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## THE IMPACT OF CLIMATE CHANGE ON EUROPEAN COUNTRIES AND THE NECESSITY OF MULTILATERAL COOPERATION

**Abstract:** The paper aims to present the climate change as a global challenge that requires a global response. Therefore the authors are making an overview on the impact of climate change on European countries and on decision making policy and legislation of European Union (EU) about how to make an effective societal response to climate change in the EU countries and to develop multilateral cooperation with non-EU countries and regions. The paper will present the findings from the comprehensive study that looks into recent trends surrounding climate change in 32 European countries. In this respect, the paper will clarify that the EU is determined to help raise global ambition and is leading by example. At the end, authors summarize that climate action is an integral part of the EU's foreign policy agenda. So, through climate diplomacy and cooperation initiatives, the EU aims to build political will and trust to advance global action, ensure the effectiveness of development cooperation, and build capacity to support partner countries in their efforts. It is analyzed, based on exploring the existing literature in the area of interest and with the help of direct observation, how the countries can limit any further impacts on climate change.

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### Introduction

The current changes in the planet's climate are transforming the world. The last two decades included 18 of the warmest years on record, and extreme weather events, such as forest fires, heatwaves and floods, are becoming more frequent both in Europe and elsewhere. **Scientists warn that without urgent action, global warming is likely to exceed 2°C above pre-industrial levels by 2060, and could even be as much as 5°C by the end of the century.** Such a rise in the global temperature will have a devastating impact on nature, bringing about irreversible changes to many ecosystems and a consequent loss of biodiversity<sup>1</sup>.

Modern life is tailored to the stable climate we have become accustomed to. As our climate changes, we will have to learn to adapt. The faster the climate changes, the harder it could be.

While climate change is a global issue, it is felt on a local scale. Cities and municipalities are therefore at the frontline of adaptation. In the absence of national or international climate policy

<sup>1</sup> European Council of the European Union, *Climate change: what the EU is doing*, link: <https://www.consilium.europa.eu/en/policies/climate-change/>, last accessed: 12.03.2021

direction, cities and local communities around the world have been focusing on solving their own climate problems. They are working to build flood defenses, plan for heatwaves and higher temperatures, install water-permeable pavements to better deal with floods and stormwater and improve water storage and use<sup>2</sup>.

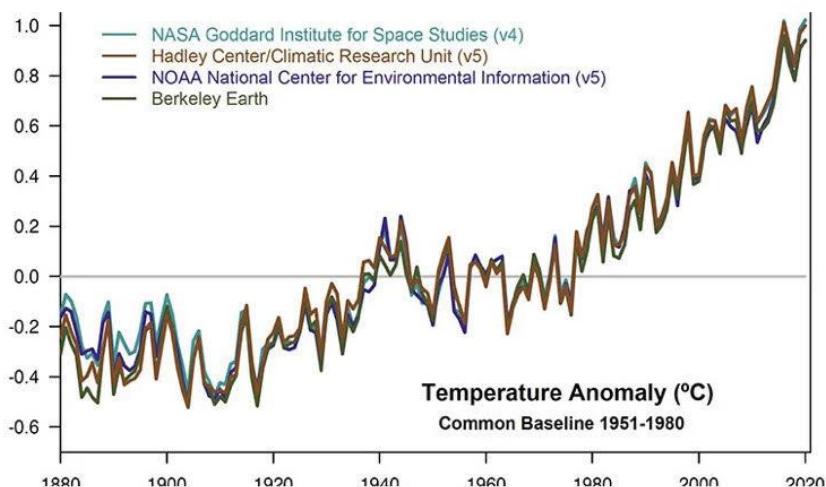
Climate changes are in the scientific focus around the world. If we look at the literature, we come to the conclusion that they are united in the thought that the Earth's climate is warming.

The Earth's climate has changed throughout history. According to NASA, in the last 650,000 years there have been seven cycles of glacial advance and retreat, with the abrupt end of the last ice age about 11,700 years ago marking the beginning of the modern climate era — and of human civilization. Most of these climate changes are attributed to very small variations in Earth's orbit that change the amount of solar energy our planet receives. Earth-orbiting satellites and other technological advances have enabled scientists to see the big picture, collecting many different types of information about our planet and its climate on a global scale. This body of data, collected over many years, reveals the signals of a changing climate.

Multiple studies published in peer-reviewed scientific journals<sup>3</sup> show that 97 percent or more of actively publishing climate scientists agree<sup>4</sup>: Climate-warming trends over the past century are extremely likely due to human activities.

The consensus that humans are causing recent global warming is shared by 90%–100% of publishing climate scientists according to six independent studies. Those results are consistent with the 97% consensus, based on 11 944 abstracts of research papers, of which 4014 took a position on the cause of recent global warming<sup>5</sup>.

**Figure 1. Temperature data showing rapid warming in the past few decades**



**Source: NASA's Goddard Institute for Space Studies**

<sup>2</sup> NASA, *Responding to Climate Change*, link: <https://climate.nasa.gov/solutions/adaptation-mitigation/>, last accessed 14.03.2021

<sup>3</sup> J. Cook, et al, (2016), "Consensus on consensus: a synthesis of consensus estimates on human-caused global warming," *Environmental Research Letters*, Vol. 11 No. 4, (13 April 2016); [DOI:10.1088/1748-9326/11/4/048002](https://doi.org/10.1088/1748-9326/11/4/048002)

<sup>4</sup> NASA, *Responding to Climate Change*, link: <https://climate.nasa.gov/solutions/adaptation-mitigation/>, last accessed 14.03.2021

<sup>5</sup> *Ibid.*

Fugure 1, is showing rapid warming in the past few decades, the latest data going up to 2020. According to NASA data, 2016 and 2020 are tied for the warmest year since 1880, continuing a long-term trend of rising global temperatures. The 10 warmest years in the 141-year record have occurred since 2005, with the seven most recent years being the warmest.

“A lack of political will among national governments has led to climate policy gridlock. But many local communities are focusing on solving their own climate problems, and we can learn from them”, said dr.Ron Brunner, University of Colorado policy scientist<sup>6</sup>, who studies how U.S. communities deal with environmental threats and climate change. Dr. Burner emphasized that successful groups take action against climate change even though they don’t completely understand everything that might be needed to reach their long-term goal. They proceed by trial and error to make progress step by step.

## 1. Impact of Climate Change on European Countries

Europe experienced its most extreme year for unusual weather events. Record heat and precipitation were recorded across the continent, with extremely cold weather during the winter, and heat and drought through spring and summer.

Even though it would be naive to say that such weather events are specifically caused by climate change, climate scientists have said that the only direction that climate change is pushing, is towards warmer temperatures.

The GreenMatch have conducted a comprehensive study that looks into recent trends surrounding climate change in 32 European countries, EU and non-EU members. The data for this study was obtained from the European Environment Agency and the World Meteorological Organization (WMO), which has also been supported by several studies and journals.

The study has selected indicators for measuring climate change based on information from the WMO, who have selected six candidates for measuring climate change. The indicators include: surface temperature, ocean heat content, atmospheric concentrations of carbon dioxide, mean sea level, changing extent or mass of the cryosphere, precipitation.

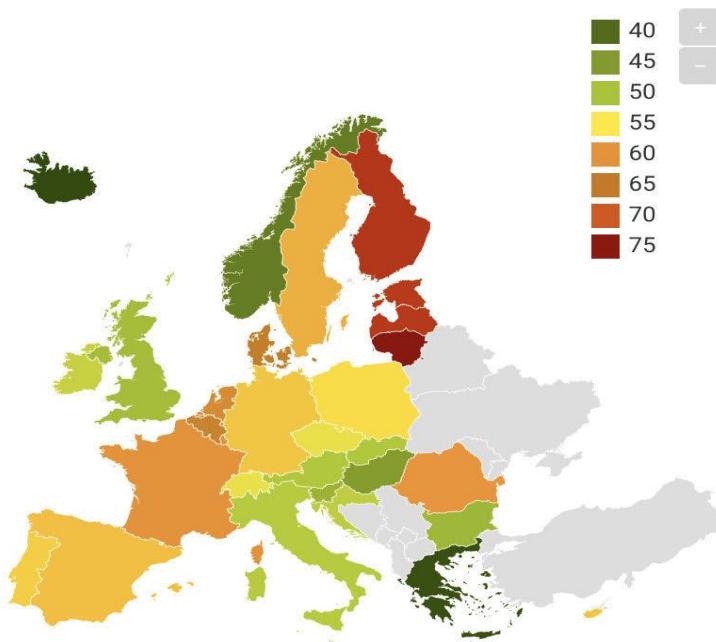
The study has been illustrated on a map containing data about nationwide trends in surface temperatures, sea temperatures, sea levels, and precipitation<sup>7</sup>.

This interactive map below illustrates the extent to which European countries have been affected by climate change, based on the four indicators mentioned above — with 0 being the least affected, and 100 being the most affected.

<sup>6</sup> NASA, *Just 5 questions: Community initiatives against climate change*, link: <https://climate.nasa.gov/news/1026/just-5-questions-community-initiatives-against-climate-change/>, last accessed: 15.03.2021

<sup>7</sup> Michelle Schlechtriem, Green Match, *How Has Climate Change Affected Countries in Europe?*, link: <https://www.greenmatch.co.uk/blog/2019/04/climate-change-europe>, last accessed 23.03.2021

## Map 1. Climate Change Effects on European Countries



Source: GreenMatch

Based on GreenMatch's findings in the map above, Lithuania is the most affected European country, whereas Iceland is the least affected. According to GreenMatch's findings, Lithuania has been seeing a significantly high rise in sea levels compared to the other European countries that were a part of the study, with an increase of 4.46 mm per year between 1970 and 2015. The sea temperature in Lithuania has increased of 0.73 °C, from 1960 to 2014, sharing the first place with five other countries. The surface temperature has increased the most, with an increase of 0.325 °C per decade, again sharing the first place with six other countries. Finally, the precipitation in Lithuania has increased of 20 mm per decade, between 1960 and 2015. All indicators considered, Lithuania ended up with a total score of 75.04.

According to GreenMatch's study, Iceland turned out to be the European country that has been affected by climate change the least. Iceland saw an average change in surface temperatures, with a  $0.275^{\circ}\text{C}$  increase per decade. Compared to the other European countries in our study, Iceland has seen by far the lowest increase in sea temperatures, with a slight increase of  $0.208^{\circ}\text{C}$ , from 1960 to 2014 — being significantly lower than the European average of  $0.621^{\circ}\text{C}$ , as well as the global average of  $0.327^{\circ}\text{C}$ .

Additionally, sea levels have increased of 1.31 mm per year, from 1970 to 2015, which is 0.71 mm lower than the European average. Finally, precipitation in Iceland has been increasing significantly compared to other European countries. Their precipitation increased of 35 mm per decade, between 1960 and 2015, whereas the average precipitation in Europe, in fact, decreased of 1.95 mm per decade. After combining these indicators, Iceland ended up with a total score of 36.07.

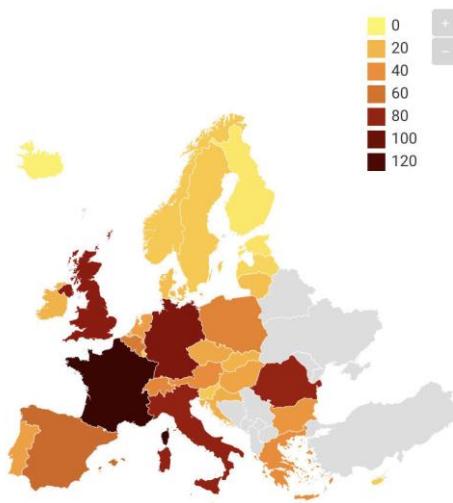
According to the World Meteorological Organization<sup>8</sup>, change in the frequency, intensity, and variability of extreme weather events — such as drought, extreme heat, flooding, and extreme

<sup>8</sup> World Meteorological Organization, *Using indicators to explain our changing climate to policymakers and the public*, link: <https://public.wmo.int/en/resources/bulletin/using-indicators-explain-our-changing-climate-policymakers-and-public>, last accessed 26.03.2021

precipitation — is one of the most important impacts of climate change. Indicators have a number of advantages. They are quantified, objective, based on data provided by virtually all countries, and they demonstrate change over time. This is why Agenda 2030, adopted by the United Nations in 2015, seeks to use indicators to track progress on the various Sustainable Development Goals, including SDG 13 on combatting climate change and its impacts<sup>9</sup>.

In order to get an overall, estimated understanding of the climate conditions in Europe, GreenMatch has looked into trends surrounding extreme events in European countries between 1960 and 2019. The map below illustrates the total number of extreme events per European country between 1960 and 2019.

**Map 2. Extreme Events Between 1960-2019 in Europe**



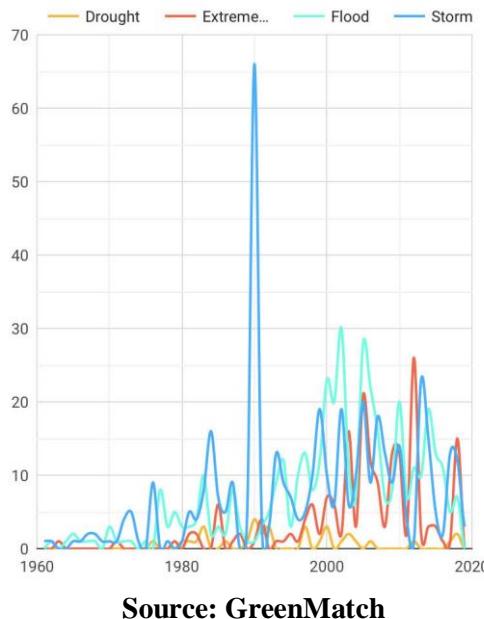
**Source: GreenMatch**

In addition to the map above, GreenMatch has created an interactive graph that shows the trend of extreme events in European countries between 1960 and 2019.

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<sup>9</sup> Michael Williams and Simon Eggleston., (2017), World Metrological organization, *Using indicators to explain our changing climate to policymakers and the public*, link: <https://public.wmo.int/en/resources/bulletin/using-indicators-explain-our-changing-climate-policymakers-and-public>, last accessed 27.03.2021

**Figure 2. Trends in Extreme Events in Europe (1960–2019)**



**Source: GreenMatch**

The graph shows a tremendous increase in the number of storms around the early 90s: a total of 66 storms in all the selected countries. After 1990, Europe saw a lot more extreme events than before, particularly droughts and extreme temperatures<sup>10</sup>.

Despite the great complexity of climate change, scientists must accept the challenge of communicating their findings to policymakers and the general public, so the advantage in the climate change combat can be done by state leaders.

While some governments consider that ambitious programmes like the European Green Deal will hinder economic recovery after the crisis, the European Commission and others maintain that the European Green Deal is the growth strategy that can help Europe's economic recovery while at the same time addressing the global climate emergency. As the EU institutions change their calendars, agendas and priorities, the restrictions on travel and large-scale gatherings may also slow down legislative activity related to the European Green Deal. Decision-making under the United Nations Framework Convention on Climate Change, the International Civil Aviation Organization and the International Maritime Organization are also affected by the cancellation and postponement of important meetings and conferences<sup>11</sup>.

## 2. The EU's response to climate change

Climate change is not only a modern term that is constantly used in international politics to show awareness about this significant issue in the world media, or as a subject that states have to consider as important in the future when the world will be politically and economically more stable. Climate change has become a global political and environmental challenge for humanity over the last decades. Therefore, coordinate approach of the countries and international strategy for disaster risk

<sup>10</sup> Michelle Schlechtriem, Green Match, link: <https://www.greenmatch.co.uk/blog/2019/04/climate-change-europe>, last accessed 23.03.2021

<sup>11</sup> Stojanovska-Stefanova A., Runcheva-Tasev H., (2021), “*The impact of the coronavirus crisis on climate action: Lessons learned for the governments*”, In: Proceedings from Annual International Conference “Political Consequences of the Pandemic”, organized by The Serbian Political Science Association (SPSA), University of Belgrade, Faculty of Political Science-Belgrade, Serbia, 26-27 September, 2020, ISBN 978-86-6425-081-8, pg.284

reduction and multiple actions on climate change is more than needed. At the same time, climate change policies cannot be developed in isolation from the overall development context<sup>12</sup>.

The EU is determined to help raise global ambition and is leading by example. The EU is one of the signatories to the Paris Agreement, which aims to limit global warming to well below 2°C and to pursue efforts to limit it to 1.5°C. EU countries endorsed the objective of achieving climate neutrality by 2050, in line with the Paris Agreement<sup>13</sup>. The EU's first package of climate and energy measures was agreed in 2008 and sets targets for the last 2020. These are: reducing greenhouse gas emissions by 20% (compared to 1990), increasing the share of renewable energy to 20%, making a 20% improvement in energy efficiency. To achieve these goals, the EU has developed, and later reformed, the EU emissions trading system (ETS) which aims to cut down greenhouse gas emissions in particular from energy-intensive industries and power plants. In the buildings, transport and agriculture sectors, national emission targets have been set, as part of the effort sharing regulation<sup>14</sup>.

In 2014, the 2030 climate and energy framework was agreed with a more ambitious set of targets for the period 2021-2030. By these targets, the EU committed to cutting its greenhouse gas emissions by at least 40% by 2030, compared to 1990.

In December 2019, EU leaders endorsed the objective of **achieving a climate-neutral EU by 2050**. In their conclusions, EU leaders asked the Council to take forward the work on the European Green Deal, launched by the European Commission.

Recognising the need to put in place an **enabling framework** to ensure a cost-effective, as well as socially-balanced and fair transition to climate neutrality, taking into account different national circumstances, EU leaders stressed the significant **economic, societal and technological opportunities** that the transition to climate neutrality will bring.

In light of the political commitment of EU leaders, and in accordance with the Paris Agreement, the EU member states prepare their long-term low emissions development strategies to submit them to the UN Framework Convention on Climate Change. EU environment ministers adopted the **EU's long-term climate strategy** in March 2020.

In December 2020, in light of the need to increase climate ambition, also as required by the Paris Agreement, the European Council endorsed a new 2030 target for emission reduction. EU leaders agreed on a binding EU target for a net domestic reduction of at least 55% in greenhouse gas emissions by 2030 compared to 1990. The EU will raise its climate ambition in a manner that will: spur sustainable economic growth, create jobs, deliver health and environmental benefits for EU citizens, contribute to the long-term global competitiveness of the EU economy by promoting innovation in green technologies<sup>15</sup>.

EU leaders endorsed the objective of **making the EU climate-neutral by 2050**, in line with the Paris Agreement. They underlined that the transition to climate neutrality will bring **significant opportunities** for economic growth, markets, jobs and technological development<sup>16</sup>. The European

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<sup>12</sup> Stojanovska-Stefanova, Aneta and Vckova, Nadica, (2016), “*International Strategy for Climate Change And The Countries Commitment For Developing Policies*”, In: International Scientific Conference: Crisis Management: Challenges and perspectives, 18 November 2015, Skopje, Macedonia, pg. 204.

<sup>13</sup> European Council of the European Union, *Climate change: what the EU is doing*, link: <https://www.consilium.europa.eu/en/policies/climate-change/>, last accessed:23.03.2021

<sup>14</sup> European Council of the European Union, *Reform of the EU emissions trading scheme*, link: <https://www.consilium.europa.eu/en/policies/climate-change/reform-eu-ets/>, last accessed:23.03.2021

<sup>15</sup> European Council of the European Union, *Climate change: what the EU is doing*, link: <https://www.consilium.europa.eu/en/policies/climate-change/>, last accessed:25.03.2021

<sup>16</sup> European Council of the European Union, *European Council, 12-13 December 2019*, link: <https://www.consilium.europa.eu/en/meetings/european-council/2019/12/12-13/>, last accessed 13.03.2021

Council underlined that the next multiannual financial framework (MFF) will significantly contribute to climate action. Tailored support for regions and sectors most affected by the transition will be made available from the Just Transition Mechanism.

"All relevant EU legislation and policies need to be consistent with, and contribute to, the fulfilment of the climate neutrality objective while respecting a level playing field." -noted the European Council in the conclusions on 12 December 2019.

The European Council recognised that all relevant EU policies need to be in line with the climate-neutrality objective and invited the Commission to examine whether existing rules, including on state aid and public procurement, require adjustment. It also asked the Commission to report regularly on the environmental and socio-economic impact of the transition to climate neutrality.

EU leaders acknowledged the need to ensure energy security and to respect the right of the member states to decide on their energy mix and to choose the most appropriate technologies. Some countries have indicated that they use nuclear energy as part of their national energy mix.

### **3. Cooperation on climate change with non-EU countries & regions**

The EU works closely with other countries and regions to advance dialogue and cooperation on climate change. Climate action is an integral part of the EU's foreign policy agenda. Through climate diplomacy and cooperation initiatives, the EU aims to build political will and trust to advance global action, ensure the effectiveness of development cooperation, and build capacity to support partner countries in their efforts. The areas of cooperation include: Dialogue and cooperation on climate policy development and implementation under the UN climate convention and other international fora<sup>17</sup>; Sharing expertise – e.g. through bilateral and multilateral cooperation initiatives on emissions trading<sup>18</sup>; Financing to support developing countries in their efforts to tackle climate change and adapt to its impacts; Development cooperation on issues such as adaptation, mitigation, disaster risk reduction and desertification; Supporting the transfer of technology and research collaboration – e.g. through Horizon 2020<sup>19</sup> and Integrating sustainable development into EU trade policy.

The Commission<sup>20</sup> has bilateral arrangements with key partners and works with a number of regional organisations: OECD countries – e.g. US, Canada, Japan, Australia, other UNFCCC Annex I countries – e.g. Russia, Ukraine, Emerging economies – e.g. Brazil, China, India, South Africa, South Korea, Regional groupings – e.g. African, Caribbean and Pacific (ACP) countries, African Ministerial Conference on the Environment (AMCEN), Asia Europe Meeting (ASEM), Association of South East Asian Nations (ASEAN), Gulf Cooperation Council (GCC), Latin American and Caribbean (LAC) countries, Organisation of the Petroleum Exporting Countries (OPEC).

In the past year, the Commission has invested €226 million through the European Innovation Council pilot and the European Institute of Innovation and Technology to support innovative start-ups, small and medium-sized businesses (SMEs) and projects to develop solutions in the fight against the coronavirus pandemic and the ensuing crisis. Many of these companies and projects, according to EU have already generated promising results.

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<sup>17</sup> European Commission, *Climate negotiations*, link: [https://ec.europa.eu/clima/policies/international/negotiations\\_en](https://ec.europa.eu/clima/policies/international/negotiations_en), last accessed 26.03.2021

<sup>18</sup> European Commission, *International carbon market*, link [https://ec.europa.eu/clima/policies/ets/markets\\_en](https://ec.europa.eu/clima/policies/ets/markets_en), last accessed 26.03.2021

<sup>19</sup> European Commission, *Horizon 2020*, link <https://ec.europa.eu/programmes/horizon2020/en>, last accessed 26.03.2021

<sup>20</sup> European Commission, *Cooperation with non-EU countries & regions*, link: [https://ec.europa.eu/clima/policies/international/cooperation\\_en](https://ec.europa.eu/clima/policies/international/cooperation_en), last accessed 26.03.2021

#### 4. How can countries limit any further impacts?

The global problem of climate change requires political will and multilateral cooperation that will enable a reversal to reduce and prevent the impact of climate change on countries around the world, and thus on the population.

Analysis of public policymaking shows that it was extremely hard for the authorities to take decisions on drastic measures imposing limitations to individual freedom or economic activity. Leaders decisions might have serious effects, because it is the moment when available data and information meet decision-makers' responsibility. In some cases, a clash between the information and responsibility of the decision-makers might appear<sup>21</sup>.

The United Nations Framework Convention on Climate Change (UNFCCC) is the main multilateral forum focused on addressing climate change, with nearly universal participation. Other institutions organized at different levels of governance have resulted in diversifying international climate change cooperation<sup>22</sup>.

The Paris Agreement<sup>23</sup> is the first-ever universal, legally binding global climate change agreement, adopted at the Paris climate conference (COP21) in December 2015. The EU and its Member States are among the close to 190 Parties to the Paris Agreement. The EU formally ratified the agreement on 5 October 2016, thus enabling its entry into force on 4 November 2016. For the agreement to enter into force, at least 55 countries representing at least 55% of global emissions had to deposit their instruments of ratification. The Paris Agreement provides for a robust and ambitious basis for the use of international markets and reinforces international targets, transparency and the accountability of Parties. Recognising the importance of international carbon markets, Article 6 of the agreement allows Parties to use international trading of emission allowances to help achieve emissions reduction targets establishes a framework for common robust accounting rules, and creates a new, more ambitious market mechanism<sup>24</sup>.

It seems like such a simple question: How hot is Earth going to get? Yet for 40 years, climate scientists have repeated the same unsatisfying answer: If humans double atmospheric carbon dioxide (CO<sub>2</sub>) from preindustrial levels, the planet will eventually warm between 1.5°C and 4.5°C - a temperature range that encompasses everything from a merely troubling rise to a catastrophic one. Bounds on Earth's climate sensitivity - how far temperatures will eventually rise for a doubling of atmospheric carbon dioxide - did not narrow for 40 years. Using new lines of evidence, a major study now says substantial warming is likely<sup>25</sup>.

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<sup>21</sup> Runcheva-Tasev H., Stojanovska-Stefanova A., (2021), "Public Policy and the Response to the Pandemic", In: Proceedings Book from Annual International Conference "Political Consequences of the Pandemic", organized by The Serbian Political Science Association (SPSA), University of Belgrade, Faculty of Political Science-Belgrade, Serbia, 26-27 September, 2020, ISBN 978-86-6425-081-8, pg.264

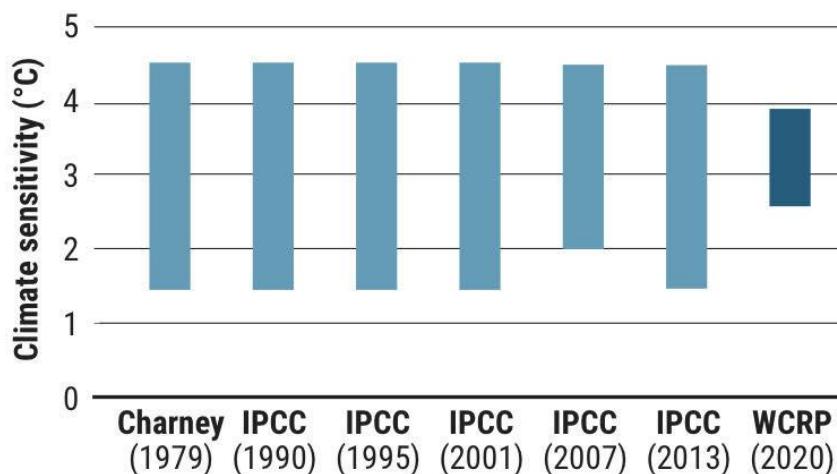
<sup>22</sup> Intergovernmental Panel on Climate Change, *IPCC Fifth Assessment Report, Summary for Policymakers* (2014), link: [https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc\\_wg3\\_ar5\\_summary-for-policymakers.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_summary-for-policymakers.pdf), last accessed 27.03.2021

<sup>23</sup> European Commission, *Paris Agreement*, link: [https://ec.europa.eu/clima/policies/international/negotiations/paris\\_en](https://ec.europa.eu/clima/policies/international/negotiations/paris_en), last accessed 26.03.2021

<sup>24</sup> European Commission, *International carbon market*, link: [https://ec.europa.eu/clima/policies/ets/markets\\_en](https://ec.europa.eu/clima/policies/ets/markets_en), last accessed 26.03.2021

<sup>25</sup> Science, *After 40 years, researchers finally see Earth's climate destiny more clearly*, link: <https://www.sciencemag.org/news/2020/07/after-40-years-researchers-finally-see-earths-climate-destiny-more-clearly>, last accessed 27.03.2021

**Figure 3: Climate sensitivity (°C)**



**Source: Science,  
(Graphic) C. Bickel/Science; (Data) Meehl et al. Sci.Adv.,6, EABA 1981 (2020)**

The assessment, conducted under the World Climate Research Programme (WCRP) and published in *Reviews of Geophysics*, relies on three strands of evidence: trends indicated by contemporary warming, the latest understanding of the feedback effects that can slow or accelerate climate change, and lessons from ancient climates. They support a likely warming range of between 2.6°C and 3.9°C, says Steven Sherwood, one of the study's lead authors and a climate scientist at the University of New South Wales<sup>26</sup>.

In recent years, another uncertainty in the climate future has also narrowed: Global emissions seem unlikely to reach the worst-case scenarios IPCC helped craft 15 years ago, ruling out some forecasts of extreme warming. "We're light-years ahead of where we were in 1979," says Reto Knutti, a co-author and climate scientist at ETH Zurich<sup>27</sup>.

According to Australian Academy of Sciences<sup>28</sup>, managing the risks from future human-induced climate change will necessarily be based on some combination of four broad strategies: emissions reduction: a) reducing climate change by reducing greenhouse gas emissions, b) sequestration: removing carbon dioxide (CO<sub>2</sub>) from the atmosphere into permanent geological, biological or oceanic reservoirs, c) adaptation: responding to and coping with climate change as it occurs, in either a planned or unplanned way, d) solar geoengineering: large-scale engineered modifications to limit the amount of sunlight reaching the Earth, in an attempt to offset the effects of ongoing greenhouse gas emissions.

Each embodies a large suite of specific options, with associated risks, costs and benefits. The four strategies can affect each other: for example, doing nothing to reduce emissions would require increased expenditure to adapt to climate change, and increased chances of future resort to geoengineering.

Geoengineering the climate to halt global warming has been discussed almost as long as the threat of warming itself. American researchers back in the 1960s suggested floating billions of white objects such as golf balls on the oceans to reflect sunlight. In 1977, Cesare Marchetti of the Austria-

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.

<sup>28</sup> Australian Academy Science, *What does science say about options to address climate change?*, link: <https://www.science.org.au/learning/general-audience/science-climate-change/9-what-does-science-say-about-climate-change-options>, last accessed 26.03.2021

based International Institute for Applied Systems Analysis discussed ways of catching all of Europe's CO2 emissions and injecting them into sinking Atlantic Ocean currents<sup>29</sup>.

King helped secure the Paris Climate Agreement in 2015, but he no longer believes cutting planet-warming emissions is enough to stave off disaster. He is in the process of establishing a Center for Climate Repair at Cambridge University. It would be the world's first major research center dedicated to a task that, he says, "is going to be necessary."

Technologies earmarked for the Cambridge center's attention include a range of efforts to restrict solar radiation from reaching the lower atmosphere, including spraying aerosols of sulphate particles into the stratosphere, and refreezing rapidly warming parts of the polar regions by deploying tall ships to pump salt particles from the ocean into polar clouds to make them brighter.

There is no denial in the fact that climate change is causing environmental problems all around the world. Problems of this magnitude need a universal policy on sustainability and renewable energy.

However, limiting any further impacts of climate change<sup>30</sup> starts with individual households around the world. Besides contributing in small, everyday actions — such as recycling and lowering your consumption — changing your domestic energy source can make a huge difference.

In mid-2020, the EU quickly allocated €166 million to 36 start-ups and SMEs through the European Innovation Council, for the development of innovative solutions to tackle the outbreak, including equity investments through the new European Innovation Council Fund (EIC Fund).

In addition, the Commission has been at the forefront of supporting research and innovation to fight the coronavirus outbreak and coordinating European and global research efforts, including preparedness for pandemics. It has pledged €1.4 billion in total, of which €1 billion comes from Horizon 2020 and is directed towards the development of vaccines, new treatments and diagnostic tools to prevent the spread of the coronavirus. So far, over €818 million have been mobilised. The EU has been at the forefront of international efforts to fight climate change. It was instrumental in brokering the Paris Agreement and continues to show global leadership. The EU and its Member States, acting jointly, are committed to a binding target of a net domestic reduction of at least 55% in greenhouse gas emissions by 2030 compared to 1990. The EU and other developed countries will continue to support climate action to reduce emissions and build resilience to climate change impacts in developing countries. Other countries are encouraged to provide or continue to provide such support voluntarily. Developed countries intend to continue their existing collective goal to mobilise USD 100 billion per year by 2020 and extend this until 2025. A new and higher goal will be set for after this period<sup>31</sup>.

Also, United Nations Sustainable Development Goals (SDGs) see the implementation of the Paris Agreement as essential for the achievement of the goals.

Last year, on the 75th anniversary of the United Nations and the 5th anniversary of the adoption of the Sustainable Development Goals – in the midst of a pandemic radically transforming our economies and societies – UN send the message about “urgent solutions for urgent times”<sup>32</sup>.

UN Secretary-General Mr. Guterres proposed six climate-related actions<sup>33</sup> to shape the recovery. First, the huge amounts of money to be spent on recovery from the coronavirus must deliver

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<sup>29</sup> Yale School of the Environment, Yale Environment 360, *Geoengineer the Planet? More Scientists Now Say It Must Be an Option*, link: <https://e360.yale.edu/features/geoengineer-the-planet-more-scientists-now-say-it-must-be-an-option>, last accessed 26.03.2021

<sup>30</sup> GreenMatch, A Renewable Path to Net Zero Emissions (New Study), link: <https://www.greenmatch.co.uk/blog/2021/02/renewable-path-to-net-zero-emissions>, last accessed 26.03.2021

<sup>31</sup> European Commission, Paris Agreement, link: [https://ec.europa.eu/clima/policies/international/negotiations/paris\\_en](https://ec.europa.eu/clima/policies/international/negotiations/paris_en), last accessed 26.03.2021

<sup>32</sup> United Nations, Take action for Sustainable Development Goals, link: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>, last accessed: 26.03.2021

new jobs and businesses through a clean, green transition. Second, where taxpayers' money is used to rescue businesses, it must be tied to achieving green jobs and sustainable growth. Third, fiscal firepower must drive a shift from the grey to green economy, empowering societies and people to be more resilient. Fourth, public funds should be used to invest in the future, not the past, and flow to sustainable sectors and projects that help the environment and the climate. Fossil fuel subsidies must end, and polluters must start paying for their pollution. Fifth, climate risks and opportunities must be incorporated into the financial system as well as all aspects of public policy making and infrastructure. Sixth, all need to work together as an international community.

According to UN Secretary-General also the human rights can and must guide Covid-19 response and recovery. The recovery must also respect the rights of future generations, enhancing climate action aiming at carbon neutrality by 2050 and protecting biodiversity.

### Conclusion

Climate scientists overwhelmingly agree that humans are causing recent global warming.

As our society makes choices about managing the risks and opportunities associated with climate change, there is an important role for objective scientific information on the consequences of alternative pathways. Choices also hinge on ethical frameworks and value judgements about the wellbeing of people, economies and the environment. The role of climate science is to inform decisions by providing the best possible knowledge of climate outcomes and the consequences of alternative courses of action. King helped secure the Paris Climate Agreement in 2015, but he no longer believes cutting planet-warming emissions is enough to stave off disaster. The EU is one of the signatories to the Paris Agreement, which aims to limit global warming to well below 2°C and to pursue efforts to limit it to 1.5°C. EU leaders endorsed the objective of **making the EU climate-neutral by 2050**, in line with the Paris Agreement. They underlined that the transition to climate neutrality will bring **significant opportunities** for economic growth, markets, jobs and technological development.

Climate change is a global challenge that requires a global response. The EU is determined to help raise global ambition and is leading by example. Therefore, climate action is an integral part of the EU's foreign policy agenda. Through climate diplomacy and cooperation initiatives, the EU aims to build political will and trust to advance global action, ensure the effectiveness of development cooperation, and build capacity to support partner countries in their efforts. The EU works closely with other countries and regions to advance dialogue and cooperation on climate change.

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<sup>33</sup> United Nations, *Climate Change and COVID-19: UN urges nations to recover better*, link: <https://www.un.org/en/un-coronavirus-communications-team/un-urges-countries-%E2%80%99build-back-better%E2%80%99>, last accessed .08.08.2020

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