

Preface

This IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems, also known as the Special Report on Climate Change and Land (SRCCL), is the second Special Report to be produced in the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Cycle (AR6). The report was jointly prepared by Working Groups I, II and III in association with the Task Force on National Greenhouse Gas Inventories (TFI). The Working Group III Technical Support Unit was responsible for logistical and technical support for the preparation of this Special Report. This Special Report builds upon the IPCC's Fifth Assessment Report (AR5) in 2013–2014 and on relevant research subsequently published in the scientific, technical and socio-economic literature. It was prepared following IPCC principles and procedures. This Special Report is the second of three cross-Working Group Special Reports to be published in the 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

Previous IPCC reports made reference to land and its role in the climate system. Threats to agriculture, forestry and other ecosystems, but also the role of land and forest management in climate change, have been documented since the IPCC Second Assessment Report, especially so in the Special Report on Land Use, Land-Use Change and Forestry. The IPCC Special Report on Extreme Events discussed sustainable land management, including land use planning and ecosystem management and restoration, among the potential low-regret measures that provide benefits under current climate and a range of future climate change scenarios. The IPCC SRCCL responds to proposals for Special Reports from governments and observer organisations provided at the start of the IPCC AR6. It addresses greenhouse gas (GHG) fluxes in terrestrial ecosystems and sustainable land management in relation to climate adaptation and mitigation, desertification, land degradation and food security. The report sits alongside other IPCC reports, including the Special Report on Global Warming of 1.5°C, the Special Report on Oceans and Cryosphere in a Changing Climate (SROCC), and related reports from other UN Bodies. It was produced giving careful attention to these other assessments, with the aim of achieving coherence and complementarity, as well as providing an updated assessment of the current state of knowledge. 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 7 April 2019, totalling over 7,000 publications.

Structure of the Report

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

Chapter 1 provides a synopsis of the main issues addressed in the report, which are explored in more detail in Chapters 2–7. It also introduces important concepts and definitions and highlights discrepancies with previous reports that arise from different objectives.

Chapter 2 focuses on the natural system and dynamics, assessing recent progress towards understanding the impacts of climate change on land, and the feedbacks arising from biogeochemical and biophysical exchange fluxes.

Chapter 3 examines how the world's dryland populations are uniquely vulnerable to desertification and climate change, but also have significant knowledge in adapting to climate variability and addressing desertification.

Chapter 4 assesses the urgency of tackling land degradation across all land ecosystems. Despite accelerating trends of land degradation, reversing these trends is attainable through restoration efforts and proper implementation of sustainable land management, which is expected to improve resilience to climate change, mitigate climate change and ensure food security for generations to come.

Chapter 5 focuses on food security, with an assessment of the risks and opportunities that climate change presents to food systems, considering how mitigation and adaptation can contribute to both human and planetary health.

Chapter 6 focuses on the response options within the land system that deal with trade-offs and increase benefits in an integrated way in support of the Sustainable Development Goals.

Finally, Chapter 7 highlights these aspects further, by assessing the opportunities, decision making and policy responses to risks in the climate-land-human system.

Preface

The Process

The IPCC SRCCL was 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 SRCCL was held in Dublin, Ireland, in 2017, and the final outline was approved by the Panel at its 45th Session in March 2017 in Guadalajara, Mexico. Governments and IPCC observer organisations nominated 640 experts for the author team. The team of 15 Coordinating Lead Authors and 71 Lead Authors plus 21 Review Editors were selected by Working Groups I, II and III Bureaux, in collaboration with the Task Force on National Greenhouse Gas Inventories. In addition, 96 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 more than 28,000 written review comments, submitted by 596 individual expert reviewers and 42 governments.

The Review Editors for the chapters monitored the review process to ensure that all substantive review comments received appropriate consideration. The Summary for Policymakers (SPM) was approved line-by-line at the joint meeting of Working Groups I, II and III; the SPM and the underlying chapters were then accepted at the 50th Session of the IPCC, 2–6 August 2019 in Geneva, Switzerland.

Acknowledgements

The Special Report on Climate Change and Land broke new ground for IPCC. It was the first IPCC report to be produced by all three Working Groups in collaboration with the Task Force on National Greenhouse Gas Inventories (TFI), and it was the first IPCC report with more authors from developing countries than authors from developed countries. It was marked by an inspiring degree of collaboration and interdisciplinarity, reflecting the wide scope of the mandate given to authors by the Panel. It brought together authors not only from the IPCC's traditional scientific communities, but also those from sister UN organisations including the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the Science-Policy Interface of the UN Convention to Combat Desertification (UNCCD) and the Food and Agriculture Organization of the UN (FAO).

We must pay tribute to the 107 Coordinating Lead Authors, Lead Authors and Review Editors, from 52 countries, who were responsible for the report. They gave countless hours of their time, on a voluntary basis, and attended four Lead Author meetings in widely scattered parts of the globe. The constructive interplay between the authors, who draft the report, and the Review Editors, who provide assurance that all comments are responded to, greatly helped the process. Throughout, all demonstrated scientific rigour while at the same time maintaining good humour and a spirit of true collaboration. They did so against a very tight timetable which allowed no scope for slippage. They were supported by input from 96 Contributing Authors.

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