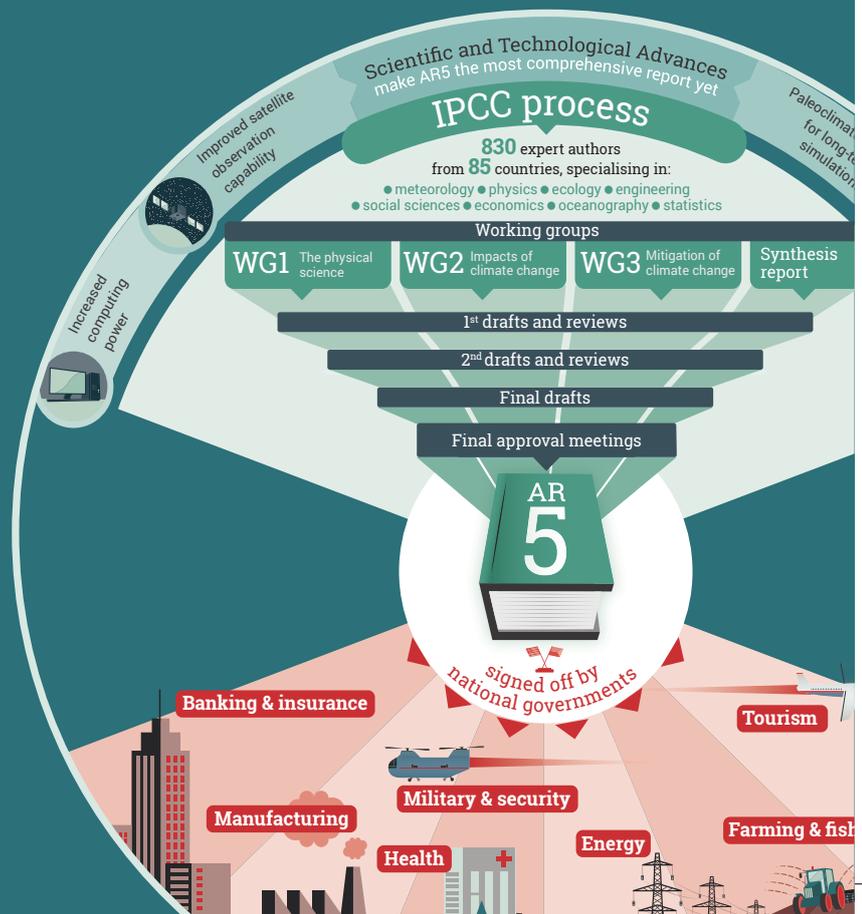


# The UN Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5): Implications for Business



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## About this document

The Fifth Assessment Report (AR5) from the Intergovernmental Panel on Climate Change (IPCC) is the most up-to-date, comprehensive and relevant analysis of our changing climate.

This document is the first in a series that will synthesize the most pertinent findings of AR5 for specific economic and business sectors. It serves as a basic primer explaining the process of compiling AR5 and its significance.

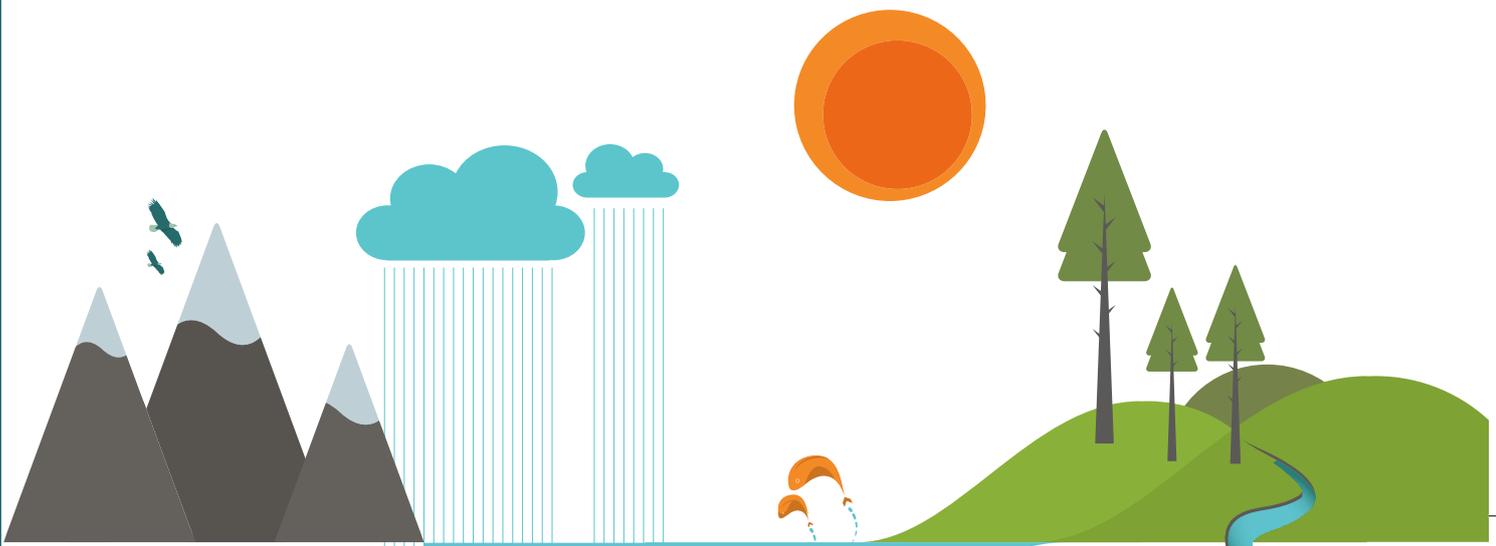
This summary, the first in a series, was borne of the belief that businesses could make more use of AR5, which is long and highly technical, if it were distilled into accurate, accessible, timely, relevant and readable summaries.

Other business-orientated summaries will be released as the scientific information upon which they are based becomes publically available, expected late 2013 and 2014.

**September 2013**

**In September 2013, the official climate science assessment body of the United Nations releases the first part of its latest report on how and why the Earth's climate is changing.**

- > The entire report, to be released in stages over more than a year, assesses the vast body of scientific literature on climate change, the likely environmental and socioeconomic impacts, and options for reducing greenhouse gas emissions and limiting the consequences of climate change.
- > Policy-relevant information in the full report will be used by governments to set climate change policies that may affect businesses worldwide.
- > The report is an opportunity to update business strategies in line with the latest information on how climate change will affect natural resources, operations and infrastructure.
- > It is subject to rigorous scrutiny by experts and governments worldwide, making it the most authoritative source of information on the risks posed by climate change and the possibilities to reduce those risks.





# AN INTRODUCTION TO THE IPCC

Scientists' capacity to observe and understand Earth's climate system has increased markedly in recent years. Satellites in the sky, buoys floating in the ocean and ice cores that provide samples from far back in Earth's history are among the tools in use. Alongside this progress in measurement, computing advances allow for the development of more sophisticated and increasingly realistic models of the climate.

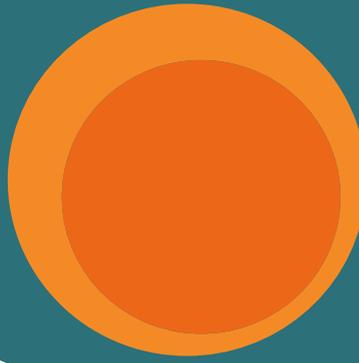
The result is that scientists are able to examine the complex physical, chemical and biological processes that influence Earth's climate in finer detail than ever before, and make projections about how the climate will change in the future as a result of human activities.

The United Nations Intergovernmental Panel on Climate Change (IPCC) was established

in 1988 – under the auspices of the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) – in response to a growing call from governments around the world to better understand the scientific and policy challenges of climate change.

The IPCC's mission is not only to carry out an up-to-date assessment of the science, but also to serve as an interface between science and policymaking.

The IPCC is completely independent from the United Nations Framework Convention on Climate Change (UNFCCC), which was established in 1992 to formulate coordinated action to combat climate change. The UNFCCC uses information from the IPCC to inform its deliberations on international agreements.



The IPCC is governed by its own procedures, the “Principles Governing IPCC Work”, approved by IPCC Member States (the Member States of the UN and WMO), and administered by the WMO and UNEP.

Every five to seven years the IPCC produces a comprehensive assessment of the Earth's climate. Since its inception, the IPCC has produced four assessment reports, documenting the consequences of rising global temperature and interrelated trends, threats from further greenhouse gas emissions and ways to avoid or adapt to climate change impacts.

The previous reports, released in 1990, 1995, 2001 and 2007, have become the evidence base for virtually all climate change-related strategies developed by businesses and national governments, as well as international climate agreements.

The coming IPCC Fifth Assessment Report (AR5) is due for release in four parts:

- The Physical Science Basis
- Impacts, Adaptation and Vulnerability
- Mitigation of Climate Change
- A Synthesis Report

These parts, to be published between September 2013 and October 2014, will provide an opportunity for businesses and governments to revise their strategies to be in line with the latest scientific understanding of climate change risks.

The AR5 report will also underpin future UNFCCC negotiations, its release coming just two years ahead of the 2015 deadline set by the UNFCCC 17th Conference of the Parties meeting (COP17) in 2011 for finalising a new, comprehensive international climate change agreement.

# A COMPLEX ASSESSMENT

The IPCC assessment reports undergo an extremely comprehensive, four-stage review – similar to an audit process – before the final version is approved and publicly released. The IPCC internal workings and external processes are continually reviewed and refined to ensure the reports are produced in a way that is objective, unbiased, transparent and scientifically accurate.

In the first step of the process, governments, observer organizations and the IPCC Working Group Bureau (Co-Chairs and Vice-Chairs) nominate hundreds of experts, who are leading scientists in climate-related disciplines such as meteorology, earth and atmospheric sciences, physics, oceanography, statistics, engineering, ecology, social sciences and economics.

The IPCC Bureau (the elected IPCC Chair and Vice-Chairs, and the Co-Chairs and Vice-Chairs of the three Working Groups (**WGs**) and Co-Chairs of the Task Force on Inventories), selects experts to write the various chapters of the reports, which are based on an assessment of thousands of scientific peer-reviewed papers and other authoritative reports. They assess the scientific evidence on specific topics and provide a balanced summary of what is known and where uncertainties lie. Governments play a critical role in scoping the contents of all of the assessment reports and approving all outlines. Authors also include experts working in business, industry and environmental organizations who hold a relevant scientific or academic background.

In the next stage, a first draft of each **WG** assessment report is scrutinized for

accuracy and completeness by independent experts as well as by experts associated with relevant stakeholders. An IPCC author can also review any chapter except those that they participated in writing. The Bureau appoints a number of review editors to ensure that all comments are addressed and recorded properly and reflected in a second draft. This 'Second Order Draft', including the first draft of the Summary for Policymakers (SPM), is sent to governments and experts.

A comparable review is then performed on the Second Order Draft, again overseen by review editors. After the second round of reviews, the IPCC writing teams prepare a final draft of the report with a Technical Summary and a second draft of the SPM. Governments will review this SPM before final approval.

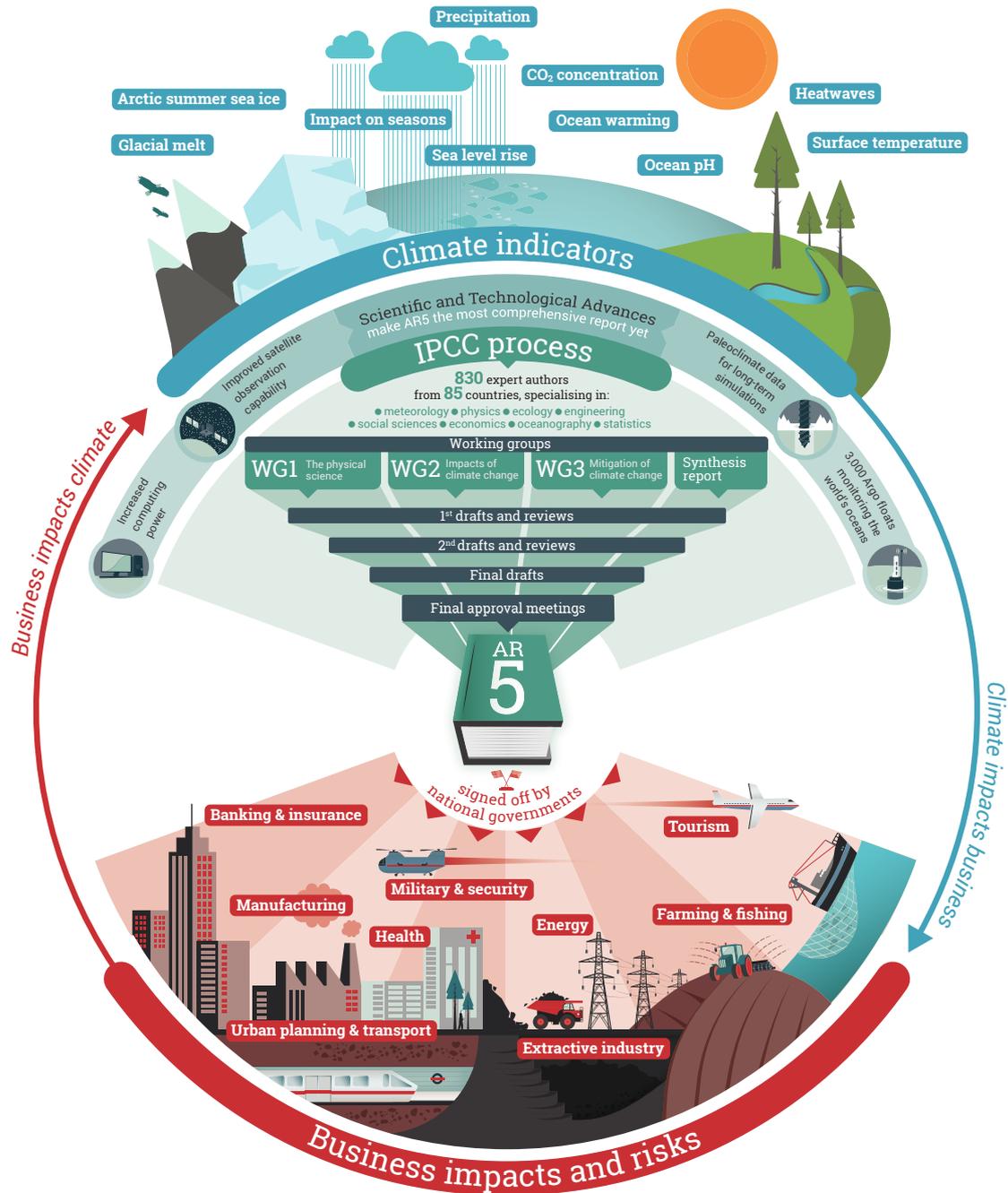
The stringent review process culminates in a meeting for each **WG** that brings together representatives of up to 195 national governments where the SPM is approved line-by-line and amended if necessary. Governments can seek changes in the summary for clarity and consistency, and scientists decide whether such changes are scientifically accurate and consistent with the underlying chapters. The coordinating lead authors of the chapters are present at the meeting to ensure that the text of the summary remains consistent with the scientific evidence.

This is a unique and important part of the IPCC process. Once all parts of the report have been approved, it becomes the property of the governments of the world, who have all agreed and signed off on its conclusions.

# Climate

## Everyone's business

The process behind the Fifth Assessment Report (AR5) of the UN's Intergovernmental Panel on Climate Change (IPCC)



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Information is Beautiful Studio

# THE FIFTH ASSESSMENT REPORT

AR5 adds thousands of new studies to the body of evidence on climate change. The IPCC will update evidence cited in its last report, the AR4, refine conclusions where more data and improved techniques are now available, and highlight the expansion of understanding into new areas.

In total, 831 scientists from 85 countries have been directly involved in writing the new report. Hundreds have worked on specific areas as contributing authors. Thousands of other experts contribute to the reports by acting as reviewers, ensuring the reports reflect the full range of views in the scientific community.

## SCIENTIFIC FOUNDATIONS

The Working Group 1 (**WGI**) report assesses the physical science basis of how and why the climate is changing and how it might change in the future. This part of the report acts as the central reference point for the other two **WG** reports.

The **WGI** report focuses on the changes in temperature of the atmosphere and oceans, as well as changes in rainfall patterns, storms and other extreme weather events around the globe. The report assesses changes across the world's glaciers and ice sheets and the consequences of those changes for sea-level rise, as well as examining associated issues such as acidification of the oceans and what can be learned from evidence about the Earth's past climate.

On top of collating and analysing the observed changes, the report assesses

the most up-to-date research on what is causing them. The contributions from natural factors, such as volcanic eruptions, fluctuations in the amount of the Sun's energy reaching the Earth's surface or the exchange of energy between the oceans and atmosphere, are included and evaluated. The effects of human activities are also incorporated, including: emission of and the warming effect of greenhouse gases, emission of aerosols (tiny particles of dust and other materials), changes in land use and other factors.

Finally, **WGI** seeks to assess how various aspects of the climate are projected to change in the course of the century under a number of different but plausible scenarios in which concentrations of greenhouse gases and aerosols in the atmosphere increase, stabilize and/or decrease at different levels and timescales.



# HOW WILL CLIMATE CHANGE AFFECT YOUR BUSINESS?

Among the most relevant parts of the IPCC AR5 for businesses are the assessments of impacts and potential risks from climate change for the economy, the environment and the global population. The **WGII** report covering these issues is due to be published in March 2014.

**WGII** will assess the likely sectoral impacts of climate change under different scenarios of future global warming. The report will identify the regions of the world most vulnerable to those impacts and gauge how they might adapt. There is a special focus on potential impacts relevant to key economic sectors such as agriculture, forestry, transport, infrastructure and industry.

Repercussions from climate change may include a heightened risk of coastal flooding, decreased agricultural production, changes in the quantity and quality of water, greater frequency or severity of extreme weather, resource and material shortages and disruptions to essential operations.

For each of these sectors – and also for many others – the IPCC, in line with its remit as an interface between policy and science, assesses options for governments and businesses worldwide on ways to lessen potential impacts through adaptation.

# TAKING ACTION TO LIMIT CLIMATE CHANGE

The **WGIII** contribution to AR5 will be published in April 2014. This group's section of the report focuses on options for mitigating climate change by preventing or reducing emissions of greenhouse gases, or by enhancing activities that remove such gases from the atmosphere.

The report will identify a number of different approaches to tackling emissions across a range of key economic sectors. The findings will feed directly into policy decisions on energy supply, transport, industry and agricultural practices.

**WGIII** will also identify policy-relevant measures to achieve emissions reductions by applying clean technology and changing business practices, weighing the costs and benefits of each. National, regional and international policies for mitigating climate change while encouraging sustainable development will be considered, alongside mechanisms for financing such measures.

The final AR5 Synthesis Report and its Summary for Policymakers (SPM) assimilating the conclusions from each of the three **WG** Reports, will be published at the end of October 2014.

## FAR-REACHING IMPORTANCE

AR5 will represent the most up-to-date and comprehensive source of information on the science of climate change, its impacts, the potential for adaptation across all sectors of the economy and society and options for mitigation. As such, it provides business leaders with specific information on how they can build resilience now and in the coming decades, as well as identifying options for moving towards a

green economy with significantly lower greenhouse gas emissions.

The scale of this scientific endeavour and the importance of its contribution to collective understanding of the challenge are such that the IPCC was awarded the Nobel Peace Prize in 2007 (along with former US Vice-President Al Gore) for its work on climate change.

**Disclaimer:**

This project is initiated and financed by European Climate Foundation and endorsed by the University of Cambridge's Judge Business School (CJBS) and Programme for Sustainability Leadership (CPSL).

This family of summaries is not meant to represent the entirety of the AR5 report and they are not official IPCC documents. The summaries have been peer-reviewed by experts both from the business and science communities. The English version constitutes the official version.

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This publication has been developed and released by the European Climate Foundation, in conjunction with the University of Cambridge's Judge Business School (CJBS) and Programme for Sustainability Leadership (CPSL).



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