



**CLIMATE
EVERYONE'S
BUSINESS**



Climate Change: Implications for Investors and Financial Institutions



Key Findings from the
Intergovernmental Panel
on Climate Change
Fifth Assessment Report



The Physical Science of Climate Change

Rising temperatures:

The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) concludes that climate change is unequivocal, and that human activities, particularly emissions of carbon dioxide, are very likely to be the dominant cause. Changes are observed in all geographical regions: the atmosphere and oceans are warming, the extent and volume of snow and ice are diminishing, sea levels are rising and weather patterns are changing.

Projections:

Computer models of the climate used by the IPCC indicate that changes will continue under a range of possible greenhouse gas emission scenarios over the 21st century. If emissions continue to rise at the current rate, impacts by the end of this century are projected to include a global average temperature 2.6–4.8 degrees Celsius (°C) higher than at present, and sea levels 0.45–0.82 metres higher than at present.

To prevent the most severe impacts of climate change, parties to the UN Framework Convention on Climate Change (UNFCCC) agreed a target of keeping the rise in average global temperature since pre-industrial times below 2°C, and to consider lowering the target to 1.5°C in the near future.

The first instalment of AR5 in 2013 (Working Group I on the physical science basis of climate change) concluded that by 2011, we had already emitted about two-thirds of the maximum cumulative amount of carbon dioxide that we can emit if we are to have a better than two-thirds chance of meeting the 2°C target.

Impact of past emissions:

Even if emissions are stopped immediately, temperatures will remain elevated for centuries due to the effect of greenhouse gases from past human emissions already present in the atmosphere. Limiting temperature rise will require substantial and sustained reductions of greenhouse gas emissions.

About this document

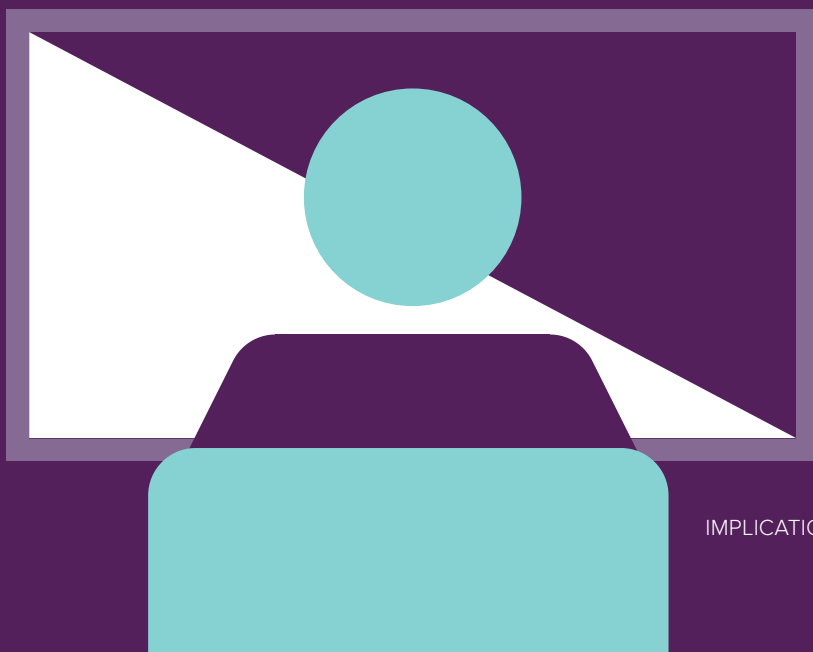
The Fifth Assessment Report from the Intergovernmental Panel on Climate Change is the most comprehensive and relevant analysis of our changing climate. It provides the scientific fact base that will be used around the world to formulate climate policies in the coming years.

This document is one of a series synthesizing the most pertinent findings of AR5 for finance and investment sectors. It was born of the belief that investors and financial institutions could make more use of AR5, which is long and highly technical, if it were distilled into an accurate, accessible, timely, relevant and readable summary.

Although the information presented here is a 'translation' of the key content relevant to this sector from AR5, this summary report adheres to the rigorous scientific basis of the original source material. Specific numbers and their references from AR5 chapters can be found in the Endnotes.

Grateful thanks are extended to all reviewers from both the science and business communities for their time, effort and invaluable feedback on this document.

The basis for information presented in this overview report can be found in the fully-referenced and peer-reviewed IPCC technical and scientific background reports at: www.ipcc.ch

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Key Findings

- 1 Climate change will affect all sectors of the economy, and is relevant to investors and financial institutions.** However, not all macroeconomic changes and microeconomic conditions will apply equally to all investments.
- 2 There are risks and opportunities associated with policy measures directed at reducing greenhouse gas (GHG) emissions.** To meet the internationally agreed target of keeping the global average temperature rise since pre-industrial times below 2°C, patterns of investment will need to change considerably. This will include significant decreases in investment in fossil fuel extraction and conventional fossil fuel-based power generation, and significant increases in investment in low-carbon energy and energy efficiency.
- 3 Physical impacts of climate change will affect assets and investments.** Climate change and extreme weather events will affect agriculture and food supply, infrastructure, precipitation and the water supply in ways that are only partially understood.
- 4 Decisions made by private sector investors and financial institutions will have a major influence** on how society responds to climate change.
- 5 There will be significant demand for capital, with governments looking to the private sector to provide much of it.** To keep the global temperature increase below 2°C, additional investment required in the energy supply sector alone is estimated to be between USD 190 and 900 billion per year through to 2050¹, accompanied by a significant shift away from fossil fuels towards low-carbon sources such as renewables and nuclear.

Executive Summary

Investors and financial institutions are, and will continue to be, exposed to downside risks as a result of climate change. The risks include: macroeconomic impacts such as the expected reduction in productivity and economic growth in many developing countries, direct physical impacts of climate change such as flood and storm risks to coastal population centres, and the impacts of policy measures directed at reducing GHG emissions from electricity generation, large industrial sources, transport and other economic sectors.

The investment consequences may include dramatic reductions in the value of particular assets, such as conventional coal-fired power stations that are no longer permitted to operate because of constraints on their GHG emissions. There will be indirect and knock-on effects of climate change, such as the threat to social stability posed by high and volatile food prices resulting from changes in agricultural patterns.

Climate change also presents opportunities for investors and financial institutions. Policy measures directed at reducing GHG emissions are likely to increase opportunities for investment in areas such as renewable energy and energy efficiency, and in companies with expertise in areas such as flood prevention or flood response.

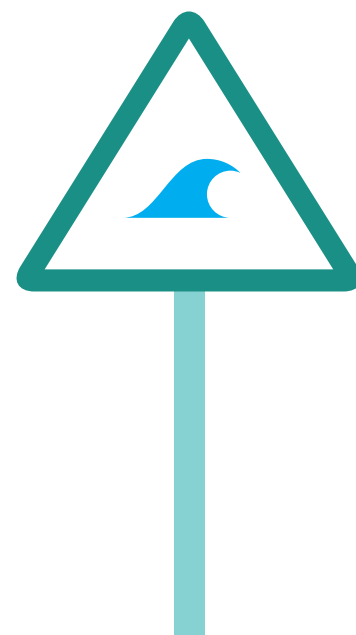
More generally, irrespective of the specific policy measures adopted, it is likely that governments will look to the private sector to provide much of the capital required to reduce emissions and to address, or respond to, the physical impacts of climate change.

The investment (or capital allocation) decisions that investors and financial institutions make will be critical in determining how society responds to climate change. This is particularly important for investments in areas such as infrastructure and power generation, where assets often have 'planned lifetimes' of many decades. Investment decisions made now are likely to continue to have a major influence on infrastructure, GHG emissions and society in 2050 and beyond.

Investors and Financial Institutions

This report focuses on private sector providers (or sources) of capital, and the intermediaries responsible for deployment of this capital. These intermediaries include banks and asset managers. Asset owners include pension funds, insurance companies, sovereign wealth funds, mutual funds and foundations. Together these investors and financial institutions manage the pensions and savings of individual citizens.

Physical Impacts of Climate Change



Governments are likely to look to the private sector to provide much of the capital required to deliver significant reductions in GHG emissions and respond to physical impacts of climate change.

Exposure of Investors and Financial Institutions

Sea-level rise, floods and drought

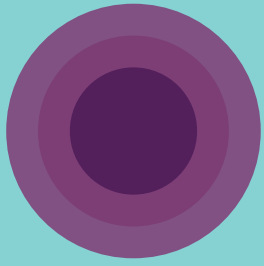
Between the 1950s and 1990s, the annual economic losses from large extreme weather events, including floods and droughts, increased ten-fold. In the period from 1990 to 1996 alone, there were 22 floods with losses exceeding US dollar (USD) 1 billion each².

The Low Elevation Coastal Zone (LECZ) is particularly exposed to the effects of climate change. This zone constitutes 2% of the world's land area but contains 10% of its population. The number of people exposed to the 1-in-100 year extreme sea-level event (i.e. the sea level that has a 1% chance of being exceeded every year) increased by 95% between 1970 and 2010. By 2010, about 270 million people and USD 13 trillion worth of assets were exposed to the 1-in-100 year extreme sea-level event³. It is estimated that over USD 3 trillion in port infrastructure assets in 136 of the world's largest port cities are vulnerable to extreme weather events.

A number of studies have projected that mean annual insured heavy rainfall and flood losses will rise in countries such as the UK, the Netherlands and Germany, and in specific regions such as southern Norway and the Canadian province of Ontario. These increases are partially attributable to climate change but also reflect socio-economic trends such as income growth and consequent increases in the assets exposed to floods and droughts, migration to areas (e.g. coastal cities) that are exposed to these impacts, and increases in the level of insurance coverage.

Changes to rainfall patterns are projected to increase both flooding and drought in different parts of the world, with escalating impacts for economic sectors including agriculture. A changed and more variable water supply is likely to affect electricity generation from fossil fuel, nuclear and hydropower sources, with additional investment needed for adaptation.





Food security

Climate impacts on agriculture from factors such as changing rainfall patterns, rising temperatures and movement of crop pests are expected to lead to higher prices and increased volatility in agricultural markets. These will affect the cost base of many companies (retailers, food processors etc.) and may mean that higher proportions of household incomes are spent on food, with knock-on effects for expenditure in other areas. Higher and more volatile prices may also affect socio-political stability (e.g. the potential for food riots in some countries).

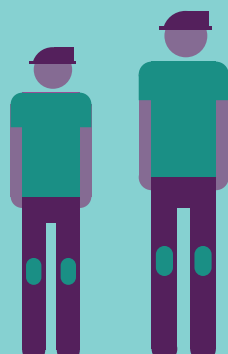
Labour

The importance of considering indirect effects is illustrated by the impacts of environmental heat stress on labour capacity and productivity. Worker productivity has already declined during the hottest and wettest seasons in parts of Africa and Asia. By 2050, more than half of the afternoon hours of outdoor work are projected to be

lost to the need for rest breaks in South East Asia⁴. These changes could significantly reduce economic output in sectors involving heavy labour (e.g. construction), or may require significant investments (e.g. in cooling equipment) to enable economic output to be maintained.

Liability

Investors and financial institutions may wish to consider how climate change might affect their liabilities. For example, the effects of changing climatic conditions on individuals' health may affect their ability to work, or need for health insurance.

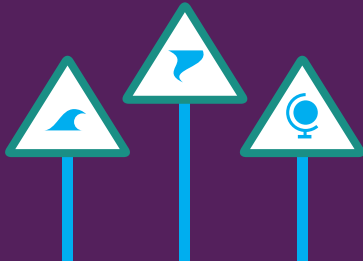




Climate Change: Investors and Financial Institutions

Impacts of climate change can have significant effects on investments by introducing previously unforeseen risks. Policies to restrain climate change can also affect investments. However, opportunities are likely to open up in fields such as renewable energy and energy efficiency.

Impacts

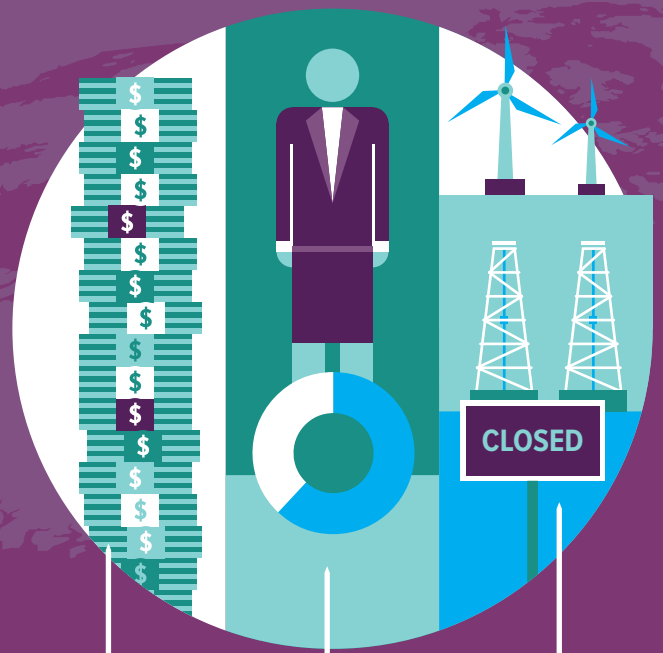
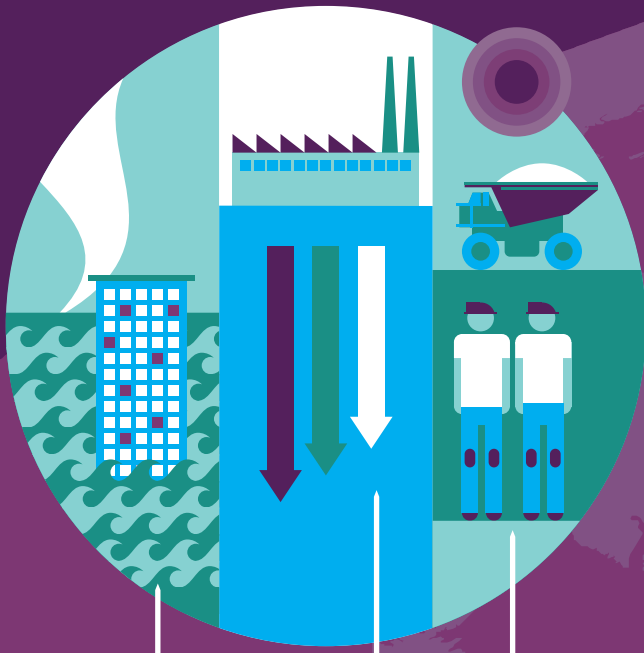


Physical risks and policy measures could have major impacts on investors and financial institutions

Integration



Effective responses to climate change will require major capital investment and finance



预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_16224



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