Preface

This Special Report on Global Warming of 1.5°C, an IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty, is the first publication in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6). The Report was jointly prepared by Working Groups I, II and III. It is the first IPCC Report to be collectively produced by all three Working Groups, symbolizing the new level of integration sought between Working Groups during AR6. The Working Group I Technical Support Unit has been responsible for the logistical and technical support for the preparation of the Special Report. The Special Report builds upon the IPCC's Fifth Assessment Report (AR5) released in 2013–2014 and on relevant research subsequently published in the scientific, technical and socio-economic literature. It has been prepared following IPCC principles and procedures, following AR5 guidance on calibrated language for communicating the degree of certainty in key findings. This Special Report is the first of three cross-Working Group Special Reports to be published in AR6, accompanying the three main Working Group Reports, the Synthesis Report and a Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

Scope of the Report

In its decision on the adoption of the Paris Agreement, the Conference of Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) at its 21st Session in Paris, France (30 November to 11 December 2015), invited the IPCC to provide 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. The Panel accepted the invitation and placed the Report in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

The broad scientific community has also responded to the UNFCCC invitation. New knowledge and literature relevant to the topics of this report have been produced and published worldwide. The Special Report is an assessment of the relevant state of knowledge, based on the scientific and technical literature available and accepted for publication up to 15 May 2018. The Report draws on the findings of more than 6,000 published articles.

Structure of the Report

This report consists of a short Summary for Policymakers, a Technical Summary, five Chapters, and Annexes, as well as online chapter Supplementary Material.

Chapter 1 frames the context, knowledge base and assessment approaches used to understand the impacts of 1.5°C global warming above pre-industrial levels and related global greenhouse gas emission pathways, building on AR5, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. The chapter provides an update on the current state of the climate system including the current level of warming.

Chapter 2 assesses the literature on mitigation pathways that limit or return global mean warming to 1.5°C (relative to the pre-industrial base period 1850–1900). Key questions addressed are: What types of mitigation pathways have been developed that could be consistent with 1.5°C? What changes in emissions, energy and land use do they entail? What do they imply for climate policy and implementation, and what impacts do they have on sustainable development? This chapter focuses on geophysical dimensions of feasibility and the technological and economic enabling conditions.

Chapter 3 builds on findings of AR5 and assesses new scientific evidence of changes in the climate system and the associated impacts on natural and human systems, with a specific focus on the magnitude and pattern of risks for global warming of 1.5°C above the pre-industrial period. It explores impacts and risks for a range of natural and human systems, including adaptation options, with a focus on how risk levels change between today and worlds where global mean temperature increases by 1.5°C and 2°C above pre-industrial levels. The chapter also revisits major categories of risk (Reasons for Concern) based on the assessment of the new knowledge available since AR5.

Chapter 4 discusses how the global economy and socio-technical and socio-ecological systems can transition to 1.5°C-consistent pathways and adapt to global warming of 1.5°C. In the context of systemic transitions across energy, land, urban and industrial systems, the chapter assesses adaptation and mitigation options, including carbon dioxide removal (CDR) measures, as well as the enabling conditions that would facilitate implementing the rapid and far-reaching global response.

Finally, Chapter 5 takes sustainable development, poverty eradication and reducing inequalities as the starting point and focus for analysis. It considers the complex interplay between

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sustainable development, including Sustainable Development Goals (SDGs) and climate actions related to a 1.5°C warmer world. The chapter also examines synergies and trade-offs of adaptation and mitigation options with sustainable development and the SDGs and offers insights into possible pathways, especially climate-resilient development pathways toward a 1.5°C warmer world.

The Process

The Special Report on 1.5°C of the IPCC AR6 has been prepared in accordance with the principles and procedures established by the IPCC and represents the combined efforts of leading experts in the field of climate change. A scoping meeting for the SR1.5°C was held in Geneva, Switzerland, in August 2016, and the final outline was approved by the Panel at its 44th Session in October 2016 in Bangkok, Thailand. Governments and IPCC observer organizations nominated 541 experts for the author team. The team of 74 Coordinating Lead Authors and Lead Authors plus 17 Review Editors were selected by the Working Group I, II and III Bureaux. In addition, 133 Contributing Authors were invited by chapter teams to provide technical information in the form of text, graphs or data for assessment. Report drafts prepared by the authors were subject to two rounds of formal review and revision followed by a final round of government comments on the Summary for Policymakers. The enthusiastic participation of the scientific community and governments to the review process resulted in 42,001 written review comments submitted by 796 individual expert reviewers and 65 governments.

The 17 Review Editors monitored the review process to ensure that all substantive review comments received appropriate consideration. The Summary for Policymakers was approved line-by-line at the joint meeting of Working Groups I, II and III; it and the underlying chapters were then accepted at the 48th Session of the IPCC from 01–06 October 2018 in Incheon, Republic of Korea.

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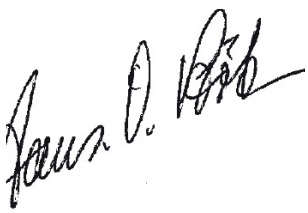
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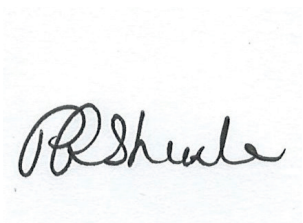
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