G20 and the Ongoing Fight to Contain Climate Change

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Abstract: This paper analyses how G20 as a global forum of leading economies has addressed the issue of climate change over the years. The global community has underscored that climate change affects our environment, process of economic growth and well-being of the population. G20, being the representation of major global powers, can possibly set the direction for the adaptation and mitigation of climate change impacts. It is equally important to examine how G20 countries can support solutions to climate change as envisaged in the Paris Agreement and promote sustainable living. Building on the cooperation and support among the member countries, G20 needs to foster international cooperation in tackling climate change impacts and mobilise support from other country groupings and international organisations.

Introduction

Humanity has been facing climate change since the beginning of its very existence. However, it has been only in the past century that we started to observe significant negative effect of our actions on the climate and environment. Healthy climate is an integral part of our survival and should be our main concern. We could say that recognition of this topic has finally reached its peak. It is no longer a subject discussed only among experts or visionaries. Calls for solutions to climate change are these days echoing at the high-level meetings of world leaders and policy makers, but also on the streets. People of all walks of life, all ages, encompassing all geographic regions and educational backgrounds are taking stand. Wherever you look, wherever you go, you cannot escape the movement that was brought to the attention especially by the young generation, inspired by their peer Greta Thunberg. Realizing that they are our future and the ones who will be left to deal with consequences, the young demand stronger action. Some say it is already late and we will not be able to deliver on the Paris Agreement's promise of keeping the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius[1]. However, if we approach this issue seriously and resolutely enough, we still have a chance.

This leads us to the question: what has the G20 as a group of twenty leading economies done so far and what should it do to support solutions to the climate change? What policies are at countries' disposal in order to improve

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the environment and assure sustainable living and climate for future generations?

Importance of Discussion about Climate Change

Global warming, the main result of climate change, has a major impact on our environment, but also on economic growth of countries and well-being of their population. As per the International Monetary Fund (IMF) World Economic Outlook, January 2020 upgrade, growth forecast for global economy for 2020 and 2021 has been downgraded. To quote the report "Climate change, the driver of the increased frequency and intensity of weather-related disasters, already endangers health and economic outcomes, and not only in the directly affected regions. It could pose challenges to other areas that may not yet feel the direct effects, including by contributing to cross-border migration or financial stress (for instance, in the insurance sector)."[2] More and more frequently we hear about climate extremes never seen before: severe droughts in South Africa, Sahel or Australia, new temperature records set in France and Germany or extreme heat waves in India during summer 2019, rainstorms and floods in Brazil or Bangladesh, unusual cyclone patterns such as Cyclone Idai in Mozambique, Zimbabwe and Malawi, devastating hurricanes like Irma and Maria in Caribbean, or fires in California, Indonesia, Amazon rainforest and Australian bushfires. These are only a few examples from couple of years back that are adding to increasing vulnerabilities and costs of climate crisis. In addition, ongoing melting of ice caps and rising sea levels increase risks of flooding that might in the future affect not only coastal areas or small islands, but also major cities close to water, such as New York, Mumbai, Osaka, Shanghai, Bangkok and many more. Paying attention to climate change is critical, because it is often source of food scarcity, instability, conflicts and resulting population displacement. Climate change affects everyone without distinction, but the most vulnerable are usually those most exposed to its harmful effects. In order to be most effective in efforts to fight climate change, it is necessary to use international cooperation and come up with global solutions.

One of the most significant initiatives in efforts to fight climate change has been the Paris Agreement that was adopted in December 2015. It is the first-ever universal, legally binding global climate agreement and has so far ratified by 187 of 197 Parties to the United Nations Framework Convention on Climate Change (UNFCCC).[3] The Parties agreed to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. To reach these goals, appropriate mobilization and provision of financial resources, technology and enhanced capacity-building was to be put in place. The financial flows were supposed to assist reaching low greenhouse gas (GHG) emissions and climate-resilient pathway. Another provision re-confirmed the 2010 Cancun Agreement in which developed countries committed to a goal of mobilizing jointly USD 100 billion per year by 2020, thus supporting action needs of developing and most vulnerable countries. The Agreement also provides for an enhanced transparency framework for action and support.

G20 and Climate Change

Early Years

Various issues concerning climate change have been added to the agenda of the G20 over time as the policy makers started to recognize climate's connection to the overall economic performance of the countries and consequently the necessity to act. There

was a clear proof for an approach based on cooperation and collaboration and the G20 served as the leading platform. Realizing the heterogeneity of its members, the G20 encouraged country-specific policies, while supporting coordinated action in the fight against climate change.

Since their first Summit in 2008 in Washington DC, USA, topics of climate played a significant role in discussions of the G20 leaders. In Washington, the G20 members expressed their concern over climate change for the first time. Following year, the topic got more exposure during the 2009 London, UK Summit, where leaders reaffirmed their commitment to address the threat of irreversible climate change, based on the principle of common but differentiated responsibilities. Leaders committed to make a transition towards clean, innovative, low-carbon technologies and infrastructure. They also assured to reach agreement at the 15th Conference of the Parties (COP15) of the UNFCCC that took place in December 2009 in Copenhagen. At the COP15 almost 115 world leaders attended the high-level segment and raised climate change policy to the highest political level. The participants agreed on the Copenhagen Accord, which expressed in clear terms a political intent to constrain carbon and respond to climate change, in both the short- and long-term. The key element of the Accord was the long-term goal of limiting the maximum global average temperature increase to no more than 2 degrees Celsius above pre-industrial levels, subject to a review in 2015. It also included a reference to consider limiting the temperature increase to below 1.5 degrees Celsius, a key demand made by vulnerable developing countries. However, parties did not specify how to do this in practical terms. In addition, the developed countries promised to fund actions to reduce GHG emissions, to provide US$30 billion for the period 2010-2012, and to mobilize long-term finance of a further US$100 billion a year by 2020 from a variety of sources and to help developing countries adapt to the inevitable effects of climate change. The *Green Climate Fund* was also established at the COP15.

At the 2009 Summit in Pittsburgh, US the G20 endorsed the Copenhagen Accord asking to include mitigation, adaptation, technology, and financing, and committed to "*assist developing countries in deploying clean energy technologies, reducing forest-related emissions, and adapting to the impacts of global warming*." They called on the World Bank to play a leading role in responding to problems requiring globally coordinated action, among them climate change, and asked the international financial institutions to offer support to countries in this process. G20 members agreed to phase out inefficient fossil fuel subsidies over the medium-term, while providing targeted support for the poorest. Special highlight was on financing the transition to green economy through investment in sustainable clean energy, energy efficiency, renewables and climate resilience. In order to reach results, countries should integrate climate change concerns into their domestic policies and to access new sources of climate finance.

G20 Summit in Toronto, Canada in 2010 reconfirmed the commitment to green recovery and sustainable global growth. In addition, prompted by several recent high-profile offshore drilling accidents, the *Global Marine Environment Protection Initiative* (GMEP) was created by the G20 Leaders with mandate to share best practices to protect the marine environment, to prevent accidents related to offshore exploration and development, as well as marine transportation, and to deal with their consequences. The G20 Summit in Seoul, South Korea in 2010 reiterated commitment to UN climate change negotiations and support to the Copenhagen Accord implementation. This included core issues of mitigation, transparency, finance, technology, adaptation,

and forest preservation. Several discussions included exchange of ideas with business leaders on cooperation in research and development.

Main focus of the 2011 Summit in Cannes, France was on promoting low-carbon development strategies in order to optimize the potential for inclusive green growth and to ensure sustainable development. Leaders also supported expedient work towards operationalization of the Green Climate Fund, established two years earlier, that was expected as an outcome from COP17 in Durban. The first *G20 study group on climate finance* was established at the 2012 Summit in Los Cabos, Mexico with the goal to consider ways to effectively mobilize resources to help developing economies, taking into account the objectives, provisions and principles of the UNFCCC. G20 leaders aimed to explore various innovative initiatives to promote low-carbon development strategies in order to optimize the potential for green growth. They supported increased need for clean technologies and energy, while attempting to phase out inefficient fossil fuel subsidies.

The St. Petersburg, Russia (2013) summit was quite specific due to Russia's priority put on the energy security while considering uncertainties about oil prices. With respect to climate change, there were numerous reaffirming statements made about results of past COP meetings. The new commitment promised to phase down the production and consumption of hydrofluorocarbons (HFCs), the super greenhouse gases manufactured for use in refrigeration, air conditioning, foam blowing, aerosols, fire protection and solvents. US president Barack Obama used the occasion of the 2014 Summit in Brisbane, Australia to announce his plan to lead the $3 billion campaign for the Green Climate Fund, to support mobilizing finance for adaptation and mitigation efforts to assist developing countries. G20 members also committed to adopt a protocol, or other instruments with legal force, applicable to all parties at the 21st Conference of the Parties (COP21) in Paris in 2015.

Antalya, Turkey (2015) Summit built further on the commitment made in Brisbane to reach an agreement in Paris in December. G20 members, at the Summit that took place only one months before the COP21, voiced their support to Paris Conference's ambition, with a reminder of necessity to be fair and balanced. This was well demonstrated by 160 countries submitting their respective Nationally Determined Contributions (NDCs) – intended reductions in GHG emissions, with the goal of reducing GHG emissions enough to limit global temperature rise to 2 degrees Celsius. These NDCs reflected G20's call for determination by each country based on their own national circumstances, capabilities, and priorities based on national circumstances. Antalya stand was in line with the St. Petersburg Summit with its commitment to support energy efficiency and investments in clean energy technologies. Investing in research and development was identified as an important component for diversification of energy sources to combat climate change.

Post-Paris Agreement and the Climate Divide

China hosted the 2016 Summit in Hangzhou, China with high expectations and strong backing of the climate change topic by President Xi Jinping. Unfortunately, the expectations did not materialize, and the final communique gave mostly assurances of ongoing activities. G20 members reaffirmed their ongoing commitment from Pittsburg to phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption. Ministers of finance from member countries assured that they will continue working on climate finance in 2017 under the working arrangement of the

following G20 Presidency, to contribute to the discussions held during the UNFCCC meetings. Probably one of the most significant messages of that reunion was the joint announcement of both China and the United States to ratify the Paris Agreement on climate change before the end of the year. As was expected, Germany started the G20 Presidency with big aspirations and one of the ten priorities of their announced agenda focused on climate protection, green growth and climate finance. It also included climate change in the agenda for the G20 Climate Sustainability Working Group (CSWG), previously known only as the Sustainability Working Group.

Summit in Hamburg, Germany (2017) served as the high-level platform for calls supporting a fast, full implementation of the Paris Agreement, and securing signatures and ratification in countries that have not yet done so. The Agreement became an effective international law shortly after, in November 2016. Overall, however, the Summit did not bring expected results and pointed to the new geopolitical reality – the "clash" of ideas. The new USA administration demonstrated shift in their views on climate change by inserting a specific paragraph to the Leaders' communique declaring its intention to withdraw from the Paris Agreement and "…immediately cease the implementation of its current nationally-determined contribution"[4]. Yet, the USA still affirmed its strong commitment to an approach that lowers emissions while supporting economic growth and improving energy security needs. Remaining members did assure about their strong intentions for implementing the Agreement. At least one visible and successful outcome of the meeting was establishment of the *G20 Hamburg Climate and Energy Action Plan for Growth*.

Year 2018 under the Argentinian presidency, and the Summit in Buenos Aires, Argentina sharpened even further the division between the USA and rest of the G20 member countries with respect to climate change. The work of the CSWG became more focused on initiatives in the area of adaptation, with goal to promote mainstreaming adaptation and resilience in national development planning processes, as well as to promote adaptation efforts and cooperation on adaptation and resilience by sharing experience and best practices among countries. Other than stating in the communique the importance of adaptation strategies and support of investment in infrastructure resilient to extreme weather events and disasters, especially in small island states as in the Caribbean, the final conclusions on climate were very vague. Deeper discussions on climate change were left for the COP24 in Katowice, Poland. Negotiations at the COP24 that concluded more than two-year long process resulted in the *Katowice Climate Package* which specifies implementation guidelines, procedures and mechanisms that will operationalize the Paris Agreement in order to achieve low-emissions and climate-resilient world and deliver on promises of keeping global temperature rise this century below 2 degrees Celsius above the pre-industrial levels. The guidelines at the same time respect different capabilities and socio-economic realities of each country and establish an effective international system for promoting and tracking progress.

One of the priorities Japan presented at the start of their Presidency in 2019 focused on climate change as an essential means to enhance environmental and economic growth. This ambitious agenda encompassed new topics such as the circular economy-environment system, oceans, solutions to marine plastic pollution and support for marine biodiversity, including the importance of addressing illegal, unreported, and unregulated (IUU) fishing for ensuring the sustainable use of marine resources and conserving the marine environment. Special themes involving

protection of oceans were the most significant addition of Japan, the island country, to the climate discussions on the G20 level. At the Summit in Osaka, Japan Leaders adopted the "*Osaka Blue Ocean Vision*" with commitment to address all marine pollution and reduce marine plastic litter in the world's oceans to zero by 2050. They also agreed to create the *G20 Implementation Framework for Actions on Marine Plastic Litter* - an international framework created to help reduce plastic pollution in the ocean. G20 members would voluntarily report data, share solutions, adopt a life-cycle approach and start implementation in accordance with their national policies, approaches, and circumstances.

With respect to the continued involvement on climate change with the Paris Agreement, G20 members aimed to communicate, update or maintain their NDCs at COP26 meeting in December 2020 in Glasgow.[5] The Osaka Summit served more as a stock-taking platform than means to any significant advancement of the climate change agenda due to the inability to reach an agreement supported by all parties. Even with this divide, there were some positive results. G20 Summit statement highlighted the need to address "complex and pressing global issues and challenges, including climate change, resource efficiency, air, land, fresh water and marine pollution, including marine plastic litter, biodiversity loss, sustainable consumption and production, urban environmental quality and other environmental issues"[6] in the light of recent extreme weather events and disasters. Thus, discussion on approaches to support actions and cooperation in area of adaptation and disaster risk reduction, especially for the most vulnerable, were at the center of expert engagements during the Presidency. Role of innovation and technologies in helping to control climate change was also highlighted and put to the forefront.

Japan strived for innovative approaches to address environmental and climate issues not only by incorporating role of technologies into the discussions, but also via type of meetings organized. In June 2019 it held the first meeting of G20 environment ministers alongside the G20 energy ministers[7], bringing about the first ever commitments made by G20 Ministers of Environment and first ever joint commitments on environment and energy. There was much agreement among members on collaborative work to improve energy efficiency and the energy transition towards greener and cleaner economy which included also push for new energy technologies such as hydrogen, renewable energy, carbon capture and storage, and utilization. Ministers confirmed their goal to transform the systems into affordable, low GHG emissions systems as soon as possible, recognizing different possible national paths to achieve cleaner energy systems. At the end, Ministers adopted the *G20 Karuizawa Innovation Action Plan on Energy Transitions and Global Environment for Sustainable Growth*.

Goals and Visions of the Current G20 Presidency - Saudi Arabia

Overarching theme of the Saudi Arabia G20 Presidency is to look for solutions that address present pressing challenges of climate and natural disaster threats that are facing everyone. Due to their global reach, there is an inherent need to cooperate in the name of global public interest. Work in the area of climate will be focused towards "safeguarding the planet by fostering collective efforts to protect our global commons."[8] The envisioned activities in the climate track include defining more comprehensive approaches and economic models to manage and reduce greenhouse gas (GHG) emission levels; advancing synergies between adaptation and mitigation efforts to tackle climate change; protecting the environment; promoting cleaner, more sustainable and affordable energy; promoting

water sustainability and reducing food loss and waste. It is a wide-reaching and complex agenda, trying to encompass also nature-based solutions, such as reforestation to fight land degradation and conserve biodiversity. In an effort to build on the Japan's initiatives, the intent of Saudi Arabia is to advance discussions on the preservation and restoring of ocean ecosystems and protecting marine resources.

Access to clean, more sustainable and affordable energy is placed high among the nine ecological priorities. Saudi Arabia plans to engage G20 members in discussions on circular carbon economy and potential use of the newest trends in research and development to accomplish and deliver these energy goals. Each of the suggested activities will require a lot of dedication. It will ask G20 members to dig deeper into details, trying to find common framework for global cooperation, potentially including wider public and much needed private sector, MDBs, NGOs and other non-member countries. Once the Saudi Arabia presidency is over in November 2020, there will be still a long way to go. It will be up to G20 Presidencies of Italy and then India to pick up this banner and continue the push for delivery of good measurable results in the fight against climate change to improve environment and quality of life for future generations.

Policies in Support of Climate Change Solutions

G20 is a strong, influential international forum of the world's largest economies with potential to set the direction on main issues that challenge world today. Meetings serve as the unique platform and premier global forum to exchange ideas on the higher levels, resulting in proposals of potential solutions to the most urgent concerns, with climate change being one of the most critical ones at present. Knowing that G20 members account for around 85 per cent of global gross domestic product (GDP), 75 per cent of world trade, and also for 80 per cent of global carbon dioxide emissions (CO_2) and 70 per cent of global plastic production, as well as two-thirds of the world's population and more than half of the world's poor[9], the commitments made by them on climate, environment or energy have a huge impact for all, and serve as an inspiration also for non-G20 countries.

As demonstrated in the previous section, in the years since the Paris Agreement, G20 has placed solutions to climate change among their top priorities. Members constantly look for most efficient policies and measures that will lead them to successfully reaching the goal of limiting the temperature increase to 1.5 degrees Celsius. One of the main drivers of climate change is the CO_2 emissions. Therefore, limiting or at least reducing the emissions is at present the most significant factor. It is up to the policymakers to find ways and apply policies that promote lowering of emissions or support cleaner and greener economy. Based on the results published in the special report of the Intergovernmental Panel on Climate Change (IPCC), in order to limit warming to 1.5 degrees Celsius, global net CO_2 emissions would have to decline by about 45 per cent from 2010 levels by 2030, reaching net zero around 2050. In case of limiting warming to 2 degrees Celsius only, the decline would be about 25 per cent by 2030, reaching net zero around 2070. The report follows with a cautious warning that "remaining below 1.5 degrees Celsius is possible, but requires deep and rapid emissions reductions from all economic sectors"[10]. In order to do that, countries need to actively decrease energy demand, lower emissions from energy supply and actively remove CO_2 from the atmosphere, while fully decarbonizing the electricity sector and ensuring that renewables are the world's dominant energy source by 2050. Waiting to cut emissions may have severe effects on the

planet. The IPCC Special Report also analyzed the NDC pledges submitted under the Paris Agreement[11] and found out that even if all countries fulfilled their current pledges, there is very high likelihood we will reach 1.5 degrees Celsius warming already by mid-century and remain above this threshold through the year 2100. Therefore, more ambition is needed and requires intense global reductions in both CO_2 and non-CO_2 climate pollutants from all economic sectors.

Most recently, the 2019 Emissions Gap Report[12] assessed the progress of G20 economies towards their NDC targets and found out that six members (China, EU, India, Mexico, Russia and Turkey) are projected to meet their targets with current policies while seven others require further action of varying degree to achieve theirs (Australia, Brazil, Canada, Japan, the Republic of Korea, South Africa and the USA). Studies do not agree on whether Argentina, Indonesia and Saudi Arabia are on track to meet their targets. In fact, India, Russia and Turkey are projected to be even 15 per cent below their targets, which gives them enough room to significantly raise their NDC ambition further. The EU's current NDC is based on climate legislation[13] introduced in January 2014 with objective to achieve at least a 40 per cent reduction in GHG emissions by 2030 compared to 1990. The EU's ambition got recently even higher, when the new European Commission declared to increase the GHG emission reductions to at least 50 per cent by 2030 in its new plan – European Green Deal[14] presented in December 2019. At the same time, the EU leaders agreed to cut the bloc's GHG emissions to net-zero by 2050.[15] They are joining number of other countries already with the net-zero target, such as Suriname and Bhutan (already achieved this goal), Denmark, France, New Zealand, Sweden and UK.[16]

Pool of policies available to help reach the goal of lowering CO_2 emissions is quite wide. They can range from imposing taxes based on carbon footprint or use of subsidies directed towards renewable energy sources, to encouraging private resource mobilization for low-emission and climate resilient development, promotion of clean-technology research and development, support of new and greener innovations, all the way to initiatives that stimulate social acceptance and participation by citizens, such as pro-climate education at schools or other activities that influence human behavior. The results and impact depend on incentives (pricing or otherwise) and on how fast and effectively these policies are applied to stimulate change. There is an extensive and very good analytical overview of many climate change mitigation policies in the most recent Fiscal Monitor of the IMF published in October 2019 that provide more detailed and deeper technical discussion on pros and cons of various scenarios of these existing measures[17]. The papers state that out of various mitigation strategies, carbon taxes levied on supply of fossil fuels in proportion to their carbon content are "the most powerful and efficient, because they allow firms and households to find the lowest-cost ways of reducing energy use and shift toward cleaner alternatives"[18]. Taxation as a price tag on carbon is one of the most efficient tools of environmental policy to employ in order to capture negative environmental impacts[19] and possibly change the behavior. Nevertheless, when deciding on using this measure, the policy makers must consider potential disproportionate burden it might have on low-income and vulnerable households and correctly assess the net effect, both present and future, on the whole society. Efficiency of carbon taxes to raise significant revenue and their generally straightforward administration might be the reason why this tool receives the most attention and is most frequently used in comparison to other alternative mitigation approaches such

as emission trading systems, feebates[20] or regulations. Scenarios presented in Fiscal Monitor for group of G20 discuss potential effect of carbon taxes of three various levels on GHG emission cuts. It merits a deeper thought that even the costliest scenario operating with uniform carbon price of $75 per ton reduces the CO_2 emissions only by 35 per cent. That means, that if we want to reach the 45 per cent reduction needed for limiting the temperature increase to 1.5 degrees, we would need to either use a much higher price, or we need to combine these policies with other measures to reach this result.

This side of the equation is the one where policy makers can get much more creative with the tailor-made activities that reflect their capacities, geographical specificities and different needs in a way not to put stress on their economic growth. In order to support these activities, countries can use portion of revenue collected from carbon taxes mentioned above. The ultimate goal to decarbonize the system and decrease emissions is reachable in many ways. One approach is for countries to focus on investing and creating support schemes for renewable energy sources, such as solar and wind, combined with incremental phasing out of coal and gas resources. Good example of this is India, where the growth of solar energy industry ha become the most promising in the world. Coal, once the major source for power production, decreased between years 2014-2019 from 60.31 per cent to 54.17 per cent while share of renewable energy has increased by 10.4 per cent to 22.85 per cent.[21] With the Government's support, as a result of its commitments to Paris Agreement, it is expected that by year 2040 around 49 per cent of electricity will be generated from renewable sources, leading to cost cuts of around 66 per cent in solar power generation.[22] Government's high ambitions in the solar energy industry are demonstrated also by initiating and hosting the International Solar Alliance, an alliance on 121 partner countries that was launched during the COP21 in Paris in 2015.[23] Some might argue that renewable sources are not affordable for everyone. Even though it might have been true years ago, there has been a decline in costs of renewables also thanks to new technologies, and this trend will only continue in upcoming years. Thus, there will be less of an impact on businesses or on households' budgets as they become more affordable. Meanwhile, especially in cases of vulnerable households or communities, government and whole international community should step up support through financing schemes that encourage pro-climate clean energy use, e.g. in Africa for clean cooking. Another way to boost decarbonization is to prioritize policies that support innovative technologies and infrastructure including smart grids, energy storage and utilization or technologies for greener and energy-saving buildings and transport that have a potential to attract new types of capital and investment also from the private sector.

Prologue

Climate change agenda has been included in the G20 from the very beginning. It has become an overarching theme over time, as the calls for action are stronger and the general public is more aware of the dire consequences of non-action could have on all of us. Cooperation and support among the G20 is important, but should not be limited only to this selected group of the world's largest economies. In fact, because of their status, they have a responsibility towards the most vulnerable ones who cannot afford to fight the degradation of environment and often face the consequences they did not cause. There are many policies and measures for governments to use in fighting the climate change and they are not limited only to efforts to decrease CO_2 emissions. Our discussion touched only upon

the most efficient and most frequently used ones that play significant role in delivering of Paris Agreement commitments to limit global warming. It is not an easy task and we are far from reaching this goal. Countries cannot do it alone. The effects of climate change do not stop at the borders, but affect everyone regardless of wealth, age or race. Therefore international cooperation is the key. We have to strive for the most ambitious targets, knowing that limiting global warming to 1.5 degrees Celsius compared to 2 degrees Celsius has clear and considerable benefits which are not only economic, but also help significantly reduce risks of water scarcity, ill-health, food insecurity, flood and drought, extreme heat, tropical cyclones, biodiversity loss, and sea level rise.

Endnotes

1. UN. (2015). Paris Agreement.
2. IMF. (2020). World Economic Outlook Update, January 2020.
3. The Paris Agreement entered into force on November 4, 2016, after being ratified by 55 countries accounting for at least 55 per cent of global emissions. As of January 2020, Agreement was ratified by 187 countries.
4. G20 Leaders' Summit Communique, Hamburg 2017.
5. Many countries have already submitted their first NDCs, but the official deadline was set to do so by 2020. NDCs will be updated every five years and should reflect the highest ambition possible.
6. G20 Leaders' Summit Communique, Osaka 2019.
7. Energy ministers met three times before — in 2015 in Istanbul, 2016 in Beijing and 2018 in Bariloche, Argentina.
8. G20 Saudi Arabia 2020. (2019). Overview of Saudi Arabia's 2020 G20 Presidency Realizing Opportunities of the 21st Century for All. December 2019.
9. Data from: OECD, UNDP. (2019). G20 Contribution to the 2030 Agenda: Progress and Way Forward.
10. IPCC. (2018). Global Warming of 1.5°C
11. As of January 2020, 184 Parties submitted their first NDCs and two Parties submitted their second NDCs.
12. UNEP. (2019). Emissions Gap Report 2019.
13. EU. (2014). A policy framework for climate and energy in the period from 2020 to 2030.
14. EU. (2019). The European Green Deal.
15. The Wall Street Journal. December 12, 2019. EU Pledges to Cut Greenhouse-Gas Emissions to Net-Zero by 2050.
16. Up to date information at Net Zero Tracker
17. IMF. (2019). Fiscal Monitor: How to Mitigate Climate Change, October 2019.
18. IMF. (2019). Fiscal Monitor: How to Mitigate Climate Change, viii, October 2019
19. Accurately reflecting costs in prices and ensuring that the environmental costs are included as well.
20. Feebates – impose a sliding scale of fees on products and activities with above-average emission rates and provide rebates for those with below-average emission rates.
21. India was the third highest emitter of CO_2 and the third highest user of coal in the power generating process in the world in 2018, but the renewable energy consumption has been increasing constantly since 2010.
22. LSI Research. (2019). Industry Review: Indian Solar Energy.
23. International Solar Alliance

References

EU. (2014). A Policy Framework for Climate and Energy in the Period from 2020 to 2030. COM (2014) 15 Final. Brussels, 22.1.2014.

EU. (2019). The European Green Deal. COM (2019)640 Final. Brussels, 11.12.2019.

G20 information Centre - Communiqués and Other Documents

G20 Saudi Arabia 2020. (2019). Overview of Saudi Arabia's 2020 G20 Presidency Realizing Opportunities of the 21st Century for All. December 2019.

IMF. (2020). World Economic Outlook Update, January 2020.

IMF. (2019). Fiscal Monitor: How to Mitigate Climate Change, October 2019.

IPCC. (2018). Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.

International Solar Alliance (http://isolaralliance.org/Index.aspx)

LSI Research. (2019). Industry Review: Indian Solar Energy. LSI Financial Services Pvt. Ltd.

Net Zero Tracker (https://eciu.net/netzerotracker)

OECD, UNDP. (2019). G20 Contribution to the 2030 Agenda: Progress and Way Forward

UN. (2015). Paris Agreement

UNEP (2019). Emissions Gap Report 2019. United Nations Environment Programme, Nairobi

UNFCCC secretariat (UN Climate Change) (https://unfccc.int/)

The Wall Street Journal. December 12, 2019. EU Pledges to Cut Greenhouse-Gas Emissions to Net-Zero by 2050.