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