



ATHENS COP SIMULATION 2021 STUDY GUIDE: *“CARBON NEUTRALITY AND JUST TRANSITION IN THE PANDEMIC AND POST-PANDEMIC ERA”*



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University of Athens



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UNESCO Chair on
Climate Diplomacy,
National and Kapodistrian
University of Athens, Greece

Institute of European Integration and Policy

UNESCO Chair on Climate Diplomacy

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Athens COP Simulation is one of the main activities of the Jean Monnet Module "European Climate Diplomacy" (a project with the support of the Erasmus+ Programme of the EU). Athens COP Simulation is a simulation of the Conference of Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC).

Prior to the simulation, three preparatory lectures will take place that will provide a thorough knowledge and understanding of the COP and the EU institutional framework, the decision-making and legislative processes as well as specialized information about the topic to be discussed.

During the simulation, participants will be assuming the role of UNFCCC members' representatives, promoting their policy positions and negotiating on a contemporary policy issue related with EU external action, climate change policy and their correlation. Preparation of participants is crucial for achieving high-level performance and active involvement of students and, therefore, meeting the goals of the simulation.

The primary educational goal of the Athens COP Simulation is to raise awareness among young people about contemporary related with EU and international climate change policy and EU external action. They will acquire useful knowledge for their academic and professional career. Moreover, the participants will gain valuable experience on negotiation, legislative and the day-to-day business of the UNFCCC COP processes and the role of the EU, as well as of the major EU member states. The additional benefits that students will acquire include the improvement of their public presentation skills through public voicing of their ideas. Great emphasis is given to the respect towards the interlocutor and the use of dialogue as the only means of resolving disputes. Participation in such a simulation conference can benefit students in many different ways, not only in strictly educational terms, but also with the development of soft skills that can prove useful to them in the long term and in a variety of professional and other settings.

The Organising Team

Professor Emmanuella Doussis is the UNESCO Chair on Climate Diplomacy and the Director of the Institute of European Integration and Policy. She is also the Leader of the Jean Monnet Module 'European Climate Diplomacy' and the Director of the Postgraduate Programme in Southeast European Studies of the Department of Political Science and Public Administration at the National and Kapodistrian University of Athens. She studied political science and law in Athens and Paris. She teaches undergraduate and postgraduate courses and supervises PhDs, mainly on climate change policies, international and European environmental law and policy, as well as international law and organization. She publishes in Greek, English, and French on climate change issues and regularly participates in international conferences. She was the Leader of the Jean Monnet Module 'Moving the EU Forward' program (2015-2018). She has extensive experience preparing students for simulations of European and international institutions, from 2000 until today. Finally, she is a member of the IUCN World Environmental Law Committee, the ILA Committee on the Role of International Law in Sustainable Natural Resource Management for Development, and the Greek National Committee for Adaptation on Climate Change.

Dr Antonia Zervaki is Assistant Professor of International Relations at the National and Kapodistrian University of Athens. She is a member of the Hellenic Society of International Law and International Relations, the Academic Council on the United Nations System, the International Political Science Association, the European Political Science Association and member of the Board of the Hellenic National Committee of the Blue Shield. She is the author of two monographs and several articles/chapters on international relations theory, international and European organization and governance, international cultural policies and maritime governance. She has worked previously as a consultant in various positions, such as Advisor to the EU Cultural Programmes of the Foundation of the Hellenic World and Special Advisor to the Ministry of Foreign Affairs on EU Maritime Policy. She has taught at many universities in Greece and she has prepared many student groups for EU and United Nations simulations.

Othon Kaminiaris is a PhD Candidate at the Department of Political Science and Public Administration of the National and Kapodistrian University of Athens, under the UNESCO Chair on Climate Diplomacy. He holds a BSc, and an MA in International and European Studies from the same Department. Apart from his mother tongue, Greek, he speaks English, French and Spanish. He is an external collaborator of the National Center of Social Research

and a Junior Research Fellow at the Institute of European Integration (IEIP) and Policy, where he has worked on several research programmes. He also has extensive working experience in the design, coordination and implementation of educational programmes, co-organised by IEIP and institutions like the Hellenic Ministry of Education and the Hellenic Foundation for European and Foreign Policy (ELIAMEP). Lately, he has gained valuable experience in European projects' management by working in the private sector. Last, but not least, he is the Secretary General of the Political Science and Public Administration Alumni Association and the Organisational Secretary of the Hellenic Association of Legal and Political Scientists.

George Dikaios is a PhD Candidate of Political Science and Public Administration at the National and Kapodistrian University of Athens (NKUA). He is also a Research Fellow at the Institute of European Integration and Policy at the same University. He has studied Political Science at NKUA (BSc and MA) and at Leiden University (MSc). His research focuses on international norms, European diplomacy, and European influence on other international organizations with an emphasis on climate diplomacy and climate change policies. He is a member of the team of the UNESCO Chair on Climate Diplomacy and he is the Project Manager of the Jean Monnet Module 'European Climate Diplomacy' (2019-2022). He is an SYLLF and A.G. Leventis Scholar. He publishes in various academic journals in Greece and often participates in international conferences.

Georgie Moutsodemi is a graduate of the Department of Political Science and Public Administration of the National & Kapodistrian University of Athens, specialized on European and International Studies, while his diploma thesis was regarding the effectiveness of the military operations, Sophia and Atalanta, of the European Union. His academic interests include European Politics, cultural policy, climate change, sustainable development and technology. Since October 2019 he is a research trainee at the Institute of European Integration and Policy of the NKUA, researching, organizing and participating in several projects focused on the youth. During his studies he has taken several part-time jobs; he has been a part of more than a dozen simulations of International and European organizations, both as a participant, chairperson as well as member of organizing committees; and, he has participated in two youth exchange programs in Italy.

Georgia Anagnostaki is an undergraduate student in the Department of International and European studies, at University of Piraeus. During her studies, she has participated as a delegate in simulations of the EU and the UN, while she co-chaired as the Commissioner of the

Consilium, at Rhodes MRC, 2019. In addition, Georgia has participated as a research analyst at SAFIA, through which she has published three articles regarding international affairs as well as politics, such as the repercussions of Greenland's independence for Denmark and the EU. She has spent the semester in Slovakia, for an Erasmus+ study exchange. Her academic interests are dichotomized between hard and soft politics, as she is interested in geopolitics and international relations while equally intrigued by youth politics and democratic participation, to name a few. Currently, she holds a position as a Project Development Manager at a youth-led organization, called WeFor, while working for Istorima.

Foteini-Ilektra Christakopoulou is an undergraduate student in the Faculty of Law of the National and Kapodistrian University of Athens. She has made various publications, including "11 Positions on Sovereignty, Just War and Rebellion" and "Mare Liberum" by Hugo Grotius, and "On the Law of War" by Francisco de Vitoria. At the moment, she is serving as the Student Body Representative in the Gender Equality Committee of the National and Kapodistrian University of Athens. She is also conducting research for the Institute of European Integration and Policy.

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Abbreviations

AI	Artificial Intelligence
COP	Conference of the Parties
EU	European Union
FAO	Food & Agricultural Organization
GCF	Green Climate Fund
GEF	Global Environment Facility
GDP	Gross Domestic Product
GHG	Greenhouse gases
ILO	International Labour Organization
IoT	Internet of Things
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
NBS	Nature-based Solutions
NDCs	Nationally Determined Contributions
SDG	Sustainable Development Goals
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations International Children's Emergency Fund

1. Greeting of the Board

Distinguished participants,

We would like to express our most sincere honor and excitement to welcome you all to the 2021 edition of the Athens COP Simulation. As Board Members of the Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC), we are more than excited to meet you, and we pledge our full devotion to working with you in order to provide you with an unforgettable experience.

Stimulus for this will be our particularly interesting and most-timely topic area: “*Carbon neutrality and just transition in the pandemic and post-pandemic era*”. This topic is of utmost importance, as it deals with how the global community will try to coordinate its joint actions, aiming to achieve, in the near future, a carbon neutral world in a just and sustainable manner, while dealing with the world-changing effects of the global pandemic of COVID-19.

Thus, taking into consideration the complexity, importance and the multiple dimensions of the topic, we have drafted the following Study Guide, which will serve as your tool and guidance, when preparing your ideas and recommendations. We believe that the present document with its bibliography and further reading, combined with your personal research, will help you fully comprehend the topic under discussion and therefore be substantially prepared for our sessions. Of course, it of high importance to study additionally the Rules of Procedure, as you cannot play a game if not knowing its rules!

Fully acknowledging that the aforementioned is not the simplest task, we assure you that we are committed to assist you along the way by any means necessary in order for you to reach the finest potential results, therefore you shall not in any step of the process hesitate to contact us. With all of that being said, we cannot wait to meet you, yield you the floor and listen to your ideas.

The Board of the COP to the UNFCCC,

Georgie Moutsodemi

Georgia Anagnostaki

2. Introduction to the COP of the UNFCCC and its mandate

The COP is the supreme decision-making body of the UNFCCC¹. The first COP was held in 1995 in Berlin, Germany, and, since then, the Conference has taken place every year in different cities all around the world, until the 2020 edition, which has been canceled due to the COVID-19 pandemic. The most prominent of the Conferences is the one of 2015, COP 21 in Paris, during which the Paris Agreement was adopted².

The COP was established by virtue of Article 7 of the UNFCCC, with all States that are Parties to the Convention being represented at the COP, having as its purpose to review the implementation of the Convention and any other legal instruments that the COP adopts and, also, within its mandate, make the decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements³. Furthermore, a key task for the COP is to review the national communications and emission inventories submitted by Parties⁴.

Based on the tradition of the United Nations (UN), Parties are organized into five regional groups, mainly for the purposes of electing the Bureau⁵. However, the five regional groups are not usually used to present the substantive interests of Parties and several other groupings are more important for climate negotiations⁶.

Analyzing the UNFCCC articles related to the COP (Art. 7 and 4.2), we can draw the conclusion that its mandate does not include the power to impose new substantive obligations on individual parties; its powers tend to be of an administrative character, or to develop proposals or recommendations. The practice of the COP confirms this. The COP has not attempted to take decisions imposing financial obligations or limitations on party action beyond those already stated. When the parties to the UNFCCC wanted to create such obligations, it was done by a Protocol or Agreement that was subject to domestic ratification like the original UNFCCC, the Paris Agreement etc.

¹ See: Chapter 5.1.

² See: Chapter 5.3.

³ *United Nations Framework Convention on Climate Change (UNFCCC 1992) Article 7*, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

⁴ Ibid.

⁵ African States, Asian States, Eastern European States, Latin American and the Caribbean States, and the Western European and Other States. <https://unfccc.int/process-and-meetings/parties-non-party-stakeholders/parties/party-groupings>

⁶ “Party Groupings,” UNFCCC, accessed January 12, 2021, <https://unfccc.int/process-and-meetings/parties-non-party-stakeholders/parties/party-groupings>.

Concluding, considering the works and the mandate of the COP, during our sessions, you are expected to bear in mind your countries' policies, in order to negotiate both inside your blocs and outside of it, with other countries. You will have to produce a Decision upon our topic area, with feasible, efficient and concrete solutions. The Decision to be produced will not be legally binding, however, it is expected that Member States will cooperate in good faith, with the aim to effectively address the discussed topics and embrace any additional and innovative proposals.

3. Introduction to the Topic Area

The crisis of the COVID-19 global pandemic has caused almost 2 million deaths⁷ and has brought unprecedented health and socioeconomic challenges, several of which will continue to have a profound effect on global society for many years to come. These new challenges exacerbate many existing challenges, such as social inequality, rural/urban and global/south disparities and climate change.

However, the tragedy of COVID-19 has overshadowed, at least temporarily, these challenges, including the most imminent threat against humanity, that of climate change, as governments, international organizations, businesses etc., devoted their time to fighting the pandemic. While sustaining a public-health response remains a top priority for policy makers and executives, considering the severe job losses, the declines of revenue, the reduction of GDP of countries and the likelihood of an economic recession, it is of high importance to repair any economic damage. Thus, states have been compelled to allocate unparalleled funds and resources to alleviate the impact of COVID-19. As of September 2020, according to the International Monetary Fund, around \$12 trillion, or 12% of global GDP had been spent⁸.

Important as it is to recover from COVID-19 and prevent a new global economic crisis, a swift return to business as usual could be environmentally harmful, as we saw back in 2010, when emissions had reached a record high, after the reduced emissions of 2009. That had happened due to the implemented measures for the recovery from the 2007-08 economic crisis, which paid little to no attention to the environmental consequences⁹. Similarly, in 2020, global carbon emissions dropped by 7%¹⁰; and, considering that, according to UNEP, COVID-19 fiscal spending had primarily supported the global status quo of high-carbon economic production, it is feared that the same pattern will repeat itself, and today the stakes are even higher¹¹. The way we will recover from the COVID-19 crisis could determine whether the world meets or

⁷ As of 13 of January 2021; “WHO Coronavirus Disease (COVID-19) Dashboard,” World Health Organization, accessed January 14, 2021, <https://covid19.who.int>.

⁸ United Nations Environment Programme, ‘The Emissions Gap Report 2020’ (2020) <<https://www.unep.org/emissions-gap-report-2020>> accessed 28 December 2020.

⁹ David Fogarty, ‘Carbon Emissions Dip in 2009, to Jump in 2010’ *Reuters* (21 November 2010) <<https://www.reuters.com/article/us-climate-emissions-idUSTRE6AK1OU20101121>> accessed 14 January 2021.

¹⁰ Deutsche Welle, ‘Global Carbon Emissions down by Record 7% in 2020’ (DW.COM, 2020) <<https://www.dw.com/en/global-carbon-emissions-down-by-record-7-in-2020/a-55900887>> accessed 14 January 2021.

¹¹ United Nations Environment Programme, ‘The Emissions Gap Report 2020’ (2020) <<https://www.unep.org/emissions-gap-report-2020>> accessed 28 December 2020.

misses the emissions goals of the 2015 Paris Agreement, which were set to limit global warming to 1.5°C to 2°C.

In contrast to 2009-10, today, scientific knowledge, technological advancements political will, and public support have increased, marking the COVID-19 crisis as a possible and highly needed turning point in progress on climate change issues. Despite the ongoing reduction of emissions, it is sure that they will rebound, once mobility restrictions are lifted and economies recover, unless climate action becomes part of the COVID-19 relief plans and measures towards carbon neutrality are taken. States have never been in such a prominent position to push for a sustainable agenda as every economic actor is in need of state aid¹².

Following a global economic recovery and development that does not neglect the checks of green and low-carbon economy, could not only initiate the significant emissions reductions needed to halt climate change but also create more jobs and economic growth than a high-carbon recovery would. But, this recovery, should also be fair and inclusive, as reports have shown that both COVID-19 and climate change affect mostly the poor and vulnerable everywhere, and mainly in less developed countries¹³. In general, COVID-19 exacerbated the global North-South disparities, which is rather concerning, acknowledging the fact that the highest amount of gas emissions comes from the North, while the South faces the most imminent and grave dangers from climate change¹⁴.

Concluding, on the one hand, the COVID-19 global pandemic created new challenges and highlighted or even worsened existing ones; on the other hand, it is giving us the opportunity to choose the highly-needed climate-friendly recovery and it can also provide us with unprecedented insights into how the global climate crisis may be managed. As several reports indicate¹⁵, there are many similarities between the COVID-19 crisis and climate change. All of these, constitute the specific topic area one of high importance and in the following pages you

¹² Emmanuella Doussis, 'Climate and Sustainable Development in 2021', *2021 OUTLOOK: Special Edition* (ELIAMEP 2021) <<https://www.eliamep.gr/wp-content/uploads/2020/12/ELIAMEP-2021-Outlook-FINAL.pdf?fbclid=IwAR2EwQ5aVxAJ7An2r2U2TSgO7WHilb3Pu-5DD2oU13hyHbxyUtMoyn1LXU4>> accessed 14 January 2021.

¹³ "2020 Year in Review: The Impact of COVID-19 in 12 Charts," World Bank, 2020, <https://blogs.worldbank.org/voices/2020-year-review-impact-covid-19-12-charts>.

¹⁴ 'How Climate Change Aggravate Coronavirus in the Global South' (Prevention Web, 2020) <<https://www.preventionweb.net/go/71290>> accessed 28 December 2020.

¹⁵ Cameron Hepburn et al., "Will COVID-19 Fiscal Recovery Packages Accelerate or Retard Progress on Climate Change?," *Oxford Review of Economic Policy* 36, no. Supplement_1 (September 28, 2020): S359–81, <https://doi.org/10.1093/oxrep/graa015>; and, Rubén D. Manzanedo and Peter Manning, "COVID-19: Lessons for the Climate Change Emergency," *Science of The Total Environment* 742 (November 2020): 140563, <https://doi.org/10.1016/j.scitotenv.2020.140563>.

will find a thorough analysis of the legal framework, the global developments on the matter and how we could achieve a recovery from the COVID-19, which will lead us towards a sustainable and just society.

4. Definitions of Key Terms

4.1. Climate Change

According to the UNFCCC, climate change is a “*change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods*”¹⁶. The term mostly refers to the rise of the Earth’s temperature from the mid-20th century to present, driven by emissions of gases such as carbon dioxide and methane and it has a broad range of observed effects on the environment. Such effects are considered to be the melting of polar ice sheets and glaciers, the accelerated sea level rise, extreme weather events, shifting rainfall and many more¹⁷.

4.2. Greenhouse gas emissions

The release of a group of both natural and anthropogenic gaseous constituents of the atmosphere that absorb and re-emit infrared radiation, over a specified area and a period of time, thus contributing to global warming and climate change¹⁸. The Kyoto Protocol is covering seven greenhouse gases (GHG), with the two most popular being carbon dioxide (CO₂) and methane (CH₄). The conversion of all the greenhouse gases to CO₂ equivalents facilitates their comparison and the determination of their contributions to global warming. More than 75% of the European Union’s (EU) greenhouse emissions are caused by the production and use of energy across the economic sectors¹⁹.

4.3. Carbon neutrality

The balance between the carbon absorbed and emitted from the atmosphere in carbon sinks. This procedure is called carbon sequestration and it is necessary for the achievement of net zero emissions²⁰. The EU has as its main goal to become the first major economy to go “climate

¹⁶ *United Nations Framework Convention on Climate Change (UNFCCC 1992)*

https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

¹⁷ National Geographic Society, ‘Climate Change’ (National Geographic Society, 28 March 2019)

<<http://www.nationalgeographic.org/encyclopedia/climate-change/>> accessed 1 February 2021.

¹⁸ *United Nations Framework Convention on Climate Change (UNFCCC 1992)*,

https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

¹⁹ ‘Greenhouse Gas (GHG) (EUROSTAT) <[https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Greenhouse_gas_\(GHG\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Greenhouse_gas_(GHG))> accessed 1 February 2021.

²⁰ ‘2050 Long-Term Strategy’ (Climate Action - European Commission, 23 November 2016)

<https://ec.europa.eu/clima/policies/strategies/2050_en> accessed 1 February 2021.

neutral” by 2050 and on 4 March 2020 the Commission proposed the first “European Climate Law”, in order to enshrine the 2050 climate-neutrality target into law²¹.

4.4. Just Transition

A framework that includes a variety of social interventions that are necessary for the security of the rights and livelihoods of people who work in sectors, such as energy, manufacturing and agriculture, as the economy is transitioning to sustainable development. The concept started in the early 1990’s as a trade union demand for financial support and higher education opportunities for workers, who felt excluded because of the environmental protection policies in USA²². Nowadays, it is adopted as main principal by many institutions and treaties. The European Commission has launched the Just Transition Mechanism in order to “*assure that no one is left behind in the green transition*”²³.

²¹ ‘What Is Carbon Neutrality and How Can It Be Achieved by 2050?’ (European Parliament, 10 March 2019) <<https://www.europarl.europa.eu/news/en/headlines/society/20190926STO62270/what-is-carbon-neutrality-and-how-can-it-be-achieved-by-2050>> accessed 1 February 2021; and, Matt McGrath, ‘Climate Change: EU Aims to Be “climate Neutral” by 2050’ *BBC News* (28 November 2018) <<https://www.bbc.com/news/science-environment-46360212>> accessed 1 February 2021.

²² ‘Just Transition’ (OECD 2017) <<https://www.oecd.org/environment/cc/g20-climate/collapsecontents/Just-Transition-Centre-report-just-transition.pdf>> accessed 1 February 2021.

²³ ‘The Just Transition Mechanism’ (European Commission) <https://ec.europa.eu/commission/presscorner/detail/en/fs_20_39> accessed 1 February 2021.

5. Legal and Action Framework

5.1. UNFCCC

The Convention, being adopted on the 5th of June 1992, recognized that there was a serious problem in the earth's climate, which was remarkable for its time, as there was far less scientific evidence in comparison to now regarding climate change. The UNFCCC establishes a framework with broad principles and general obligations, which aims, to an intergovernmental process that will “*stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system*”²⁴. This is achieved through the COP, the universal decision-making body of the Convention, which reviews its implementation and makes decisions to promote its effective implementation²⁵. Recognizing that even with efficient mitigation efforts, climate change impacts will be unavoidable, the Convention focuses on adaptation to climate change and provides overall guidance on its assessment, planning and implementation²⁶. Moreover, the Convention requires Parties to develop a national inventory of GHG emissions and to report on their mitigation policies and measures²⁷. The UNFCCC entered into force in 1994, and it has a near-universal membership with 197 ratifications; participating countries are called Parties to the Convention²⁸.

5.2. Kyoto Protocol

Adopted in December 1997 (entered into force in 2005), the Kyoto Protocol to UNFCCC focuses on the international community's attitude towards the phenomenon of climate change. Currently, there are 192 Parties to the Kyoto Protocol²⁹ and its main scope is to operationalize the UNFCCC by, inter alia, obligating only developed countries to reduce their emissions of 6

²⁴ *United Nations Framework Convention on Climate Change (UNFCCC 1992) Article 2,*

https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

²⁵ ‘Conference of the Parties (COP)’ (UNFCCC) <<https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop>> accessed 1 February 2021.

²⁶ ‘UNFCCC EHandbook’ <<https://unfccc.int/resource/bigpicture/>> accessed 1 February 2021.

²⁷ *United Nations Framework Convention on Climate Change (UNFCCC) Article 12, 1992,* https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

²⁸ ‘United Nations Framework Convention on Climate Change’ (United Nations Treaty Collection) <https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXVII-7&chapter=27&Temp=mtdsg3&clang=en> accessed 1 February 2021.

²⁹ ‘Kyoto Protocol’ (United Nations Treaty Collection)

<https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-a&chapter=27&lang=en> accessed 1 February 2021.

GHG³⁰, since they are recognized responsible for the highest levels of current and historical emissions in the atmosphere³¹.

5.3. Paris Agreement

On 12 December 2015, during the twenty-first session of the COP in Paris, Parties to the UNFCCC reached a landmark agreement for combatting climate change. The agreement was adopted in 2015 and entered into legal force on November 2016, having been ratified by 187 countries³². The Paris Agreement's main objective is to strengthen the global response to the threat of climate change by limiting global temperature rise below 2 degrees Celsius, while also pursuing to limit the increase by 1.5 degrees Celsius (Art. 2)³³

Additionally, it focuses on mitigation by establishing “*nationally determined contributions (NDCs)*” (Art. 4). NDCs basically embody efforts by each country to reduce national emissions and adapt to the impacts of climate change, and to do so through international cooperation (Art. 7), while developing countries should receive enhanced support³⁴. Moreover, in its preamble, we find that the NDCs must “*take into account the imperative of the just transition of the workforce, and the creation of decent work and quality jobs*”³⁵. Furthermore, the Agreement, stresses the importance of climate change education, training, public awareness and public participation (Art. 12)³⁶, as well as the financial, technological and capacity-building support of developed countries towards developing ones (Art. 9, 10 and 11)³⁷. Finally, the decision of the new President of the US to return to the Paris Agreement will have for sure a positive effect to its implementation³⁸.

5.4. Goals 7 and 13 of the United Nations 2030 Agenda

The 2030 Agenda for Sustainable Development, adopted by all UN Member States in 2015, provides a shared framework at the heart of which are the 17 Sustainable Development Goals (SDGs), with the aim to call all countries -developed and developing- for action. SDGs are not

³⁰Ibid, Article 3, Annex I and Annex A.

³¹ ‘UNFCCC EHandbook’ <<https://unfccc.int/resource/bigpicture/>> accessed 1 February 2021.

³² ‘Paris Agreement’ (United Nations Treaty Collection) <https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=en> accessed 1 February 2021.

³³ Ibid, Art. 2

³⁴ *Paris Agreement*, Article 2, 2015, https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

³⁵ This was greatly reinforced at 2018’s COP24, in Katowice, Poland. COP24 was intended to finalize the rulebook to allow the Paris Agreement to be implemented. A declaration on Just Transition was adopted – a major achievement for the labour movement.

³⁶ *Paris Agreement*, Article 12, 2015, https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

³⁷ Ibid.

³⁸ “Secretary-General Welcomes US Return to Paris Agreement on Climate Change,” UN News, January 20, 2021, <https://news.un.org/en/story/2021/01/1082602>.

legally binding, yet countries are expected to take initiatives and establish a national framework for achieving these goals³⁹. Important for our topic area, are particularly Goals 7 and 13. More specifically, Goal 13, aims to strengthen the capacity and the legal, action framework of all countries regarding climate change, while it, also, promotes the improvement of education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning⁴⁰. While, Goal 7, strives to “ensure access to affordable, reliable, sustainable and modern energy for all”, as access to energy is a very important pillar for the wellbeing of the people as well as for economic development and poverty alleviation, by promoting renewable resources and energy efficiency⁴¹.

³⁹ ‘The Sustainable Development Agenda - 17 Goals for People, for Planet’

<<https://www.un.org/sustainabledevelopment/development-agenda/>> accessed 1 February 2021.

⁴⁰ ‘Goal 13’ (SDGs - Department of Economic and Social Affairs) <<https://sdgs.un.org/goals/goal13>> accessed 1 February 2021.

⁴¹ ‘Goal 7’ (SDGs - Department of Economic and Social Affairs) <<https://sdgs.un.org/goals/goal7>> accessed 1 February 2021.

6. Analysis of the Topic Area

6.1. Carbon Neutrality and the importance of a positive global environmental footprint

According to the European Parliament, carbon neutrality is reached when the same amount of CO₂ is released into the atmosphere as is removed by various means, leaving a zero balance, also known as a zero-carbon footprint⁴². As carbon footprint we define the trace of the GHG produced by human activities⁴³. There is a number of ways of achieving the needed balance. The healthiest way is not to emit more CO₂ than can be absorbed naturally by the world's forests and plants, which act as carbon sinks through the process of photosynthesis (they take in CO₂ from the air and turn it into oxygen - helping to reduce emissions)⁴⁴. To date, no artificial carbon sinks are able to remove carbon from the atmosphere on the necessary scale to fight global warming.

The carbon stored in natural sinks such as forests is released into the atmosphere through forest fires, changes in land use or logging. This is why it is essential to reduce carbon emissions in order to reach climate neutrality.

In a statement delivered in 2020, UN Secretary-General António Guterres established the key factors involved in reaching climate neutrality: a) building a true global coalition in support of carbon neutrality by 2050; b) aligning global finance behind the Paris Agreement and the SDGs; and, c) making decisive progress on adaptation and resilience to climate change⁴⁵.

The road towards carbon neutrality is for sure long and needs actions from both states, businesses and individuals. In the short term, on the one hand, states should, inter alia, focus on investments and incentives for the development of low-emission alternatives, such as renewable energy and sustainable transportation stop constructing new coal-powered power stations, mandate the publication of the economic risks associated with the climate and include the goal of carbon neutrality in countries' and businesses' financial and fiscal decisions. While,

⁴² 'What Is Carbon Neutrality and How Can It Be Achieved by 2050?' (European Parliament, 10 March 2019) <<https://www.europarl.europa.eu/news/en/headlines/society/20190926STO62270/what-is-carbon-neutrality-and-how-can-it-be-achieved-by-2050>> accessed 1 February 2021.

⁴³ 'What Is the Carbon Footprint and Why Will Reducing It Help to Combat Climate Change?' (Iberdrola) <<https://www.iberdrola.com/sustainability/carbon-footprint>> accessed 8 February 2021.

⁴⁴ 'Carbon Sinks, a Breath of Oxygen to Fight Global Warming' (Iberdrola) <<https://www.iberdrola.com/environment/carbon-sinks>> accessed 8 February 2021.

⁴⁵ 'UN Secretary-General: "Making Peace with Nature Is the Defining Task of the 21st Century"' (UNFCCC, 2020) <<https://unfccc.int/news/un-secretary-general-making-peace-with-nature-is-the-defining-task-of-the-21st-century>> accessed 8 February 2021.

on the other hand, individuals favor a more sustainable lifestyle, from public transportation and environmentally-friendly vehicles to opting cutting food waste, eating less meat and choosing sustainable production, and installing solar panels, among others. All these, of course, require the promotion and support of national or regional authorities.

6.2. The Just Transition imperative

6.2.1. History and origins of “Just Transition”

Just transition can, nowadays, be perceived as the mechanism aiming at promoting sustainable development that is socially just, environmentally friendly, and economically efficient, with an emphasis on governance and management changes⁴⁶. Both after the end World War II and during the Cold War it was widely feared that military spending would send the US economy into an economic recession. After World War II, measures were taken to forestall mass unemployment and economic dislocation⁴⁷, while in response to the arms race of the Cold War, the peace movement, concluded that it would be necessary to ensure jobs and economic prosperity in some way other than such “military Keynesianism⁴⁸”.

In the 1990s, North American unions began developing the concept of Just Transition. Early in the decade, following the confirmation of fossil fuel-caused global warming, Tony Mazzocchi, leader of Oil Chemical, and Atomic Workers, revived the idea of Just Transition, calling it a “Superfund for workers”. The “Superfund for workers” would provide financial support and an opportunity for higher education for workers displaced by environmental protection policies⁴⁹. As Mazzocchi put it in 1993, “[t]here is a Superfund for dirt. There ought to be one for workers”. He argued that “[p]aying people to make the transition from one kind of economy - from one kind of job - to another is not welfare. Those who work with toxic materials on a daily basis ... in order to provide the world with the energy and the materials it needs deserve a helping hand to make a new start in life”⁵⁰.

⁴⁶ Chrislain Eric Kenfack, *Changing Environment, Just Transition and Job Creation: Perspectives from the South* (Consejo Latinoamericano de Ciencias Sociales 2018) <<http://www.jstor.org/stable/10.2307/j.ctvn96f9v>>.

⁴⁷ ‘G.I. Bill | Definition & Facts’ (Encyclopedia Britannica) <<https://www.britannica.com/topic/GI-Bill-of-Rights>> accessed 1 February 2021.

⁴⁸ Treddenick, J.M., 1985. The Arms Race and Military Keynesianism. *Canadian Public Policy / Analyse de Politiques*, 11(1), p.77., <https://www.jstor.org/stable/3550382?origin=crossref>.

⁴⁹ “Just Transition” – Just What Is It? An Analysis of Language, Strategies, and Projects.’ (Labor Network for Sustainability) <https://www.labor4sustainability.org/files/Just_Transition_Just_What_Is_It.pdf> accessed 1 February 2021.

⁵⁰ Jeremy Brecher, ‘A Superfund for Workers’ (Dollars & Sense, 2015) <<http://www.dollarsandsense.org/archives/2015/1115brecher.html>> accessed 1 February 2021.

According to Les Leopold, executive director of the Labor Institute and Mazzocchi's close collaborator and later biographer, "[l]ater environmentalists complained that the word *superfund* had too many negative connotations, and the name of the plan was changed to "*Just Transition*".⁵¹ Just transition was further established within the labour movement in 2000, by a report published by the Canadian Labour Congress. Its emergence to the international climate change arena, though, is owed to Argentinian official policy positions that date to 2006⁵².

Over time, however, Just Transition came to mean something much broader for unions and their partners: an effort to plan for and invest in a transition to environmentally and socially sustainable jobs, sectors and economies. As understanding of climate change grew, unions began to tie Just Transition specifically to action on climate change. They also began campaigning to insert Just Transition into international regimes, including UNFCCC negotiations⁵³. Thus, gaining a momentum in recent years, eventually, its remit has widened, and, nowadays, from the initial focus on industrial transition and workers' rights, it includes, inter alia, the adverse distributional impacts of climate change policies⁵⁴.

In 2015, the UN agreed upon the Agenda 2030 for the "Sustainable Development Goals" that collectively represent the agenda of Just Transition, particularly the goals of decent work for all (Goal 8), clean energy for all (Goal 7), climate protection (Goal 13) and poverty eradication (Goal 1)⁵⁵. Again, unions had campaigned for these goals, in particular Goal 8⁵⁶. Thereafter in the same year, the UN's International Labor Organization produced a definitive model for Just Transition: "*Guidelines for a Just Transition towards environmentally sustainable economies and societies for all*". The Guidelines are the result of a tripartite multilateral negotiation between unions, employers' organizations and governments⁵⁷.

⁵¹ Les Leopold, "*The Man Who Hated Work and Loved Labor*" (White River Junction, VTP Chelsea Green, 2007) p. 415.

⁵² Chrislain Eric Kenfack, *Changing Environment, Just Transition and Job Creation: Perspectives from the South* (Consejo Latinoamericano de Ciencias Sociales 2018) <<http://www.jstor.org/stable/10.2307/j.ctvn96f9v>>.

⁵³ 'Just Transition' (OECD 2017) <<https://www.oecd.org/environment/cc/g20-climate/collapsecontents/Just-Transition-Centre-report-just-transition.pdf>> accessed 1 February 2021.

⁵⁴ Sanna Markkanen and Annela Anger-Kraavi, 'Social Impacts of Climate Change Mitigation Policies and Their Implications for Inequality' (2019) 19 *Climate Policy* 827.

⁵⁵ 'The Sustainable Development Agenda - 17 Goals for People, for Planet' <<https://www.un.org/sustainabledevelopment/development-agenda/>> accessed 1 February 2021.

⁵⁶ 'Just Transition' (OECD 2017) <<https://www.oecd.org/environment/cc/g20-climate/collapsecontents/Just-Transition-Centre-report-just-transition.pdf>> accessed 1 February 2021.

⁵⁷ 'Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All.' (International Labour Organization 2015) <https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_432859.pdf> accessed 1 February 2021.

In the negotiations leading up to the Paris Agreement, the global climate deal negotiated in 2015, unions and their allies worked hard to get strong text on Just Transition in the Agreement⁵⁸. In the end, the Parties agreed to include the text in the Agreement's preamble: *“Taking into account the imperatives of a Just Transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities...”*⁵⁹.

Although we can find Just Transition in the preamble of the Paris Agreement, it has no substantial result. Indeed, it is only within Decision 11 of the COP21 that it does; in this decision, the *“Just Transition of the workforce, and the creation of decent work and quality jobs”*, is adopted as a key area within the work program⁶⁰. Even more emphasis was given to Just Transition, during COP24 of 2018 in Poland, with the adoption of the *“Solidarity and Just Transition Silesia Declaration”*, which includes commitments to take seriously the impact of climate change and climate change policy on workers and surrounding communities⁶¹.

Today, Just Transition still is of great importance, especially since the pandemic showed that work conditions can change anytime, leaving millions of people unemployed, living with state benefits or no income. The pandemic outlined a future with different organization of the workspace, different needs, the importance of state intervention and also promoted new consumption and production patterns. Thus, emphasizing the need to recover in a fair manner.

6.2.2. Just Transition as a means to carbon neutrality

The Just Transition agenda should be considered as desirable not only because of its social impacts and its principles of protecting the vulnerable, but, also, because it can enable more ambitious climate policy and more rapid progress. Therefore, Just Transition and carbon neutrality policies should move forward hand in hand.

⁵⁸ ‘Just Transition’ (OECD 2017) <<https://www.oecd.org/environment/cc/g20-climate/collapsecontents/Just-Transition-Centre-report-just-transition.pdf>> accessed 1 February 2021.

⁵⁹ ‘Paris Agreement’ (United Nations Treaty Collection) <<https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&msgid=XXVII-7-d&chapter=27&clang=en>> accessed 1 February 2021.

⁶⁰ ‘Report of the Conference of the Parties on Its Twenty-First Session, Held in Paris from 30 November to 11 December 2015.’ (UNFCCC 2019) <<https://unfccc.int/sites/default/files/resource/docs/2015/cop21/eng/10a02.pdf>>.

⁶¹ ‘Solidarity and Just Transition Silesia Declaration’ (COP 2018) <https://cop24.gov.pl/fileadmin/user_upload/Solidarity_and_Just_Transition_Silesia_Declaration_2_.pdf> accessed 15 January 2021.

It is expected that a low-carbon transition would create several and diverse economic opportunities, while the benefits will vary from better air quality to energy security⁶². However, these opportunities and the costs of the transition are not expected to be fairly distributed between and within countries⁶³. For example, a study by the International Labour Organization shows that even though the low-carbon transition will lead to new job opportunities, these new jobs will not necessarily emerge in regions where the carbon-intensive jobs will be lost⁶⁴. This proves that, if the impacts of such changes are not managed with the principles of Just Transition, the way to carbon neutrality would be paved with loss and hardship, whereas ensuring inclusive and fair transition will reciprocate the expected benefits of a carbon neutral society.

Based on a wide literature review performed by Atteridge and Strambo⁶⁵ and on our research, we present you five principles that can make Just Transition “just”:

1. active decarbonization of economies and avoidance of investments in carbon-related industries and activities;
2. support the most affected regions, meaning the ones that depend highly on carbon industries, and its workers, their families and the wider community;
3. address existing economic and social inequalities by employing measures that would protect the poor and other marginalized groups;
4. ensure that environmental damage is remediated by strengthening regulatory requirements and financial guarantees for mines and major industries in relation to site closure and environmental responsibilities;
5. guarantee inclusive and transparent policy-making and decision-making procedures.

Finally, at the UNFCCC level, Just Transition should be consistently positioned alongside the principles of human rights, gender responsiveness and indigenous rights, as it is enshrined in the Preamble of the Paris Agreement. In this context, the Just Transition discussion must be

⁶² Mikael Karlsson, Eva Alfredsson, and Nils Westling, “Climate Policy Co-Benefits: A Review,” *Climate Policy* 20, no. 3 (March 15, 2020): 292–316, <https://doi.org/10.1080/14693062.2020.1724070>.

⁶³ Fergus Green and Ajay Gambhir, “Transitional Assistance Policies for Just, Equitable and Smooth Low-Carbon Transitions: Who, What and How?,” *Climate Policy* 20, no. 8 (September 13, 2020): 902–21, <https://doi.org/10.1080/14693062.2019.1657379>.

⁶⁴ ‘World Employment and Social Outlook 2018 – Greening with Jobs’ (ILO 2018) <https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf> accessed 25 January 2021.

⁶⁵ Aaron Atteridge and Claudia Strambo, ‘Seven Principles to Realize a Just Transition to a Low-Carbon Economy’ (Stockholm Environment Institute 2020) <<https://www.sei.org/wp-content/uploads/2020/06/seven-principles-for-a-just-transition.pdf>> accessed 25 January 2021.

considered as one component of a series of measures that can address the positive and negative (including transboundary) consequences of mitigation and adaptation actions. Crucially, it is also imperative that Just Transition exists as a central agenda for countries when they prepare and implement their NDCs, national mitigation and adaptation plans, and national long-term GHG emissions management strategies.

All in all, the interconnectedness of Carbon Neutrality and Just Transition have been analytically demonstrated and in the following chapters, firstly, we will see how COVID-19 has altered the world and the fight against climate change and, then, in which ways we can move towards a carbon neutral world in a just manner.

6.3. The impacts of COVID-19 pandemic to the world

The impact of COVID-19 has drawn several comparisons, from the Financial crisis of 2007–2008 to World War II and other crises that we only have read in history or even fiction books. The current pandemic sometimes feels like living in a future-dystopian world. While these may seem dramatic, the pandemic has imposed various consequences on nearly every aspect of development, like few crises before it. The full scale of the pandemic will only be known in the coming years, however, some impacts have already manifested themselves and been experienced, while forecasts show that some of them will have long-term consequences and will define how our world will continue its development.

6.3.1. The global economy during and after COVID-19

The restrictions imposed, aiming to control the spread of the virus, and thus alleviate the burden on vulnerable health systems and the immense cost of health care, have had an enormous impact on economic growth. As the World Bank stated: “*COVID-19 has triggered a global crisis like no other – a global health crisis that, in addition to an enormous human toll, is leading to the deepest global recession since the Second World War*”⁶⁶. Adding that the global

⁶⁶ ‘COVID-19 to Plunge Global Economy into Worst Recession since World War II’ (World Bank, 2020) <<https://www.worldbank.org/en/news/press-release/2020/06/08/covid-19-to-plunge-global-economy-into-worst-recession-since-world-war-ii>> accessed 15 January 2021.

economy, as well as per capita incomes would decrease pushing millions of people into extreme poverty.

	2018	2019	2020e	2021f	2022f	2020e	2021f
World	3.0	2.3	-4.3	4.0	3.8	0.9	-0.2
Advanced economies	2.2	1.6	-5.4	3.3	3.5	1.6	-0.6
United States	3.0	2.2	-3.6	3.5	3.3	2.5	-0.5
Euro area	1.9	1.3	-7.4	3.6	4.0	1.7	-0.9
Japan	0.6	0.3	-5.3	2.5	2.3	0.8	0.0
Emerging market and developing economies	4.3	3.6	-2.6	5.0	4.2	-0.1	0.4
EMDEs excluding China	3.2	2.3	-5.0	3.4	3.6	-0.7	0.1
Commodity-exporting EMDEs	2.0	1.6	-4.8	3.0	3.2	0.1	0.0
Other EMDEs	5.7	4.8	-1.3	6.1	4.8	-0.2	0.6
Other EMDEs excluding China	4.8	3.2	-5.3	3.9	4.1	-1.7	0.1
East Asia and Pacific	6.3	5.8	0.9	7.4	5.2	0.4	0.8
China	6.6	6.1	2.0	7.9	5.2	1.0	1.0
Indonesia	5.2	5.0	-2.2	4.4	4.8	-2.2	-0.4
Thailand	4.1	2.4	-6.5	4.0	4.7	-1.5	-0.1
Europe and Central Asia	3.4	2.3	-2.9	3.3	3.9	1.8	-0.3
Russian Federation	2.5	1.3	-4.0	2.6	3.0	2.0	-0.1
Turkey	3.0	0.9	0.5	4.5	5.0	4.3	-0.5
Poland	5.4	4.5	-3.4	3.5	4.3	0.8	0.7
Latin America and the Caribbean	1.9	1.0	-6.9	3.7	2.8	0.3	0.9
Brazil	1.8	1.4	-4.5	3.0	2.5	3.5	0.8
Mexico	2.2	-0.1	-9.0	3.7	2.6	-1.5	0.7
Argentina	-2.6	-2.1	-10.6	4.9	1.9	-3.3	2.8
Middle East and North Africa	0.5	0.1	-5.0	2.1	3.1	-0.8	-0.2
Saudi Arabia	2.4	0.3	-5.4	2.0	2.2	-1.6	-0.5
Iran, Islamic Rep. ³	-6.0	-6.8	-3.7	1.5	1.7	1.6	-0.6
Egypt, Arab Rep. ²	5.3	5.6	3.6	2.7	5.8	0.6	0.6
South Asia	6.5	4.4	-6.7	3.3	3.8	-4.0	0.5
India ³	6.1	4.2	-9.6	5.4	5.2	-6.4	2.3
Pakistan ²	5.5	1.9	-1.5	0.5	2.0	1.1	0.7
Bangladesh ²	7.9	8.2	2.0	1.6	3.4	0.4	0.6
Sub-Saharan Africa	2.6	2.4	-3.7	2.7	3.3	-0.9	-0.4
Nigeria	1.9	2.2	-4.1	1.1	1.8	-0.9	-0.6
South Africa	0.8	0.2	-7.8	3.3	1.7	-0.7	0.4
Angola	-2.0	-0.9	-4.0	0.9	3.5	0.0	-2.2
Memorandum items:							
Real GDP¹							
High-income countries	2.2	1.6	-5.4	3.2	3.5	1.4	-0.6
Developing countries	4.4	3.7	-2.3	5.2	4.3	0.1	0.5
Low-income countries	4.4	4.0	-0.9	3.3	5.2	-0.8	-0.6
BRICS	5.4	4.7	-1.1	6.1	4.5	0.6	0.8
World (2010 PPP weights) ⁴	3.6	2.8	-3.7	4.3	3.9	0.4	0.0
World trade volume⁵	4.3	1.1	-9.5	5.0	5.1	3.9	-0.3
Commodity prices⁶							
Oil price	29.4	-10.2	-33.7	8.1	13.6	14.2	-10.7
Non-energy commodity price index	1.7	-4.2	2.2	2.4	1.3	8.1	-0.6

Figure 1: Real GDP for 2018 - 2020 and forecasts for 2021-2022. "Global Economic Prospects" (World Bank Group, 2021: <https://openknowledge.worldbank.org/bitstream/handle/10986/34710/9781464816123.pdf>).

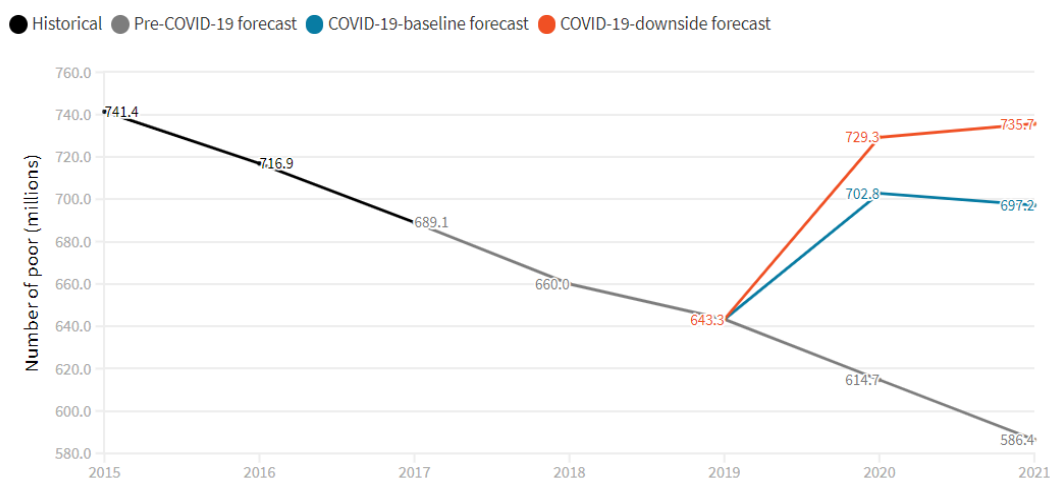
For 2020 the global GDP had a contraction of 4.3%; prospects for the global economy are uncertain, and several growth outcomes are possible. In the baseline forecast, global GDP is expected to expand 4% in 2021, based on proper pandemic management and effective vaccination, limiting the community spread of COVID-19 in many countries, as well as continued monetary policy accommodation accompanied by diminishing fiscal support. Nonetheless, the level of global GDP in 2021 is forecast to be 5.3% below pre-pandemic projections -or about \$4.7 trillion.

Considering the enormous negative impact the pandemic had and will have to global economy, we should always keep in mind that climate change is the most grave and imminent threat of our era, hence, as we argued above, the COVID-19 crisis is the “perfect” opportunity to follow a green path towards recovery. Thus, fiscal recovery packages should incorporate the principles of green economy. Governments, due to the grave need of the private economic actors for fiscal support, are in the best possible position to push for green investments and policies. State aid should be accompanied by conditions of investing in green infrastructure projects, phasing out fossil fuel subsidies, and offering incentives for environmentally sustainable technologies.

6.3.2. Poverty, inequality and gender

Over the past 12 months, the pandemic has harmed the poor and vulnerable the most, despite where they live, and it is threatening millions into poverty. This year, after decades of steady progress in reducing the number of people living on less than \$1.90/day, due to COVID-19, we saw the first reversal in the fight against extreme poverty in a generation.

Predictions before COVID-19 expected that by the end of 2021, the world would count approximately 586 million of poor, but now in a best-case scenario, the figure could be as high as 110 million more (Figure 2). The World Bank Group forecasts that the most affected regions will be those of South Asia and Sub-Saharan Africa. Despite the country or region, they live in, “many of the new poor are likely to be engaged in informal services, construction, and manufacturing – the sectors in which economic activity is most affected by lockdowns and other mobility restrictions”⁶⁷.



In

Figure 2 Forecast of number of poor (millions). “2020 Year in Review: The Impact of COVID-19 in 12 Charts,” World Bank, 2020, <https://blogs.worldbank.org/voices/2020-year-review-impact-covid-19-12-charts>.

⁶⁷ ‘Poverty and Shared Prosperity 2020’ (World Bank, 2020) <https://www.worldbank.org/en/publication/poverty-and-shared-prosperity> accessed 15 January 2021.

In addition, due to the pandemic, school drop-out rates have increased, while billions of children do not have access to education. According to Henrietta Fore, executive director of the United Nations Children's Fund, 192 countries shuttered schools, leaving 1.6 billion students without in-person learning, while at least 24 million children are projected to drop out of school due to Covid-19⁶⁸, most of them being girls⁶⁹. Furthermore, the World Bank reports that due to learning losses and increases in dropout rates, this generation of students stand to lose an estimated \$10 trillion in earnings, or almost 10% of the global GDP⁷⁰.

School drop-out rates and inability to access education derive from two other challenges that COVID-19 worsened: digital and gender inequality. As far as the Internet is concerned, the pandemic showed us that digital connectivity is now a prerequisite for everything; the internet is the gateway to many essential services, such as e-health platforms, digital cash transfers, and e-payment systems⁷¹. However, access to digital infrastructure and connectivity remains severely limited in the world's poorest countries, as with investments and financing focusing on urgent policy priorities like health and social protection, the digital divide could actually widen.

As far as the gender divide is concerned, COVID-19 has increased gender gaps and inequality. According to a report of the McKinsey Global Institute, women's jobs are 1.8 times more vulnerable to this crisis than men's jobs. Women make up 39% of global employment but account for 54% of overall job losses. One reason for this greater effect on women is that the virus is significantly increasing the burden of unpaid care, which is disproportionately carried by women⁷². Additionally, women in low- and middle-income countries are more likely to be predominantly employed in informal jobs, which often means they lack access to social protection and other safety nets. This, among other factors, means that women's employment is dropping faster than average and women are most vulnerable to crises.

⁶⁸ Will Feuer, 'At Least 24 Million Students Could Drop out of School Due to the Coronavirus Pandemic, UN Says' (CNBC, 15 September 2020) <<https://www.cnn.com/2020/09/15/at-least-24-million-students-could-drop-out-of-school-due-to-the-coronavirus-un-says.html>> accessed 15 January 2021.

⁶⁹ Natalie Buchanan and Jenelle Babb, 'COVID-19 Leaves Millions of Girls at Risk of School Dropout in Asia-Pacific' (The Diplomat, 2020) <<https://thediplomat.com/2020/11/covid-19-leaves-millions-of-girls-at-risk-of-school-dropout-in-asia-pacific/>> accessed 15 January 2021.

⁷⁰ '2020 Year in Review: The Impact of COVID-19 in 12 Charts' (World Bank, 2020) <<https://blogs.worldbank.org/voices/2020-year-review-impact-covid-19-12-charts>> accessed 13 January 2021.

⁷¹ 'Digital Divide throughout the World and Why It Causes Inequality' (Iberdrola, 2020) <<https://www.iberdrola.com/social-commitment/what-is-digital-divide>> accessed 15 January 2021.

⁷² Anu Madgavkar et al., 'COVID-19 and Gender Equality: Countering the Regressive Effects' (McKinsey, 2020) <<https://www.mckinsey.com/featured-insights/future-of-work/covid-19-and-gender-equality-countering-the-regressive-effects>> accessed 15 January 2021.

Beyond education, internet and gender, people are also vulnerable to the global rise in food insecurity, affecting people in both urban and rural settings. Like so many other aspects of global development, COVID-19 stands to exacerbate this already worrying trend. The pandemic added approximately 100 million people to the total number of undernourished in the world in 2020, according to last reports by the UN Food and Agriculture Organization (FAO)⁷³.

The reason why we focus highly on inequalities and poverty is because both COVID-19 and climate change impacts are affecting the same or, at least, similar social groups across and within nations, while the way their impacts are displayed globally is also similar.

For example, in the case of COVID-19, the ability of a nation's healthcare system to control the virus, and to provide intensive care units, are crucial factors for determining spread and mortality. Recently, we have seen a clear drop in the number of new COVID-19 infections in many of the wealthiest nations, while those in economically depressed countries have increased rapidly. Fewer economic resources, social instability, and infrastructure have put these societies at a higher risk, not only in the short-term, as they face the current health crisis, but also because the future impact on their economy is likely to be higher and their recovery slower, thus further increasing economic inequalities between nations. Climate change already operates and will continue to operate similarly, as wealthier nations can invest in climate change mitigation and adaptation but, without a globally coordinated response to climate change, less developed nations will again suffer the worst climate change impacts exacerbating even the inequalities caused by COVID-19.

Climate change and pandemic emergencies also do not equally affect social groups within nations. Low-income groups, such as those living paycheck-to-paycheck, and underrepresented groups will suffer the most from lockdowns, rising unemployment, and unexpected medical costs. By the same token, while global temperatures may increase consistently across most of the world, changes in precipitation, extreme events, and sea level rise will vary from place to place and year to year. This will create local, regional, and societal emergencies that require forethought and social cooperation to manage them. Ensuring that the most vulnerable and unempowered are properly protected from the climate crisis consequences requires recovery

⁷³ *In Brief to The State of Food Security and Nutrition in the World 2020: Transforming Food Systems for Affordable Healthy Diets* (FAO, IFAD, UNICEF, WFP and WHO 2020)
<<http://www.fao.org/documents/card/en/c/ca9699en>> accessed 1 February 2021.

plans that will minimize social inequality and will mitigate as much as possible the effects of climate change.

Concluding, it is important to remember that in the case of climate change, the countries that have harmed most the environment, are those that are now more capable of mitigating and adapting to climate change, while the less developed nations, which are expected to have tremendous needs' growth over the next decades, in terms of energy, food, and infrastructure, are those who are most threatened by climate change. So, how will the states that are more responsible for climate change would convince the poorest ones to slow their development for the sake of the environment? This is a very complicated and thorny issue. The international community has tried to resolve it by coining the environmental law principle of “common but differentiated responsibilities”, enshrined in both the UNFCCC and the Paris Agreement. While the issue still remains, promoting cooperation and just, green and sustainable development is the only way forward.

Special focus on indigenous peoples

In the same context, highly affected both by the pandemic and climate risks are indigenous people, which already experience poor access to healthcare and hygiene products and significantly higher rates of communicable and non-communicable diseases⁷⁴. In addition, they inhabit in regions, where the threats of climate change are imminent and already noticeable, such as in the in the northern parts of the world, where ice is melting or in deserts and rainforests. And these threats apply in about every single aspect of their lives, as their traditions and practices are linked strongly with the environment⁷⁵.

6.3.3. Less globalized world, less international solidarity

Globalization is a decades-long procedure that has changed radically our world; many advocate for more globalization, others ask for less, especially after the multiple crises of the last decade. The COVID-19 pandemic emerged in a period that the voices against globalization and international cooperation were louder than ever and many populist, and/or far-right parties were in power: Trump in the US, Bolsonaro in Brazil, even Heads of Governments in the EU, like Orbán. At the same time, among other, the US-China trade war was on full scale. And, while living in such a world, COVID-19 appeared; at first, we had accusations against China

⁷⁴ ‘COVID-19 and Indigenous Peoples’ (United Nations For Indigenous Peoples, 2020) <<https://www.un.org/development/desa/indigenouspeoples/covid-19.html>> accessed 19 January 2021.

⁷⁵ Sophie Yeo, ‘Five Ways Climate Change Harms Indigenous People’ (Climate Home News, 28 July 2014) <<https://www.climatechangenews.com/2014/07/28/five-ways-climate-change-harms-indigenous-people/>> accessed 19 January 2021.

and other countries that did not manage effectively the virus, then conspiracy theories were spread, while the US left the World Health Organization.

Nevertheless, the COVID-19 crisis may be one of the first faced by a highly globalized world where all nations directly compete for the same limited resources. States (or even federal states within countries) are tempted to protect their own citizens at whatever cost to others. Actions such as restricting the export of sanitary material⁷⁶, alleged attempts to guarantee exclusive access to a vaccine in development⁷⁷ or disagreements within the EU about the scale of economic solidarity needed to deal with the current crisis⁷⁸ are all clear examples of this emerging behavior.

And, now, that several COVID-19 vaccines have been developed, inequality between countries and continents thrives. The richest nations have secured billions of doses of vaccines, while developing economies struggle to access supplies⁷⁹. This means, that poor countries will continue to be ravaged by the pandemic, forcing them to spend already insufficient resources by growing debts to lenders in the United States, Europe and China. Such behaviors bring upon concerns in regard to human rights as well, as Israel, has commenced vaccinations, without including more than 4.5 million Palestinians⁸⁰.

As we saw in the previous chapter, the world has long been cleaved by profound disparities in wealth, education and access to vital elements like clean water, electricity and the internet. The pandemic has aggravated this situation, while adding another division that could shape economic life for years, separating countries with access to vaccines from those without⁸¹.

There is a need for more solidarity for several reasons, but, also, for the economic recovery of the world. According to the World Economic Forum, the cost of supplying low-income

⁷⁶ Hannah Ellis-Petersen, 'India Limits Medicine Exports after Supplies Hit by Coronavirus' *The Guardian* (4 March 2020) <<https://www.theguardian.com/world/2020/mar/04/india-limits-medicine-exports-coronavirus-paracetamol-antibiotics>> accessed 18 January 2021.

⁷⁷ Aitor Hernandez-Morales, 'Germany Confirms That Trump Tried to Buy Firm Working on Coronavirus Vaccine' (POLITICO, 15 March 2020) <<https://www.politico.eu/article/germany-confirms-that-donald-trump-tried-to-buy-firm-working-on-coronavirus-vaccine/>> accessed 18 January 2021.

⁷⁸ 'Coronavirus: North-South Divide Clouds Key EU Meeting' *BBC News* (7 April 2020) <<https://www.bbc.com/news/world-europe-52200719>> accessed 18 January 2021.

⁷⁹ Harry Kretchmer, 'Vaccine Nationalism – and How It Could Affect Us All' (World Economic Forum, 2021) <<https://www.weforum.org/agenda/2021/01/what-is-vaccine-nationalism-coronavirus-covid-19-pandemic/>> accessed 18 January 2021.

⁸⁰ 'Israel: Provide Vaccines to Occupied Palestinians' (Human Rights Watch, 17 January 2021) <<https://www.hrw.org/news/2021/01/17/israel-provide-vaccines-occupied-palestinians>> accessed 18 January 2021.

⁸¹ Peter S Goodman, 'One Vaccine Side Effect: Global Economic Inequality' *The New York Times* (25 December 2020) <<https://www.nytimes.com/2020/12/25/business/coronavirus-vaccines-global-economy.html>> accessed 18 January 2021.

countries is estimated at \$25 billion, whereas vaccine nationalism – where countries push to get first access – could cost high-income countries \$119 billion per year⁸². Accordingly, as we have already mentioned COVID-19 and climate change can be rather similar; climate change will likely bring a repeat of this “less solidary” scenario, but at a potentially greater scale. Increasingly frequent extreme events and food or water shortages across the globe would cause competition for resources and mass migration that will test the limits of solidarity within and between nations. Thus, once again the need for a just economic recovery aiming to a more sustainable world is imperative; the fight against climate change requires a decrease in nationalistic policy responses, egotistic behaviors or political leaders prioritizing powerful or wealthy individuals over the World's general population.

6.4. The Roadmap to Carbon Neutrality

6.4.1. Workers' rights and green economy

On the 23rd of September 2019, the UN Secretary-General Antonio Guterres presented a new initiative, named “Climate Action 4 Jobs”⁸³, aiming at ensuring that decent job creation and protecting livelihoods are in the core of countries' actions to protect the environment⁸⁴. A year later, and after the pandemic has affected billions of workers globally, the Board of the initiative called for “*decisive action to tackle climate change and create decent work*”, while they highlighted the unique opportunity to work for more sustainable and inclusive economies and societies that are more resilient to future shocks⁸⁵.

A small benefit from the disastrous COVID-19 pandemic has been the temporary reduction in GHG emissions. Therefore, we ask: what strategies can be implemented in order for people to return to work abolishing the old high-emissions economies?

Firstly, we need to ensure that the transition will be safe for everyone. The objective of Just Transition is to provide a hopeful and optimistic future for all workers, especially for those

⁸² Harry Kretchmer, ‘Vaccine Nationalism – and How It Could Affect Us All’ (World Economic Forum, 2021) <<https://www.weforum.org/agenda/2021/01/what-is-vaccine-nationalism-coronavirus-covid-19-pandemic/>> accessed 18 January 2021.

⁸³ For more, see: <https://www.climateaction4jobs.org/initiative/>

⁸⁴ ‘UN Secretary-General Announces New Climate Action Summit Jobs Initiative, Urges Countries to Join’ (18 September 2019) <http://www.ilo.org/newyork/news/WCMS_719408/lang--en/index.htm> accessed 18 January 2021.

⁸⁵ ‘New Climate Action for Jobs Board Calls for a Sustainable Recovery from the COVID-19 Crisis’ (9 September 2020) <http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_754932/lang--en/index.htm> accessed 18 January 2021.

employed in industries that will be impacted by the efforts for a climate neutral world. Securing adequate and decent employment for everyone is one of the biggest challenges, and this requires, first and foremost, job-centered policies that will support the creation of an environment that will promote entrepreneurial development and investment measures for green jobs.

Generally, employment in low-carbon industries and services will grow, while energy and resource-intensive sectors are likely to stagnate or shrink⁸⁶. Therefore, it is important to develop inclusive social protection policies, as well as promoting social dialogue. We need to make sure that no one is left behind, while a strong social consensus is crucial for transformative change.

New green jobs can be created, through investing in the expansion low carbon intensive products, services and infrastructure that will lead to higher labour demand across many sectors of the economy. Examples include jobs in: renewable energy; energy efficiency (e.g., transportation, manufacturing, construction); organic agriculture; adaptation projects intended to protect and restore ecosystems and biodiversity; and infrastructure projects (e.g., flood barriers) intended to adapt to climate change impacts and build resilience. In addition to direct jobs, there are jobs in the supply chain (indirect jobs).

Furthermore, we should strive to protect the citizens and workers most vulnerable to the transition, providing access to re-skilling programs, education and vocational training. Training programs are crucial as many jobs will be substituted, examples include shifts from fossil fuels to renewables, from truck-based transportation to rail, and from landfilling to recycling and refurbishing, while other jobs will be transformed and redefined⁸⁷.

Although, it is clear that a green growth recovery from the COVID-19 pandemic its necessary for our future, very few governments are planning for it. In fact, the government of Australia, the world's largest exporter of natural gas and one of the two largest coal exporters, has announced a 'gas-led recovery' and budgeted a subsidy to an old existing coal-fired power

⁸⁶ Mark Diesendorf, "COVID-19 and Economic Recovery in Compliance with Climate Targets," *Global Sustainability* 3 (2020): e36, <https://doi.org/10.1017/sus.2020.32>.

⁸⁷ 'Just Transition of the Workforce, and the Creation of Decent Work and Quality Jobs' (UNFCCC) <<https://unfccc.int/sites/default/files/resource/Just%20transition.pdf>> accessed 1 February 2021.

station⁸⁸. The main barriers to transitioning to low-carbon businesses and industries are vested interests, especially fossil fuel interests.

It is difficult to force governments to act against the interests of powerful vested interests and the ideology of liberal economic growth which has been embedded in our culture. However, the pandemic led governments to set aside neoliberal economic ideologies and intervene to the economy in order to protect several sectors and industries. Therefore, now that it is time for recovery, it can be easier to foster low-carbon jobs, by using strategic planning and incentives/disincentives to encourage appropriate businesses and industries.

6.4.2. New technologies and digitalization

The corona crisis is acting as an accelerator of digitalization, which can also help us to see the current crisis as an opportunity to achieve greater climate neutrality. and climate change go hand-in-hand and the fourth industrial revolution (Industry 4.0) has come at a critical time for climate action⁸⁹. The growth in technology fosters a more cooperative approach across organizations and society. Technologies like the 5G and the Internet of Things (IoT) are laying the foundation for industry 4.0 and will change how global challenges are addressed.

The goal of Industry 4.0 is to boost the integration of digital technologies (IoT, Artificial Intelligence – AI, robotics, 3D printing etc.) that can help scientists connect their facilities with the actual environment, in order to get real-time operational data. Nonetheless, many digital technologies are needed to achieve this goal and these technologies are valuable to assure the interoperability between their systems with an aim of minimizing costs and tackling efficiently and on time the outcome of the environmental crisis⁹⁰. AI is fundamental to really tackling some of these data sets which are previously hidden to traditional techniques⁹¹, while AI could enable us to build improved predictive models for future climate change. The level of detail will be game changer for governments, for policy makers and businesses that require to make decisions. The networking between IoT, services, data and people will transform the future approach and Parties should adapt to this rapid change if they are not to be left behind. The

⁸⁸ Adam Morton, ‘Scott Morrison’s “Gas-Led Recovery”’: What Is It and Will It Really Make Energy Cheaper?’ (the Guardian, 16 September 2020) <<http://www.theguardian.com/environment/2020/sep/17/scott-morrison-gas-led-recovery-what-is-it-and-will-it-really-make-energy-cheaper>> accessed 1 February 2021.

⁸⁹ Erik Josefsson, ‘Solving the Climate Crisis with Industry 4.0’ (Enterprise IoT Insights, 2020) <<https://enterpriseiotsights.com/20200709/channels/reader-forum/solving-the-climate-crisis-with-industry-4-0-reader-forum>> accessed 1 February 2021.

⁹⁰ Ibid.

⁹¹ *The Climate Crisis: Towards Zero Carbon* (Cambridge University 2020) <<https://www.youtube.com/watch?v=n7onPTCZ1Ws>> accessed 1 February 2021.

fourth industrial revolution comes with four main characteristics⁹², vertical networking, horizontal integration, through-integration and acceleration through exponential technologies.

New and emerging technologies and digitalization, except of improving our lives, they are also changing the face of industry and the way we do business and support the decarbonization of our economy⁹³. Digitalization, also presents new opportunities for distance monitoring of air and water pollution, or for monitoring and optimizing how energy and natural resources are used and can accelerate and maximize the impact of policies to deal with climate change and protect the environment⁹⁴.

Thus, it is of utmost importance to follow a comprehensive approach towards the digitalization, meaning that it should include everyone and take into account the needs of every citizen and sector (scientific, educational, industrial, transportation, communicational, cultural etc.) Also, a comprehensive approach should include proactive decisions, policies and frameworks, such as, inter alia, a stronger match between educational systems and labor markets' needs, digital education and training, as to avoid widening social gaps during the transition.

6.4.3. Clean Energy Transition

The COVID-19 pandemic is one of the most severe economic and energy shocks in modern history. Apart from the immense disruptions to businesses, transportation, and everyday life, clearly long-term implications will occur for the energy transition from fossil fuels. While restrictions due to the pandemic lead to reductions in fossil fuel consumption and emissions⁹⁵, they will not be enough to put the world on a path to meet the targets of the Paris Agreement and limit global climate change.

In order to move towards a carbon neutral world, we need to focus on a clean and sustainable energy transition, meaning transitioning away from fossil fuels and moving towards

⁹² 'The Internet of Things' (Deloitte, 2019) <https://www2.deloitte.com/content/dam/insights/us/articles/4420_IoT-primer/DI_IoT-Primer.pdf> accessed 1 February 2021.

⁹³ 'How Digitalization Acts as a Driver of Decarbonization' (EY, 2020) <https://www.ey.com/en_ch/decarbonization/how-digitization-acts-as-a-driver-of-decarbonization> accessed 8 February 2021.

⁹⁴ Ibid.

⁹⁵ Deutsche Welle, 'Global Carbon Emissions down by Record 7% in 2020' (DW.COM, 2020) <<https://www.dw.com/en/global-carbon-emissions-down-by-record-7-in-2020/a-55900887>> accessed 14 January 2021.

renewable⁹⁶ and clean energy, produced and used in such a way that it “*meets the needs of the present without compromising the ability of future generations to meet their own needs*”⁹⁷.

The COVID-19 crisis emerged at a time when climate and energy policies were having a momentum. Comprehensive new policy frameworks targeting carbon neutrality were presented, including the “European Green Deal” in the EU⁹⁸, the proposed “Green New Deal” in the United States⁹⁹, and in China, important decarbonization measures were being debated in preparation for the upcoming 14th five-year plan 2021–2025¹⁰⁰. However, this momentum encountered a serious challenge as a result of the coronavirus, as near-term policies for economic recovery tend to favor fossil-fuel industries, while the pandemic has struck the renewable energy manufacturing facilities, supply chains, and companies, and slowed down the transition to the renewables¹⁰¹. Thankfully, in the long-term it seems that the pandemic has drawn increased attention to climate and energy policy apart from its 2050 goal for climate neutrality, the EU dedicated 225 billion of its recovery fund to the energy transition¹⁰², while President Biden of the US¹⁰³ and President Xi Jinping of China¹⁰⁴ have pledged for a carbon neutral economy by 2050 and 2060, respectively.

⁹⁶ Lora Shinn, ‘Renewable Energy: The Clean Facts’ (NRDC, 2018) <<https://www.nrdc.org/stories/renewable-energy-clean-facts>> accessed 19 January 2021.

⁹⁷ ‘Our Common Future’ (World Commission on Environment and Development 1987) <<https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>> accessed 19 January 2021.

⁹⁸ ‘What Is the Green Deal?’ (POLITICO, 20 October 2020) <<https://www.politico.eu/article/what-is-the-green-deal/>> accessed 19 January 2021.

⁹⁹ Lisa Friedman, ‘What Is the Green New Deal? A Climate Proposal, Explained (Published 2019)’ *The New York Times* (21 February 2019) <<https://www.nytimes.com/2019/02/21/climate/green-new-deal-questions-answers.html>> accessed 19 January 2021.

¹⁰⁰ Laszlo Varro and An Fengquan, ‘China’s Net-Zero Ambitions: The next Five-Year Plan Will Be Critical for an Accelerated Energy Transition – Analysis’ (IEA, 2020) <<https://www.iea.org/commentaries/china-s-net-zero-ambitions-the-next-five-year-plan-will-be-critical-for-an-accelerated-energy-transition>> accessed 19 January 2021.

¹⁰¹ Seyed Ehsan Hosseini, “An Outlook on the Global Development of Renewable and Sustainable Energy at the Time of COVID-19,” *Energy Research & Social Science* 68 (October 2020): 101633, <https://doi.org/10.1016/j.erss.2020.101633>.

¹⁰² ‘Crisis As Opportunity? COVID-19 Economic Recovery Policies Could Help Or Hinder The Energy Transition’ (S&P Global Ratings, 2020) <<https://www.spglobal.com/en/research-insights/featured/policies-crisis-as-opportunity-covid-19-economic-recovery-policies-could-help-or-hinder-the-energy-transition>> accessed 19 January 2021.

¹⁰³ Jeff Brady, ‘Breaking Down Joe Biden’s Plan To Make The U.S. Carbon Neutral’ (NPR.org, 2020) <<https://www.npr.org/2020/10/25/927564427/breaking-down-joe-bidens-plan-to-make-the-u-s-carbon-neutral>> accessed 19 January 2021.

¹⁰⁴ Matt McGrath, ‘Climate Change: China Aims for “Carbon Neutrality by 2060”’ *BBC News* (22 September 2020) <<https://www.bbc.com/news/science-environment-54256826>> accessed 19 January 2021.

In addition, the coronavirus has, mainly, weakened the oil market¹⁰⁵ and driven the natural gas prices down¹⁰⁶, while solar energy is now the cheapest electricity resource in history¹⁰⁷; as a result, the transition towards gas is being highly considered in Europe¹⁰⁸. But the fossil fuel price reduction is particularly worrisome in developing countries where the low-cost electrical power supply seems imperative due to their poor economic situation at the time of COVID-19, thus they will probably adopt cheaper conventional energy sources instead of renewable energy. These harmful for the climate actions could be prevented if banks would promote ultra-low interest rates to address the economic stagnation that threatens the implementation of costly, renewable energy projects that would prevent the energy market from shifting further towards the fossil fuel-based power generation.

While the effects of the pandemic to energy transition are still being evaluated, recent developments such as, the strongest in recent decades state capacity to intervene in economy, social pressure and technological advancements constitute 2021 as an optimistic year for energy transition.

Furthermore, this year, for the first time ever, the UN will host the High-level Dialogue on Energy, which will promote the implementation of the energy-related goals and targets of the 2030 Agenda of Sustainable Development, while it is expected that the goals will be more ambitious and action will be accelerated.

In addition to the measures and pledges by the EU, China and the US, more than a hundred countries have joined the “Climate Ambition Alliance: Net Zero 2050”¹⁰⁹, an initiative aiming for net zero emissions by 2050¹¹⁰. Yet, more than half of all public money committed to the

¹⁰⁵ ‘The Energy Transition And COVID-19: A Pivotal Moment For Climate Policies And Energy Companies’ (2020) <<https://www.spglobal.com/ratings/en/research/articles/200924-the-energy-transition-and-covid-19-a-pivotal-moment-for-climate-policies-and-energy-companies-11651888>> accessed 14 January 2021.

¹⁰⁶ Seyed Ehsan Hosseini, “An Outlook on the Global Development of Renewable and Sustainable Energy at the Time of COVID-19,” *Energy Research & Social Science* 68 (October 2020): 101633, <https://doi.org/10.1016/j.erss.2020.101633>.

¹⁰⁷ Maxer Roser, ‘Explained: Why Renewables Became so Cheap so Fast’ (World Economic Forum, 2020) <<https://www.weforum.org/agenda/2020/12/renewables-energy-price-cost-cheap-climate-change-sustainability/>> accessed 19 January 2021.

¹⁰⁸ Mike Fulwood, ‘\$2 Gas in Europe Is Here: Who Will Blink First?’ <<https://www.oxfordenergy.org/wpcms/wp-content/uploads/2020/03/2-gas-in-Europe-is-here-who-will-blink-first.pdf>> accessed 15 January 2021.

¹⁰⁹ For more, see: <https://climateaction.unfccc.int/views/cooperative-initiative-details.html?id=94>

¹¹⁰ Isabelle Gerretsen and Megan Darby, ‘Which Countries Have a Net Zero Carbon Goal?’ (Climate Home News, 14 June 2019) <<https://www.climatechangenews.com/2019/06/14/countries-net-zero-climate-goal/>> accessed 19 January 2021.

energy sector as part of COVID-19 recovery packages in G20 countries are for fossil fuels¹¹¹. While commitments are a necessary first step towards carbon neutrality, we need concrete solutions.

Efforts should be focused on clean energy as progress towards sustainability in the energy sector will create around 18 million more jobs globally by 2030 when compared to the business-as-usual path, even when accounting for the inevitable losses of fossil fuel jobs¹¹². Moreover, according to the International Renewable Energy Agency (IRENA), investing in renewables could create nearly three times as many jobs as investing in fossil fuels, whilst they could support an improved gender balance in the future energy sector, as women currently hold an estimated 32% of the world's renewable energy jobs¹¹³.

In general, besides the use of renewable energy resources it is of tantamount importance, inter alia, to: advance capabilities in energy storage; develop infrastructures for electric means of transportation; enhance the energy efficiency in buildings, appliances and industrial processes; and, of course, assist workers disadvantaged by the transition by retraining, relocation and retirement packages. All these need financing, political will, cooperation and exchange of expertise.

All in all, transitioning to sustainable energy can bring substantial solutions during the post-COVID-19 era. Industries can be revived by capitalizing upon the renewable energy technologies and creating several new jobs for unemployed people. Also, the pandemic has demonstrated that in times of emergency we need to deploy safe ways to use resources, therefore the deployment of sustainable energy technologies and green energy carriers can safeguard society against similar difficulties, like climate risks. Such solutions are hydrogen, fuel cell engines for transportation vehicles, innovative projects such as the fuel cell drones (for delivery purposes, prompt ambulance for critical moments, remote control of the urban circumstances and agricultural), and the improvement of energy storage and power grids.

Concluding, phasing out fossil fuels and transitioning to green economies is a monumental challenge, but the solutions exist and we have the adequate expertise and knowledge for it.

¹¹¹ 'Energy Policy Tracker - Track Funds for Energy in Recovery Packages' (Energy Policy Tracker, 2020) <<https://www.energypolicytracker.org/>> accessed 19 January 2021.

¹¹² 'World Employment and Social Outlook 2018 – Greening with Jobs' (ILO 2018) <https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf> accessed 25 January 2021.

¹¹³ 'Renewable Energy and Jobs – Annual Review 2020' (International Renewable Energy Agency 2020) <<https://www.irena.org/publications/2020/Sep/Renewable-Energy-and-Jobs-Annual-Review-2020>>.

However, we need to finance, to scale up and to accelerate the actions needed, while making sure that international solidarity and cooperation is enhanced and ensuring that no is left behind, before another worldwide economic shock emerges due to another disease or an unknown climate-related disaster.

6.4.4. Embracing nature-based solutions

The idea of nature-based solutions (NBS) can be used to describe alternative and non-traditional approaches to environmental issues, like flooding, water scarcity, or soil erosion¹¹⁴. A way of life and governance, as it has been put, with “*solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience*”¹¹⁵.

The benefits of NBS are multiple, from improving health and wellbeing by improving air quality, providing open recreational spaces for residents etc.¹¹⁶, to making us more resilient to environmental risks, as through NBS, we can create a natural system of resilience against the impacts of the climate crisis. Eventually, this will reduce local temperatures, lower flood risk and protect against storms and tidal surges. Finally, NBS can also protect biodiversity by developing habitats for urban biodiversity offering a safe refuge from landscapes that have been subject to habitat loss and excessive spraying of pollinator-harmful chemicals¹¹⁷.

Embracing nature-based solutions is of utmost importance, as research has identified a strong link between environmental disasters and ecosystems; specifically, as environmental and land degradation exacerbate or even cause natural disasters, billions of people are threatened by such phenomena; phenomena, which are dangerous for their lives and wellbeing, as well as for their economies, since many recorded disasters have occurred in tourist attractive regions¹¹⁸.

¹¹⁴ ‘What Are Nature-Based Solutions and Why Do They Matter?’ (Climate Home News, 9 December 2019) <<https://www.climatechangenews.com/2019/12/09/nature-based-solutions-matter/>> accessed 19 January 2021.

¹¹⁵ ‘Nature-Based Solutions’ (European Commission) <https://ec.europa.eu/info/research-and-innovation/research-area/environment/nature-based-solutions_en> accessed 19 January 2021.

¹¹⁶ Damian Carrington, ‘Two-Hour “Dose” of Nature Significantly Boosts Health – Study’ *The Guardian* (13 June 2019) <<https://www.theguardian.com/environment/2019/jun/13/two-hour-dose-nature-weekly-boosts-health-study-finds>> accessed 19 January 2021.

¹¹⁷ ‘Embracing Nature Will Transform the Cities of the Future’ <<https://infrastructure.aecom.com/en-gb/2020/sustainability-resilience-embracing-nature-will-transform-the-cities-of-the-future>> accessed 19 January 2021.

¹¹⁸ ‘5 Natural Disasters That Beg for Climate Action’ (Oxfam International, 7 April 2020) <<https://www.oxfam.org/en/5-natural-disasters-beg-climate-action>> accessed 19 January 2021.

6.5. Ensuring Just Transition and protecting the most vulnerable

As we already discussed, both climate change risks and the coronavirus pandemic affect mostly the same social and ethnic groups (women, the youth, indigenous peoples, disadvantaged people etc.) while the impacts are more severe in poorer countries. Concurrently, the path towards carbon neutrality and everything that it entails require a transition that will leave no one behind and will protect everyone from risks.

Considering these, policy- and decision-making should respect the principles of Just Transition and develop comprehensive actions plans, which will respect the needs and rights of each stakeholder. In response, aiming to achieve the goals for a sustainable future, public engagement and inclusion of every stakeholder is essential, while social protections, such as skills training and early retirement, must be planned for and put in place to ensure social equity for affected communities. Importantly, funds must be provided to support the redevelopment of affected communities, thus transfer of funding from industry subsidies to transition funds is an important starting point for most communities and should be considered in strategies. Moreover, we talked a lot of about the importance of green jobs, but we need to make sure that these new jobs will be decent; as these new industries and markets emerge, there is a window of opportunity to ensure the quality of jobs, meaning salaries, conditions, benefits and inclusiveness, particularly for people who are frequently economically marginalized or excluded.

As far as women are concerned, we observed that the effects of the pandemic were harsher for them¹¹⁹. Likewise, their unequal participation in decision-making processes and in labour markets, as well as the limited access to financial resources, training and technology, compound the existing inequalities, while is making them more vulnerable to climate risks¹²⁰. Therefore, we need to guarantee that women have equal opportunities to participate as valid actors in the promotion of green growth. In addition, transformation and redefinition of workplaces, as well as the creation of new labour market opportunities, can further improve women's skills and increase their employment rates. Moreover, just transition facilitates the reinforcement of the participation of women in decision-making across all levels, it secures sustainable livelihoods and it upgrades people's general knowledge, which is necessary for

¹¹⁹ See Chapter 6.3.2.

¹²⁰ 'Gender and Climate Change' (IUCN, 3 November 2015) <<https://www.iucn.org/resources/issues-briefs/gender-and-climate-change>> accessed 1 February 2021.

efficient climate action. Women’s innovations and professionalism have changed many people’s lives for the better, and they have proven to be leading the way towards more equitable and sustainable solutions¹²¹.

Another important yet vulnerable social group is the youth, which in developing countries constitutes the largest part of society, while they have a great social and environmental awareness that is ever-increasing. Just Transition plans should ensure that all young people have access to progressive educational opportunities in schools and universities, as well as efficient training regarding the new sustainable labor market standards. Furthermore, transition strategies should also protect the youth as they enter into the green economy by adopting an updated and inclusive legal framework, which will eliminate possible incidents of discrimination. The world needs bright, well-trained and committed young people to build a climate neutral future.¹²²

Considering indigenous peoples, they are rather vulnerable to social, economic environmental, and health, crises and that is an issue that should be considered in policy-making. Their risks could be significantly reduced both by including them in general social protection mechanisms and by organising more targeted environmental services programs. Also, ameliorating REDD+¹²³ by improving and increasing financing for country-specific REDD+ strategies; and, long-term stable funding for indigenous peoples’ and women’s representatives to participate in decision-making, can genuinely improve the position of indigenous peoples.

Also, indigenous peoples can contribute to the efforts adapting to climate change and into nature-based solutions, as according to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), indigenous, local, and traditional forms of knowledge are a

¹²¹ ‘Gender, Labour and a Just Transition towards Environmentally Sustainable Economies and Societies for All’ (International Labour Organization 2020)
<<https://www.ohchr.org/Documents/Issues/ClimateChange/GenderResponsive/ILO.pdf>> accessed 1 February 2021.

¹²² ‘United Nations Joint Framework Initiative on Children, Youth and Climate Change’
<<https://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-climatechange.pdf>> accessed 1 February 2021.

¹²³ REDD+, is a mechanism at the center of global and national mitigation strategies, provides incentives for reducing emissions from deforestation and forest degradation in developing countries by creating financial value (e.g. financial compensation) for carbon stored and absorbed by forests, providing developing countries with funding for limiting deforestation and forest degradation. Since its inception, REDD+ has generated great interest as a possible means of strengthening community land and resource rights, empowering community institutions, increasing income through benefit-sharing, and supporting indigenous peoples’ and local communities’ forest stewardship activities. See more: <https://www.unredd.net/documents/redd-papers-and-publications-90/un-redd-publications-1191/fact-sheets/15279-fact-sheet-about-redd.html>

major resource for adapting to climate change, yet are neglected in policy and research¹²⁴. Numerous traditional and innovative adaptive practices have been identified including: shoreline reinforcement, that could protect towns from flooding; improved building technologies; traditional farming techniques, changing hunting and gathering habits, and crop and livelihood diversification, that can contribute to ameliorating food insecurity; the use of new materials; and community-based disaster-risk reduction¹²⁵. In addition, they have advanced techniques on impact assessment, and natural disaster preparedness and response, that could protect the lives of billions of people¹²⁶.

Concluding, crucial for the proper implementation of a sustainable recovery from the COVID-19 pandemic and a transition towards a carbon neutral world is international cooperation and solidarity; climate change is a borderless, transnational phenomenon which already affects every country to a lesser or greater extent. However, both responsibility and consequences are unequally allocated, as the countries that are mostly responsible for climate change are more capable of adapting to its effects, whereas poor, less developed countries are in a more dire position against climate risks. Thus, international cooperation and increased solidarity are in need by the means of, inter alia, funding and exchange of expertise, know-how etc. All in all, for a sustainable and just future, we need a comprehensive inclusive action plan.

6.6. Financing carbon neutrality and Just Transition

6.6.1. Climate Finance

The transition which needs to be made in order to hit zero carbon in 30 or less years' time, is going to change the whole economy. Over the next years, numerous investments should be made on new technologies, sustainable energy, the protection of the most vulnerable etc., while their value could reach trillions of US dollars, thus it is important to find out how all these would be financed.

¹²⁴ 'Indigenous Peoples and Climate Change: From Victims to Change Agents through Decent Work' (International Labour Organization 2017) <<https://primarysources.brillonline.com/browse/climate-change-and-law-collection/indigenous-peoples-and-climate-change-from-victims-to-change-agents-through-decent-work;cccc016120170161001>> accessed 1 February 2021.

¹²⁵Cuthbert Casey Makondo and David S. G. Thomas, "Climate Change Adaptation: Linking Indigenous Knowledge with Western Science for Effective Adaptation," *Environmental Science & Policy* 88 (October 1, 2018): 83–91, <https://doi.org/10.1016/j.envsci.2018.06.014>.

¹²⁶ Gleb Raygorodetsky, "Why Traditional Knowledge Holds the Key to Climate Change - United Nations University," United Nations University, 2013, <https://unu.edu/publications/articles/why-traditional-knowledge-holds-the-key-to-climate-change.html>.

Climate finance stands for local, national and international financing, coming from public, private and alternative sources of financing, that support the adoption of actions that help mitigate climate change.

Parties to the UNFCCC have recognized the need to “*urgently enhance implementation of the Convention in order to achieve its ultimate objective in full accordance with its principles and commitments*”¹²⁷. Moreover, the Bali Action Plan recognizes the need for “*enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation*”. Implementing these mandates requires consideration of a range of factors including: a) the scale of financial resources required; b) the sources of financial resources; c) the uses of financial resources; and d) the governance of financial resources under the UNFCCC financial mechanism¹²⁸.

The UNFCCC, the Kyoto Protocol and the Paris Agreement all urge for fiscal assistance from all Parties that have ratified them and have an abundance of resources towards the countries that are more vulnerable. The contributions of countries to combatting climate change vary enormously, depending their status and capacity. In a way to significantly reduce emissions, large-scale investments have to be made. Climate finance is equally important for adaptation, as significant financial resources are needed to adapt to the adverse effects and reduce the impacts of climate change¹²⁹.

In line with the aforementioned principle of “common but differentiated responsibility and respective capabilities”, set out in the Convention, the developed country Parties are to provide resources to assist the developing ones in implementing the UNFCCC. The Paris Agreement reaffirms the obligations of developed countries, while also encouraging voluntary contributions by other Parties. Developed country Parties should also take the lead in mobilizing climate finance from various sources, instruments and channels, including supporting country-driven strategies, and taking under consideration the priorities of developing country Parties.

Overall, efforts under the Paris Agreement are guided by its aim of constructing finance flows in line with a pathway towards low GHG emissions and climate-friendly development.

¹²⁷ ‘Bali Action Plan’ (UNFCCC) <https://unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_action.pdf> accessed 9 February 2021.

¹²⁸ Ibid.

¹²⁹ ‘Introduction to Climate Finance’ (UNFCCC) <<https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance>> accessed 1 February 2021.

Evaluating progress in condition and mobilization of support is an additional element of the inventory under the Agreement. The Agreement also places emphasis on the transparency and enhanced predictability of financial support.

6.6.2. Financial Mechanisms and Funds

The Convention aiming to facilitate the distribution of climate finance, has established a number of mechanisms and funds seeking to enhance implementation of the UNFCCC's financial mechanism. These include:

- **The Global Environment Facility (GEF)**, which has served as an operating entity of the financial mechanism since the Convention's entry into force in 1994. GEF funds are available to developing countries and countries with economies in transition to meet the objectives of the international environmental conventions and agreements¹³⁰.
- **The Green Climate Fund (GCF)**, established at COP 16, in 2010, is channeling climate funds to developing countries helping them to reduce their GHG and enhance their ability to respond to climate change. GCF launched its initial resource mobilization in 2014, and rapidly gathered pledges worth USD 10.3 billion¹³¹.
- **The Adaptation Fund**, was established under the Kyoto Protocol with the objective of financing concrete adaptation projects and programmes¹³² in developing countries. Since 2010, the Adaptation Fund has committed US\$ 720 million, including supporting 100 concrete adaptation projects with about 8.7 million direct beneficiaries¹³³.
- **The World Bank's Climate Funds and Actions Plans**, which for the period 2021-2025 are expected to allocate more than US\$ 250 billion¹³⁴.

In addition to the above-mentioned numerous additional funds and mechanisms exist¹³⁵.

As it has been demonstrated throughout this study guide, the need for a transition towards a climate-friendly recovery for the COVID-19 pandemic specifically, and more generally a green growth for our future is imperative. All these, apart from political or corporate decisions and

¹³⁰ 'Funding' (Global Environment Facility, 4 April 2016) <<https://www.thegef.org/about/funding>> accessed 9 February 2021.

¹³¹ 'Green Climate Fund' (Green Climate Fund, 24 July 2020) <<https://www.greenclimate.fund/about>> accessed 9 February 2021.

¹³² 'Adaptation Fund - Infographic' <<https://www.adaptation-fund.org/wp-content/uploads/2018/04/AF-infographic-Eng-May2019-WEB.pdf>> accessed 9 February 2021.

¹³³ 'Governance' (Adaptation Fund) <<https://www.adaptation-fund.org/about/governance/>> accessed 9 February 2021.

¹³⁴ 'Climate Finance' (World Bank) <<https://www.worldbank.org/en/topic/climatefinance>> accessed 9 February 2021.

¹³⁵For more, see: <https://climatefundsupupdate.org/the-funds/>

planning, need a fair and strategical allocation of funds, taking under consideration the needs of the most vulnerable countries, regions and people, as well as all the developments in science, technology and society.

8. Conclusions

As we now struggle to cope with a global health crisis, it is tempting for many to argue that the looming climate crisis is not our most pressing concern, and that mitigation of and adaptation to it, should be postponed for more prosperous times. However, through this detailed analysis, we tried to make clear that the COVID-19 pandemic, on the hand, constitutes the perfect opportunity to develop strategies and fiscal or funding programs which will lead to a carbon neutral future, as in the long-term only green strategies will help achieve the needed social and economic growth. On the other hand, the COVID-19 crisis offers important lessons for the unfolding global climate crisis. Furthermore, we saw that the actions and programmes needed to shift towards a more climate-friendly world, will have several positive effects for the global community.

But, of course, the way towards a just and carbon neutral world it is not easy. Among others, international cooperation and solidarity are essential; dialogue between policy makers and all the affected stakeholders is a crucial step for deliberate planning, effective implementation and successful results alike; and, the use of new technologies and the latest developments in science and technology can have a game-changing impact in the fight against climate change. All in all, if we really want our world to prosper, the needs of every social group should be considered, while the principles of Just Transition and respect towards human rights should be at the core of policy- and decision-making.

Global emergencies are not new, but our ability to understand, prevent, and manage them is now changing. Even if we do not yet have the full capacity to adequately or effectively tackle the COVID-19 emergency, now is the right time to draw valuable lessons from it, capitalize on the opportunity with which we are provided, and adopt a new stance towards climate change and other crises that we and future generations will almost certainly have to face and withstand.

9. Points to be addressed

1. Why is it essential to move towards a carbon neutral world?
2. Why a transition to clean and sustainable energy is crucial? How can this goal be achieved?
3. What is the role of Just Transition in the efforts towards a sustainable future?
4. How could we promote green economy, while protecting workers and affected communities?
5. How can we capitalize on new and emerging technologies in order to achieve climate-related goals?
6. Has the COVID-19 pandemic affected the efforts to mitigate and adapt to climate change?
How can we benefit from it?
7. How nature-based solutions could be incorporated into policy-making?
8. Why international cooperation and solidarity are important and how we can enhance them?
9. How can we support and protect the most vulnerable groups of our societies against crises?
10. Are the financial systems adequate for achieving a carbon neutral world? How can we assure that the distribution of funds will be just for every country?

10. Position Paper Guidelines

Position Paper Guidelines

A Position Paper is a brief summary of a role's (such as, but not limited to countries, enterprises, NGOs etc) policy and interests concerning the agenda topic. It should contain a clear statement of the entity's stance and position on the topic and clear reasoning, also suggesting an action plan concerning the issues under consideration. It is not a speech, neither a statement, so there is no need for a salutation in the beginning.

The Position Paper should be a product of the participant's own research and should be concise and substantial. After having conducted research on the topic and formed a precise idea about the policy of the entity you have been assigned, you are now called to make a small abstract on the situation linked to the topic, the position of your role, actions taken in a multilateral level and proposed actions for future consideration.

In the first part, one paragraph, of your Position Paper you should briefly address the issues on the Agenda, the relevancy and the scope of the problem. You could also mention the current developments concerning the issue under discussion and recent actions taken. This first paragraph it shall be between 6-8 lines, as it functions as a brief introduction, to ensure the board members that you have understood the topic and its importance.

In the second part, you should specify the official position of the entity you represent in respect to the issues under consideration. It should include brief statements about where it stands on the issue in question, past statements on the topic by its representatives, especially if these mention the significance of the issues on the Agenda, and actions/laws/policies/strategies that your entity has already implemented or plans to, regarding our topic. In the third part, it is expected, bearing in mind the State's policy and organization's agenda, that you state what you want to see in the final document, the outcome of the discussions. We expect you to provide us with some of the suggestions that your entity will support in providing a solution for the issues at hand, considering the "points to be addressed". These suggestions should be as comprehensive as possible, considering the one and a half page-limit, and, always, the mandate of the COP of the UNFCCC. You do not need to go into detail about your negotiating positions, these can be presented during your speeches in our sessions.

Remember that you have to represent the position of your assigned entity. Therefore, you should not speak in the first person ("I"), but with the voice of the entity you represent ("We").

You represent your people, the wholesome of your state, your colleagues, or the civil society, so it is not recommended to write in the first person. However, some of you are also the Heads of your State or Government, so it will be allowed to speak in the first person, if it is necessary. You may offer your own ideas on the solution of the problem, but bear in mind that the ideas that you present the committee with, should not contradict the policies of the country you represent.

Remember that, during your research, writing and our sessions, policy is not rigid but malleable and flexible, and positions are not rigid and fixed. If that were the case, diplomacy wouldn't exist. Go into depth, stating best solutions and second-best options since you clearly have more than one solution. The more solutions/flexibility you have, the easier it will be for you to move amidst the problem areas and to reach an agreement with your fellow Heads and representatives.

“Athens COP 2021” requests that each participant submits a position paper within the deadline set, according to the aforementioned guidelines and in line with the following Position Paper template.

Please note that:

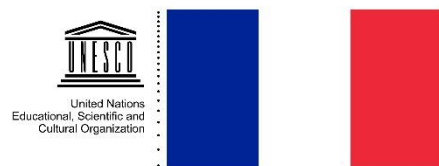
1. The Position paper should not exceed in length one and a half page.
2. There is no need for references and bibliography.

Example Position Paper:

Committee: Executive Board of UNESCO

Role: French Republic

Topic Area: “Promoting and safeguarding the underwater cultural heritage”



Our cultural heritage is a vital link to our historical, educational, inspirational, and economic legacies, and our oceans, seas and lakes are the “largest museums” on earth, but natural phenomena and some human activities consist a threat to our underwater cultural heritage (UCH), thus a concerted effort to preserve it is of utmost importance. Undoubtedly, of

equal value is the promotion of UCH, as it can have a significant economic, recreational and educational impact on societies.

Acknowledging the importance of underwater cultural heritage and having the world's second-largest maritime territory with estimated 150,000 to 200,000 underwater sites, the French Republic is one of the pioneers in the field of underwater archaeology. Thus, has ratified all the relevant conventions, including the crucial 2001 "Convention on the Protection of Underwater Cultural Heritage", on February 2013. In addition, the French Department of Underwater and Marine Archaeological Research (DRASSM) is the world's first and leading underwater archaeological research department and has carried out the professional evaluation, directed the study, or supervised the excavation of more than 1,500 underwater archaeological sites in mainland France, French overseas departments and territories as well as foreign countries. Also, in France is located an excellent example of a replica site, of 250 amphorae which were recovered in the 1950s and re-submerged in 2010 off the coast of Marseille. This initiative was supported by DRASSM, which provided another 150 amphorae to complete the artificial site in a shipwreck shape. Last, but not least, the Museum of Ancient Arles, in France, is one the most notable examples exhibiting recovered material from underwater sites.

As it is aforementioned, underwater cultural heritage has to be safeguarded from natural and man-made threats and, also, has to be promoted as it can have positive effects on societies. In this context, France as a leading actor, promotes the collaboration of museums and archaeological groups with technological companies, research centers and universities for the utilization of new and emerging technologies such as 3D printing and mapping and virtual reality. On the one hand, 3D printed replicas can be extremely accurate with regards to the shape of the original and they can also be touched, elevating the whole experience and making it more inclusive, as people with disabilities can have the opportunity to touch the artifacts. The digital nature 3D printed replicas make them to easily be stored, edited, studied and shared across the world. Also, 3D printing and mapping can be used for reconstruction and preservation of underwater sites. On the other hand, virtual reality can present sites to the public, which due to their fragility, depth or location are not accessible. An example of it is the virtual access of the French Lune wreck created by the DRASSM. Also, in order to raise awareness and to promote UCH, France, encourages video-game and application developers to design video games and applications, respectively, which are relevant with underwater cultural heritage for purposes both recreational and educational. In addition, France is in favor with initiatives regarding showing underwater cultural heritage through diving and thus, encourages

NGOs and public agencies to create workshops aimed to dive clubs and dive shops in order to provide them with the capacity to design and offer heritage focused dive courses which will not harm underwater sites.

Furthermore, in order to facilitate maritime exploitation and assist archaeologists, France advocates for the usage of predictive modelling, which is a method of collecting information from many different sources about an area in order to identify if it has an archaeological significance and thus, has to be further investigated, or if it is available for maritime development activities. Last, but not least, France, fully aware of pillaging and looting phenomena, supports the cooperation between UNESCO, the United Nations Office on Drugs and Crime and other relevant international organizations or NGOs, in order to raise awareness on the issue of trafficking in cultural property and related offences at regional and international levels, through workshops, seminars and similar events aimed to relevant stakeholders.

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