

FORUM: Economic and Financial Committee (ECOFIN)
TOPIC: The Issue of the Economic Effects of Climate Change
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An introduction...

Climate change is the earth's response to increased greenhouse gas emissions in the atmosphere. These greenhouse gases trap infrared heat from the sun and has raised the Earth's temperature by at least 1.2°C since the 20th century. Whilst this may not seem like much, this rise in temperature has dire effects, one being melting polar ice sheets which has risen sea levels so much over the last 100 years that we shan't expect to see much of the Maldives for much longer. The higher temperatures have furthermore created more damaging and more frequent natural disasters, which compromises the economic infrastructure of the nations involved.

Countries have often come together to discuss, debate and attempt to resolve the issues and the consequences of the grave issue that is climate change - the most important being the Paris agreement. This agreement is extremely significant as it is not only representative of a unitive front in tackling climate change, but it will be the backbone of how countries operate and limit their emissions from 2020 onwards, which is the implementation date. However, even with these ambitious aims set out in the agreement, it is still believed that even if member states adhered to the provisions and regulations of the agreement exactly, global domestic product would still fall by 15%.

Climate change threatens 1.2 billion jobs worldwide, hitting industries such as agriculture, fisheries and forestry, and compromises food security and is very much likely to lead to greater inflation rates. However, efforts to stop climate change would create 24 million jobs by 2030. The most expensive thing that we can do is *nothing*.

Definition of key terms

GDP: Gross Domestic Product, this is the market value of all the good and services produced in an economy in a year.

Inflation rate: inflation is a sustained increase in the general price level of goods and services in an economy over a period of time.

Mitigation – taking actions in order to decrease the amount of greenhouse gases in the atmosphere.

Carbon footprint – the total amount of greenhouse gases released by a person, family, building, organization, or company each year. A person's carbon footprint includes the amount of greenhouse gases released from direct use (such as heating a home or driving a car) and from indirect use (such as the amount of fuel needed to produce a good or a service).

Renewable Resource – a natural resource that can be made or regrown as fast as it is being used. Some examples are wind power or solar energy, which are both used to make electricity.

Greenhouse Gas – a natural or human-made gas that traps heat in the atmosphere. Examples of greenhouse gases include water vapor, carbon dioxide, methane, and ozone.

Water Vapor – water that is present in the atmosphere as gas. Water vapor is an example of a greenhouse gas.

Carbon Dioxide – a gas that is released from the burning of fossil fuels, such as coal, oil, and natural gas. Carbon dioxide is an example of a greenhouse gas.

Methane – a gas that is produced when plants, animals, and decay. It is produced naturally and as a result of a population's activities. Methane is the most abundant greenhouse gas.

Ozone – a gas made up of three atoms of oxygen bonded together. Ozone high in the stratosphere protects the Earth's surface from harmful ultraviolet radiation from the sun.

Greenhouse Effect – the process by which greenhouse gases in the atmosphere trap heat from the sun and reflect it back to Earth rather than letting it leave the planet.

Global Warming – when more and more greenhouse gases accumulate in the atmosphere, they trap more and more heat near the Earth's surface. As more heat is held within the Earth's atmosphere, the temperature near the Earth's surface gradually warms up. This is called global warming. In other words, global warming occurs when there is "too much" of the greenhouse effect.

per capita - per unit of population (per person).

General overview, and previous attempts to solve the issue

Historical examples of actions against the economic effects of climate change:

The Kyoto Protocol was adopted as the first addition to the United Nations Framework Convention on Climate Change (UNFCCC), an international treaty that committed its signatories to develop national programs to reduce their emissions of greenhouse gases. Greenhouse gases, such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and many others affect the energy balance of the global atmosphere in ways expected to lead to an overall increase in global average temperature.

The protocol provided several means for countries to reach their targets. One approach was to make use of natural processes, called "sinks," that remove greenhouse gases from the atmosphere. The planting of trees, which take up carbon dioxide from the air, would be an example. This was initially expensive for many nations to implement, as they had relied so heavily on unsustainable means for energy generation.

Modern day examples:

As populations are becoming increasingly aware of the implications of climate change, countries are seeing more and more NGOs, and other political groups move towards putting pressure on their governments in order to utilise renewable energies. For example, A coalition of 50 NGOs called Stop Climate Chaos launched in Britain (September 2005) to highlight the issue of climate change.

Major parties involved and their views

UNEP = United Nations Environment Programme

This UN body coordinates the organisation's environmental activities and assists developing countries in implementing environmentally sound policies and practices.
<https://www.unenvironment.org/about-un-environment>

IPCC = Intergovernmental Panel on Climate Change. This is a body created by the United Nations Environment Programme (UNEP), and their objective is to provide governments at all levels with scientific information that they can use to develop climate policies. IPCC reports are a key input into international climate change negotiations.

<https://www.ipcc.ch/about/>

WMO = World Meteorological Organization. The **World Meteorological Organization (WMO)** is an intergovernmental organisation with a membership of 191 Member States and Territories. WMO aids with policy advising and has set goals to help with the devastation caused by climate change, including but not limited to: disaster risk reduction, aviation meteorological services and capacity development.

https://www.wmo.int/pages/index_en.html

UNFCCC = United Nations Framework Convention on Climate Change. is an international environmental treaty adopted on 9 May 1992 and opened for signature at the Earth Summit in Rio de Janeiro from 3 to 14 June 1992. It then entered into force on 21 March 1994, after a sufficient number of countries had ratified it. The UNFCCC objective is to "stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The framework sets non-binding limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. Instead, the framework outlines how specific international treaties be negotiated to specify further action towards the objective of the UNFCCC.

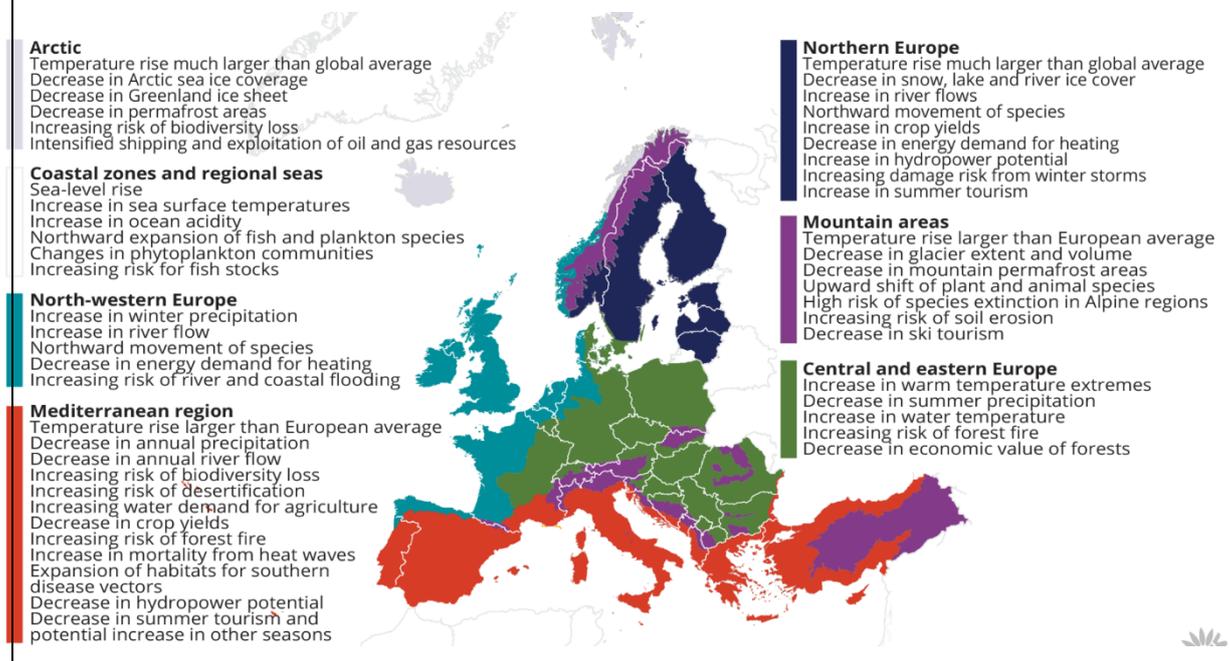
<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

European Countries:

European countries within the European Union currently have an established body called JCR PESTA (Projection of Economic impacts of climate change in Sectors of the European Union based on bottom-up Analysis), which provides research into the economic, social and political implications of climate change.

This body has provided Europe with an estimation that, if no further action is taken and global temperature increases by 3.5°C, climate damages in the EU could amount

to at least €190 billion, a net welfare loss of 1.8% of its current GDP and furthermore, several weather-related extremes could roughly double their average frequency. This could mean severe economic decline for some European countries.



The economic implications of climate change on European countries

Asian countries:

Asia is the largest continent on Earth and spreads over four climatic zones the region faces intense environmental and socio-economic challenges in its effort to protect valuable natural resources in the face of global warming. Land and ecosystems are being degraded, threatening to undermine food security. In addition, water and air quality are deteriorating while continued increases in consumption and associated waste have contributed to the exponential growth in the region’s existing environmental problems.

Global warming is causing the melting of glaciers in the Himalayas. In the short term, this means increased risk of flooding and erosion in Nepal, Bangladesh, Pakistan, and north India during the wet season. Because the melting of snow coincides with the summer monsoon season, any intensification of the monsoon and/or increase in melting is likely to contribute to flood disasters in Himalayan catchments. Moreover, global warming could lead to a rise in the snowline and disappearance of many glaciers causing serious impacts on the populations relying on the 7 main rivers in Asia fed by melt water from the Himalayas

However, it is expected that south east Asian countries will be worst hit economically by climate change. If the world continues producing carbon emissions the way it currently is, then climate change impacts will slash up to 9% off the South Eastern Asian economies each year, and this could be intensified by damage from

more frequent floods, droughts and extreme weather events. This will halt production in industries that these nations depend on, such as agriculture and coastal tourism.

African countries:

Africa is already a continent under pressure from climate stresses and is highly vulnerable to the impacts of climate change. The climate in Africa is predicted to become more variable, and extreme weather events are expected to be more frequent and severe, with increasing risk to health and life. Africa will face increasing water scarcity, which means that there may be a potential increase of water conflicts as almost all of the 50 river basins in Africa are transboundary.

Furthermore, Africa is vulnerable to a number of climate sensitive diseases including malaria and tuberculosis. Under climate change, rising temperatures are changing the geographical distribution of disease carriers, which are migrating to new areas and higher altitudes, for example, the migration of the malaria mosquito to higher altitudes will expose large numbers of previously unexposed people to infection in the densely populated east African highlands. This is predicted to interact with other diseases, such as HIV and AIDS which already cuts life expectancy short in Africa as it is. These diseases will most certainly have a knock-on effect for the economy of African countries through unemployment rate rising, and likely strains on the welfare services of Africa.

The Middle East:

The Middle East is due to be burdened with potential economic degradation in the coming years, with Climate Change threatening basic life, political tensions dividing countries and the economy relying on depleting oil reserves.

Saudi Arabia owns 20% of the world's oil reserves and is also the main producer of crude oil, with an estimated production of 10.72 million barrels a day. This is a huge over sea revenue generator and without it Middle Eastern countries like Saudi, Kuwait and United Arab Emirates would find it very difficult to develop as huge investments in infrastructure are needed.

Saudi Arabia's economy revolves around oil: the petroleum sector accounts for roughly 80% of budget revenues, 45% of GDP, and 90% of export earnings. About 40% of GDP comes from the private sector. Roughly 6.4 million foreign workers play an important role in the Saudi economy, particularly in the oil and service sectors. If MEDCs stop buying this oil, then the demand will dramatically drop leading to a vast decrease in the price of a barrel of oil, a decrease in \$1 per barrel would lose \$3.4billion in revenue. This will lead to decreased public spending on projects like motorways, airports and hospitals, but the whole crude oil industry could be vulnerable to total collapse if a worldwide embargo was set to stop the use of crude oil.

Standard of life will drop significantly as well as quality of living, and unemployment rates will sky rocket, as currently the Middle East have the highest unemployment rates at currently around 13.2%.

Timeline

1989 → the UN establishes the IPCC

- the Intergovernmental Panel on Climate Change (IPCC) is established!
- To this day, IPCC assessments are the scientific underpinning of international negotiations while also providing unique insights into, for example, managing the risk of extreme events and disasters.

1990 → UN General Assembly negotiations on a framework convention

- The UN establishes the Intergovernmental Negotiating Committee (INC) for a Framework Convention on Climate Change.
- The INC held five sessions where more than 150 states discussed binding commitments, targets and timetables for emissions reductions, financial mechanisms, technology transfer, and 'common but differentiated' responsibilities of developed and developing countries.

1992 → UNFCCC Rio Earth Summit

- The United Nations Framework Convention on Climate Change opens for signature at the Earth Summit in Rio, bringing the world together to curb greenhouse gas emissions and adapt to climate change.

1994 → UNFCCC is implemented by signatories!

- The United Nations Framework Convention on Climate Change, spawned two years earlier in Rio, enters into force. Countries that sign the treaty are known as 'Parties'.
- With 196 Parties, the UNFCCC has near-universal membership. Parties meet annually at the Conference of the Parties (COP) to negotiate multilateral responses to climate change.

1997 → Kyoto Protocol

- This is the world's first greenhouse gas reduction agreement!
- The Kyoto Protocol is a legally binding agreement, under which industrialised countries must reduce their collective emissions of greenhouse gases by 5.2%.

2005 → EU emission trading launches

- The European Union Emissions Trading Scheme, the first and largest emissions trading scheme in the world, launches as a major pillar of EU climate policy.
- Installations regulated by the scheme are collectively responsible for close to half of the EU's emissions of CO₂.

→ Kyoto Protocol implemented

- History is made when the Russian Federation submitted its instrument of ratification to the Kyoto Protocol, sealing its entry into force.

2008→Joint implementation mechanism starts

- The Kyoto Protocol mechanism 'Joint Implementation' starts. This allows a country with an emission reduction or limitation commitment under the Protocol to earn emission reduction units (ERUs) from an emission-reduction or emission removal project in another country with similar commitments.

2014→Secretary-General Climate Summit

- UN Secretary-General Ban Ki-moon hosted a climate summit in New York, inviting Heads of State and Government, business, finance, civil society and local leaders to mobilise action and ambition on climate change in advance of COP 21 in Paris in 2015.

2015→The Paris Agreement

- 195 nations agreed to combat climate change and unleash actions and investment towards a low-carbon, resilient and sustainable future, on 12 December 2015.
- The Paris Agreement for the first time brings all nations into a common cause based on their historic, current and future responsibilities.
- The Paris Agreements' central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. This is to be implemented from 2020 onwards.

2017→ President Trump pulls the US out of the Paris agreement

- This action was promised in the Trump manifesto and was believed to be because of scientists not having ample hard evidence to prove that climate change was due to greenhouse gas emissions, and not just natural fluctuations in weather patterns.

Relevant UN documents

- IPCC fifth assessment report
- IPCC global warming of 1.5 degrees report:
<https://www.ipcc.ch/sr15/>
- Working Group II Report "[Climate Change 2014: Impacts, Adaptation, and Vulnerability](#)"
- Working Group III Report "[Climate Change 2014: Mitigation of Climate Change](#)"

Questions to consider

- Is it fair that other countries were allowed to produce and develop their industry without a cap on their emissions, and LEDCs are likely to be limited in terms of their maximum growth because of this? If so, how could we resolve this?
- How will the potential collapse of oil-rich nations be compensated for?
- How can we incentivise nations to remain committed to the Paris agreement, even with the USA leaving?
- What sort of support can signatories to the Paris agreement offer to countries facing the effects of intense natural disasters due to climate change?
- Should signatories be sanctioned when they don't adhere to the policies of the Paris agreement from the implementation date onwards?

Possible solutions

Nations could consider using a compulsory education system regarding climate change, and greater campaigning and advertisement warning about the dangers of climate change.

UN bodies further encouraging governments to switch from oil-intensive energy generation and intensifying production and reliance on nuclear and renewable carbon-neutral means of generating energy.

Create future buildings with greater insulation, as this will waste less energy, however may be expensive in the short run.

Oil-rich nations should consider diversifying into new markets and sectors of production so that future cut backs on oil purchase does not damage standard of living.

Recommended reading

<https://ec.europa.eu/jrc/en/research-topic/impacts-climate-change>

<https://www.eea.europa.eu/soer-2015/europe/climate-change-impacts-and-adaptation/climate-change-impacts-in-europe/>

<https://unfccc.int/news/climate-change-danger-to-south-asias-economy>

<https://www.adb.org/sites/default/files/publication/29657/economics-climate-change-se-asia.pdf>

<https://www.scientificamerican.com/article/10-solutions-for-climate-change/>

<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

<https://www.smithsonianmag.com/smithsonian-institution/what-climate-change-means-for-people-of-oceania-180954775/>

<https://eos.org/features/how-will-climate-change-affect-the-united-states-in-decades-to-come>

<https://www.climatechangepost.com/russia/climate-change/>

<http://www.un.org/en/climatechange/>

<https://unfccc.int/topics/science/workstreams/cooperation-with-the-ipcc/the-fifth-assessment-report-of-the-ipcc>