

The Paris Agreement and the NDCs of ASEAN

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ABSTRACT

The ASEAN nations have tried to achieve their target NDCs for their commitment towards the Paris Agreement. Various national plans and policies have been formulated in the NDCs; however, there have been minimal attempts to elaborate upon the plans and measures, and their relevance. With climate change bringing new challenges to international law every day, there is an inevitable need to keep on revising environmental laws and regulations. This paper will compare the ASEAN Member States and review the compliance as case studies and their priorities and views towards climate change. ASEAN comprises numerous nations with differing GDPs. The paper's focus is to see how ASEAN has collectively addressed climate change, but the implementation differs on a domestic level and how that affects their respective NDCs. This paper intends to review the NDCs of the ASEAN nations and analyse the adequacy of the current plans and policies.

I. INTRODUCTION

A. The Expansion of International law-making

Climate change is a global problem that affects everyone, but it does not affect everyone equally. Geographic location is, of course, a key factor; some areas are simply more affected than others through their physical characteristics and the interaction between local climate systems (Pettengel, 2010).¹ Thinking about the real factors of worldwide advancement towards bringing down the level of greenhouse gas emissions, activities zeroing on environment transformation and environment flexibility are progressively significant. Such activities, nonetheless, are innately perplexing.

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¹ Catherine Pettengell, 'Climate Change Adaptation' (OXFAM Research Report, April 2010) <https://www.preventionweb.net/files/13795_rrclimatechangeadaptationfull290410.pdf> accessed 25 March 2021

Expanding environment transformation, subsidizing and extending activities with Southeast Asian countries that can put attention on boundary building could furnish the United States with a financially savvy approach to fabricate connections in Southeast Asia that both advance its drawn out interests and go far towards relieving the most noticeably terrible effects of environmental change. Consistently, the area is vigorously affected by environment related fiascos. With rising temperatures adjusting worldwide climate designs, environmental change has caused annihilation across the locale. This year alone, Cyclone Harold and Hurricane Gon evacuated individuals' lives across the Pacific and Southeast Asia. Excess dry weather have crushed horticulture harvests and animals across Laos, Thailand, and Vietnam, in any event, turning the water in Bangkok salty. Recently, in an analysis completed by the Climate Action Tracker showed that if every one of the government that swore mid-century net zero targets, they are liable for 63% of worldwide greenhouse gas emissions, a dangerous atmospheric deviation could be just about as low as 2.1°C. This would keep the Paris Agreement's objective of restricting the worldwide wide temperature boost to 1.5°C remaining parts reachable.² Additionally, certifiable activity temperature level dependent on completely embraced public strategies till today, has likewise shown a decrease of temperature with lessening of 0.7°C from 3.6°C in 2015 to 2.9°C today.

In 1992, the United Nation Framework Convention on Climate Change (UNFCCC) was adopted as the basis for a global response to climate change (UNFCCC WEBSITE). The main objective of the Convention was to stabilize the greenhouse gas concentration at a level that would prevent the dangerous anthropogenic intervention in the present climate system. All those states which are parties to this Convention are represented by the Conference of Parties (COP), and COP is basically the supreme decision making body of the UNFCCC.³ Presently, there are 197 States, including ASEAN Member States (AMS), which are parties to the UNFCCC. There are numbers of associated bodies and working groups that support each other to implement the UNFCCC. The Subsidiary Body for Scientific and Technological Advice (SBSTA) is one such body, which assists the COP by providing information and advice on scientific and technological matters related to UNFCCC (UNFCCC WEBSITE).

B. The Paris Agreement

In 2015, at COP21 parties to the UNFCCC came together to an agreement to deal with the dangerous change. The Paris Agreement's main objective was to combat the threat of climate change by keeping a global temperature rise this century below

² Dechen Tsering and Christophe Bahuet, 'Asia and the Pacific Can Lead the Way in Climate Ambition' (THE DIPLOMAT, 15 December 2020) <<https://thediplomat.com/2020/12/asia-and-the-pacific-can-lead-the-way-in-climate-ambition/>> accessed on 2 April 2021

³ 'ASEAN Joint statement on Climate Change to the 21st session of the Conference of Parties to the UNFCCC (2015)' (ASEAN CORPORATION ON ENVIRONMENT) <<http://environment.asean.org/download/climate-change/agreement/ASEAN-Joint-Statement-on-Climate-Change-Adopted.pdf>> accessed on 31 March 2021

two degrees Celsius above pre-industrial level and to adopt such measures that can limit the temperature increase even further to 1.5 degrees Celsius (UNFCCC WEBSITE). The main aim is to strengthen the global climate change response by increasing the ability of all to adapt to climate change's adverse impacts and foster climate resilience.⁴ Further, it increases the country's ability to deal with the adverse effects of climate change and make finance flows consistent with the low greenhouse gas emissions and build climate-resilient pathways. These goals can be reached by the appropriate mobilization and provision of financial resources, new technology framework and the financial and technological assistance from the developed countries to the developing countries or least developed countries (LDCs).

The Paris Agreement was signed on 22 April 2016 in New York and thus, entered into force on 4 November 2016 (UNFCCC WEBSITE).⁵ 30 days after passing of the agreement, the double threshold boundary of 55 Parties approving and the absolute discharges of sanctioning Parties surpassing 55% of worldwide emissions of greenhouse gas. Following three years of arrangements, Parties consented to finish up the Paris Agreement Work Program (PAWP), specifying the modalities, methods and rules for the execution of the Paris Agreement, during COP-24 in Katowice, Poland in December 2018. To this date, 187 parties have ratified the 197 parties to the United Nation Framework Convention on Climate Change (UNFCCC WEBSITE). Its goal is to ensure an adequate and effective adaptation response in the context of the goal of holding average global warming well below 2 degrees Celsius and pursuing efforts to hold it below 1.5 degrees Celsius (UNFCCC WEBSITE). The parties' main aim should be to reach global peaking of greenhouse emissions as soon as possible so that this temperature goal can be achieved (Paris Agreement, 2015). All parties which are members of the Paris Agreement are required to adopt the effective adaptation planning and implementation through, national adaptation plans, vulnerability assessment, monitoring and evaluation and diversification of economy (Paris Agreement, 2015). The Paris Agreement provides that all parties to this framework should communicate their priorities, action plans and support or needs through adaptation communications. It also requires the parties' transparency of actions, understanding of climate change, and strengthening of climate goals (Paris Agreement, 2015).

C. The Paris Agreement and Nationally Determined Contributions (NDCs)

While setting net zero targets is a significant advance, the viability of these drawn out objectives relies fundamentally upon the close term activities. Another significant benchmark for the Paris Agreement 1.5°C temperature objective distinguished in the IPCC's 1.5°C report is cutting emissions, in any event 45% from the year 2010 level. A new report infers that we would see the consequence of close

⁴ 'New elements and dimensions of adaptation under the Paris Agreement (Article 7)' (United Nations Climate Change) <<https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/new-elements-and-dimensions-of-adaptation-under-the-paris-agreement-article-7>> accessed 28 March 2021

⁵ 'Paris Agreement- Status of Ratification' (United Nations Climate Change) <<https://unfccc.int/process/the-paris-agreement/status-of-ratification>> accessed 26 March 2021

term quick emission cuts, in accordance with the Paris Agreement limitation of 1.5°C, within the following twenty years.⁶ The danger of encountering phenomenal warming rates would be multiple times lower, contrasted and proceeded with substantial dependence on petroleum products. This calls for severe environment activity to steeply lessen outflows in the following ten years, and underscores the significance of sloping up the aspiration level of governments' Paris Agreement carbon cutting pledges, which is known as Nationally Determined Contributions or NDCs. Relatively few nations have done as such and a couple of NDCs submitted in 2020 are viable with the 1.5°C temperature objective and in accordance with moving to net zero by 2050.⁷ It stays not yet clear whether the desire communicated by nations so far will convert into concrete groundbreaking strides soon.

The Paris Agreement establishes a binding commitment, that all Parties should put forward their efforts through nationally determined contributions.⁸ Article 4 of the Paris Agreement provides that all Parties of the agreement are required to prepare, communicate and maintain the successive nationally determined contributions, which it is intended to achieve by their domestic measures (Paris Agreement, 2015). Parties must submit or communicate their nationally determined contributions every five years to the UNFCCC secretariat and provide all the information necessary for clarity and transparency. The main objective behind the submission of NDCs in every successful five years is to achieve the long term goals specified in the Article 2 and Article 4.1 of the Paris Agreement by comparing to the previous NDC (UNFCCC WEBSITE).⁹ All parties are requested to submit their next round of new or updated NDC by 2020 or every five years thereafter.

II. ASEAN COUNTRIES AND CLIMATE CHANGE

A. ASEAN Countries in Climate Change Negotiations

The Association of South-East Nations (ASEAN) consists of ten countries, such as- Brunei Darussalam, Cambodia, Indonesia, Lao's People Democratic Republic, Myanmar, Philippines, Malaysia, Thailand, Singapore and Vietnam. These regions have approximately 8.6 percent of the global population, and almost 48.2 percent of the

⁶ 'Swift Sharp Emissions Cuts Should Slow Warming within 20 years' (DECCAN HERALD, 7 December 2020) <<https://www.deccanherald.com/science-and-environment/swift-sharp-emission-cuts-could-slow-warming-within-20-years-924669.html>> accessed on 27 March 2021

⁷ Fahad Saeed and Ursula Fuentes-Hutfilter, 'Renewed hope for tackling climate change - could it boost South Asia cooperation' (Climate Analytics, 27 January 2021) <<https://climateanalytics.org/blog/2021/renewed-hope-for-tackling-climate-change-could-it-boost-south-asia-cooperation/>> accessed on 29 March 2021

⁸ 'The Paris Agreement' (United Nations Climate Change) <<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>> accessed on 19 March 2021

⁹ 'Nationally Determined Contributions (NDCs)' (United Nations Climate Change) <<https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs#eq-5>> accessed 21 March 2021

total population resides in the urban areas.¹⁰ Today, the world is facing a serious threat of climate change. In the Paris Agreement, nations have agreed to reduce greenhouse gas emissions, and ASEAN countries have also assisted in their emission mitigation target.¹¹ ASEAN countries are the major contributor to global development. However, these countries face major challenges to reduce greenhouse gas emissions by not hampering the supply of electricity in order to meet the needs of developing countries. In 1990, the ASEAN countries became the first regional Strategic Plan of Action to harmonize their environmental policies. Joint climate cooperation was launched in the second half of 2000.¹² The main objectives were to establish a joint representation of the ASEAN countries at the UNFCCC negotiation and work to harmonise climate change activities at the regional level by the member countries. According to the UN grouping, ASEAN countries are the part of various climate change negotiations such as these countries are the members of G77 and China group, Cambodia, Myanmar and Lao PDR are also the member of LDC group and Malaysia, Thailand and Philippines are also involved in the LMDC Group (Choy, Ying, Jindal & Almassy 2016).¹³ AMS countries have jointly recognized the importance of the climate change negotiations.¹⁴ They have sought to promote their common regional interest by issuing a joint statement for the COP13, 15, 16 and 17 in 2007, 2009, 2010, 2011 and 2014. However, in the 27 ASEAN Summit in 2015, ASEAN countries' leaders have adopted a joint statement on climate change to the COP21. However, the pre COP21 statement mainly focused on the Paris Agenda and urged all the parties to the UNFCCC to recognize the vulnerability of ASEAN countries to climate change and thus, sought the importance of strengthening the adaptation and developing resilient climate capacity in the Paris Agreement (UNFCCC WEBSITE). In recent years, the ASEAN countries have also recognized the threat of climate change and the high vulnerability of AMS to climate change. In their joint statement on climate change, the ASM has also recognized their willingness to contribute to the global negotiations, amplification and modification of their regional cooperation to tackle climate change threats, implementation of mitigation commitments and to encourage clean energy and low carbon development. Further, the ASEAN countries also outlined the importance of the Clean Development

¹⁰ 'ASEAN Preparatory Workshop for the UNFCCC COP2' (Food and Agricultural Organization of the United Nations) <<http://www.fao.org>> accessed on 20 March 2021

¹¹ 'What is Paris Agreement?' (United Nations Climate Change) <<https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement>> accessed on 25 March 2021

¹² 'What is the United Nation Framework Convention on Climate Change' (United Nations Climate Change) <<https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change>> accessed on 25 March 2021

¹³ Prof. HO Juay Choy & Mellisa Low Yu Ying & Gautam Jindal & Dora Almassy, '*HANDBOOK FOR ASEAN GOVERNMENT OFFICIALS ON CLIMATE CHANGE AND SDGS*' (ASIA –EUROPE ENVIRONMENT FORUM 2016) <<https://www.asef.org>> accessed 22 March 2021

¹⁴ 'Study on cooperative MRV as a foundation for a potential regional carbon market with ASEAN' (United Nations for Climate Change- Synthesis Report) <<https://unfccc.int/sites/default/files/resource/Synthesis%20report%20.pdf> > accessed on 23 March 2021

Mechanism (CDM), the Adaptation Fund and Reducing Emission From Deforestation and Forest Degradation (RED+) in their joint statements.¹⁵

From 2009 onwards, the ASEAN countries have emphasized a road map to address or tackle the threat of climate change more comprehensively with all sectors' cooperation. The main objective is to pursue all the national development plans along with the adaptation and mitigation process. Such initiatives by the AMS can amplify the regional climate cooperation activities' results and make the societies climate resilient with low carbon economic development. In the 27th ASEAN Summit in 2015, the AMS declared their commitment to implement the objectives enshrined in the ASEAN Action Plan on the response to Climate Change and adopted the action plans for mitigation and adaptation in the national or regional level (Choy, Ying, Jindal & Almassy 2016). In the UNFCCC, the ASEAN countries have also emphasized the needs and importance of sustainable development efforts for the fastest and most efficient way of closing the ambition gap (Choy, Ying, Jindal & Almassy 2016).

B. Pledges of ASEAN Countries in the Paris Agreement Process

Each country that is a party to the Paris Agreement is required to determine its own contribution to the reduction of the greenhouse gas emissions to mitigate climate change threats. Each country on the regions have acknowledged the risks and accepted the Paris Agreement. For an example-ASEAN's most crowded country is Indonesia, and perhaps is the biggest producer of greenhouse gas emissions around the world. The nation has reaffirmed its promise to decrease outflows by 29% freely, or 41% with worldwide help by 2030. Indonesia has additionally put forth critical attempts to lessen discharges from the forestry and land-use area, which represents the greater part of the nation's absolute outflows.

Although the Paris Agreement does not force any country to take on a certain target. However, the Parties to the agreement are required to submit their nationally determined contributions (NDCs) to the UNFCCC regarding their actions and willingness to reduce their greenhouse gas emissions. ASEAN countries still rely on fossil fuel and other high carbon-intensive process and their NDCs provides the reduction emission in the intensity of growth in Malaysia and Singapore, undertake emission reduction from business-as-usual (BAU) levels in Indonesia, Philippines, Thailand and Vietnam, increase of renewable energy in the total energy mix in Lao PDR and improvement of the forest sector in Lao PDR and Cambodia. All these measures indicate how ASEAN countries have achieved or are trying to achieve their commitment (Choy, Ying, Jindal & Almassy 2016). The Paris Agreement's success will depend on the countries setting more ambitious targets with each successive global stocktake. The ASEAN countries need to successively monitor their progress towards their 2020 and 2030 targets. The countries should also keep track of the technological advancements and their financial stability to determine whether they can set the higher ambitious target. At the same time, transparency and accountability are the keys to the success of the Paris Agreement. ASEAN countries are also required to ensure that their

¹⁵ 'New elements and dimensions of adaptation under the Paris Agreement (Article 7)' (United Nations Climate Change) <<https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/new-elements-and-dimensions-of-adaptation-under-the-paris-agreement-article-7>> accessed on 28 March 2021

policies and measures are in compliance with the requirements of transparency framework and disclose all the accurate information in a timely manner so that global progress can be accurately measured.

III. ROLE OF ASEAN COUNTRIES IN REALIZING PARIS AGREEMENT

In this section, countries are reviewed in alphabetical order to estimate the emissions gap between the baseline scenario trajectories and NDC pledges for each ASEAN country. Some countries provide all the relevant information regarding their nationally determined contributions (NDCs) by their projections of the economy wide emission in the Baseline scenario and under their intended policies. However, some of the ASEAN countries do not report economy wide emission targets in their NDCs, for such countries the estimate of economy wide targets associated with their stated goals is provided.

A. Country-Level Analysis

Brunei Darussalam

Brunei Darussalam is a small nation, which shares its boundaries with Malaysia and South China. Its economy is mostly dependent on the revenues from the extraction, refining and export of its oil reserves. Brunei Darussalam aims to reciprocate environmental awareness and mainstream environmental consideration by appropriate planning, assessment of natural resources, improving the rural and urban environment, and protecting the biodiversity, forests, coastal and marine areas. It submitted its Intended Nationally Determined Contributions (INDCs) in 2015. The baseline scenario is intended to emit 14.3 MtCO_{2e}, excluding LULUCF emissions in the year 2035, with emissions from fossil fuel combustion contributing 98.4% of the total greenhouse gas emissions. Its NDC describes that it will reduce its energy intensity of the GDP by 45% in 2035, which is corresponding to the total greenhouse gas emission target of 10.3 MtCO_{2e} in 2035 (Paltev & Mehling). Its NDC aims to meet its renewable energy requirements through solar power and energy generation from the waste. The country also intends to make an additional effort to reduce the Carbon dioxide emission from the vehicles by 40% to improve the fuel efficiency of the vehicle and, thus, promote transportation by bus, walking, etc. Additionally, the Brunei Darussalam's Land Transport White Paper encourages and identifies various transport policy recommendations to increase public transport use from 1% to 22% of trips by the year 2035. In Bandar Seri Begawan, the efforts are taken to promote the hybrid and electric vehicles, creation of fuel economy regulations and the review of such existing fuel subsidies (Paltev & Mehling)

Cambodia

Cambodia is the most vulnerable to climate change. According to the World Bank report of 2014, Cambodia is very prone to the sea level rise in the future that will pose a serious threat to low lying coastal areas, high tides, storms, coastal erosion and seawater intrusion (Choy, Ying, Jindal & Almassy 2016). In the baseline scenario,

Cambodia is intended to emit 15.7 MtCO₂e from the energy sector in the year 2030. In the NDC of Cambodia, its target is to reduce greenhouse gas emissions by 27% in 2030. The Total Primary Energy Supply (TPES) of Cambodia in 2030 will total 12,379 ktoe with 61% from biofuels and waste, 28% from oil, 8% from coal, 2% from hydro, and there will be negligible amounts from other renewable resources. According to this report, the electricity generation will reach at 8,178 GWh in 2030 with a generation mix of 50% coal, 44% hydro, 5% oil, and 1% biofuels and other non-hydro renewable sources (Paltev & Mehling). As per the NDC, Cambodia will prefer the renewable energy source for the development goals and the reduction of GHG emissions. The country has adopted renewable sources for the development of a national grid of connected energy systems in the country through solar, hydro, biomass and biogas to increase the country's electrification ratio of its 2015 level of 65%. Furthermore, Cambodia also encourages the use of renewable energy in the manufacturing sector, such as garment factories, rice mills, etc. These policies and actions are clearly described in Cambodia's Climate Change Strategic Plan for the year 2014-2023.

Indonesia

Indonesia submitted its NDC on 24 September, 2015 to the UNFCCC. Its strategic plans indicate the reduction of GHG emissions from the land use change and forestry emission by 29% below the business-as-usual and a conditional 41% reduction below business-as-usual by the end of the year 2030. According to the APEC project in Indonesia, the energy sector's baseline emission will be doubled between 2010 and 2030 (Fulton, 2017).¹⁶ Indonesia has likewise dispatched a plan to make food domains covering around 770,000 hectares, or in excess of multiple times the size of Singapore. Indonesia, confronting the mammoth errand of conveying solid energy admittance to in excess of 270 million residents, is moving to make sustainable power very nearly a fourth of its energy blend by 2025, up from only 12% a year ago. Indonesia, for instance, plans to restore nearly 600,000 hectares of harmed mangrove backwoods, basic environments that can help in storing carbon level and ensure against ocean level ascent, in the following three years. The NDC of Indonesia aims to bring back down to the level of 2010, but it is still about 50% higher by the year 2030. Additionally, the NDC of Indonesia does not provide detailed information about the sector, which is intended to reduce their emissions in order to reach their target. Indonesia's National Energy Policy is considered the most relevant policy that deals with the country's future energy supply. The main objective is to increase renewable energy use to 23%, as the primary source of energy supply by the year 2025. The National Medium Term Development Plan 2015-2019 was formulated by Indonesia as an action plan for the reduction of GHG. It aims to reduce GHG emissions in the five major sectors, such as forest and peatlands, agriculture sector, industrial sector, energy and transportation, and waste to achieve the target (Fulton, 2017).

¹⁶ Lew Fulton, 'Climate Change Mitigation Pathways for the Southeast Asia: CO₂ Emissions Reduction Policies for the Energy and Transport Sectors. Sustainability 2017' Vol.9, <<https://www.mdpi.com>> accessed 18 March 2021

Malaysia

Malaysia submitted its NDC to the UNFCCC in January 2016 and it was ratified in November, 2016. The NDC of Malaysia states the reduction of greenhouse gas emission of the GDP by 45% by 2030 in which 35% includes the unconditional basis and a further 10% is conditioned upon receipt of climate finance, technology transfer and capacity building of the developed countries (Fulton, 2017). The NDC does not provide any quantified analysis about the measures of baseline projections. According to the APEC, the emission of carbon dioxide from the energy sector is estimated to increase from about 200 to 300 megatons by the year 2030. Malaysia has adopted various NDC policies to reduce emission. The National Renewable Energy Policy and Action Plan were adopted in 2010 to increase the use of renewable energy in the country's development plans and reach 11% by the year 2030.¹⁷ Further, Eleventh Malaysia Plan 2016-2020 is adopted by the government with the concept of sustainability. The main intention is to reduce Malaysia's carbon emission by strengthening and enabling the environment for green growth, sustainable consumption and production of resources and conservation of natural resources.

Myanmar

Myanmar submitted its NDC to UNFCCC in September, 2015. In the baseline scenario, Myanmar is expected to emit 72.8 MtCO₂e excluding land use, land-use change, forestry (LULUCF), and 44.9% of the total greenhouse gas emissions are contributed from the combustion of fossil fuels, by 2030. In the Paris Agreement, Myanmar is committed to expand their hydropower capacity to 9.4 GW for an estimated hydro output of 16,469 GWh by 2030 and to reduce their emissions from the fossil to 20% 2030. Its mitigation action aims to develop hydroelectric power generation, rural electrification from the renewable sources of energy, and efficient energy use in the industrial sector. Myanmar's National Electrification Plan aims to increase the electrification of 6 million rural people by using at least 30% of the renewable sources and increasing their national electrification rate from 33% in 2014 to 100% in 2030 (Paltev & Mehling). In addition to this, Myanmar has adopted a National Climate Change Strategy and Action Plan in 2015, with the aim to achieve the goal of sustainable development with climate resilient and low carbon emission by 2030.¹⁸ Furthermore, these policies and plans make various provisions and measures to be adopted for the sustainability projects, management plans and impact assessment in the areas of forests, transportation, energy and other sectors.

Lao PDR

¹⁷ Melati Wulandari, 'Malaysia ready to do more than what's expected' <<https://www.nst.com.my/opinion/columnists/2018/03/343216/malaysia-ready-do-morewhats-expected>> accessed 22 March 2021

¹⁸ Simon Tay and Meixi Gan, 'ASEAN's potential contribution to climate action' (SIIA, 20 November 2020) <<http://www.siiainline.org/aseans-potential-contributions-to-climate-action/>> accessed 1 April 2021

Lao PDR submitted its NDCs to UNFCCC in October, 2015. Its NDC provides the mitigation activities under forestry, use of renewable sources of energy, rural electrification by the use of renewable energy and the large scale generation of hydropower energy. In the baseline scenario, the Lao PDR is expected to emit 22.5 MtCO₂e by the year 2030 (Paltev & Mehling). In 2011, the government adopted the Renewable Energy Strategy to reduce the emission of the greenhouse gas by the use of renewable energy resources, which includes increasing the share of consumption of small scale renewable energy to 30% and the share of biofuels to 10% by 2020. Furthermore, the main aim is the electrification of 90% of rural households by using renewable energy to reduce the further emission of greenhouse gas from the usage of fossil fuels in such areas. These strategies also aim to contribute to the country's long term national development goals enshrined in its 8th Five Year National Socio Economic Plan for the year 2016-2020 (Paltev & Mehling). Lao PDR has adopted the National Adaptation Programme of Action in 2009 and the National Strategy on Climate Change in 2010 with the aim to address the immediate and projected climate change requirements in various sectors such as agriculture, industry, forestry, water resources, transport and urban development sectors and health sectors. These plans are implemented and coordinated by the National Disaster Management Committee (NMDC), and the Ministry of Natural resources and Environment (MoNRE).

Philippines

Philippines submitted its INDC to UNFCCC in October 2015 and ratified in the year 2017. The main target of NDC is the 70% reduction of all climate pollutants by 2030, with the help of financial and other assistance by the international agreements. The Philippines has very less per capita level of carbon emission which would increase by 1.5 in 2030. Additionally, NDC provides the National Climate Change Action Plan (2011-2018), which aims for the development of National Renewable Energy Program (NREP) that seeks to increase the country's renewable based energy capacity by 2030. The Philippines Energy Plan 2012-2030 was formulated under the National Renewable Energy Plan to strengthen the use and power generation from renewable energy sources.

Singapore

Singapore submitted its INDC to UNFCCC in July, 2015 and it was ratified in September 2016. The NDC of Singapore aims to reduce the GHG emission by 36% by 2030.¹⁹ According to the APEC projection, Singapore's carbon emission will rise up to 10% by 2030. However, Singapore's NDC does not clearly specify its policy related to energy (Paltev & Mehling). NDC provides that the country is mostly dependent on using fossil fuels. Therefore, in order to reduce greenhouse emission, it is now encouraging the use of renewable energy for the electricity generation and at present 90% of Singapore's electricity is generated from natural gas. In 2019, Singapore

¹⁹ Sergey Paltsev and Michael Mehling, 'Pathways to Paris: Association of Southeast Asian Nations (ASEAN)' (MIT) <<https://globalchange.mit.edu/sites/default/files/P2P-ASEAN-Report.pdf>> accessed on 26 March 2021

dispatched its "30 by 30" activity to locally create 30% of the country's nutritional necessities by 2030. In any case, joint innovative work exercises will benefit Singapore and Indonesia both. Singapore has a lot to gain from Indonesia's times of involvement with horticultural administration. Knowledges can likewise be shared on customer training about economically created food. An enormous and critical chance lies in the spotless energy area. Energy Conservation Act of Singapore was enacted with the aim to mandate the energy efficiency requirements and the energy management practices to promote the conservation of energy. Singapore represents around 0.11 percent of worldwide fossil fuel byproducts, we have put forth critical attempts to lessen discharges locally. Around 95% of our power is created from flammable gas, the cleanest non-renewable energy source and we have carried out strategies to cover vehicle development and oversee vehicular discharges.

Further, Singapore's government is encouraging the use of solar photovoltaic and its target is to green 80% of its building by 2030. It encourages households and companies to use and invest in the energy efficient equipment and technologies such as the Grant for Energy Efficient Technologies, or the Energy Efficiency Improvement Assistance Schemes.²⁰ Singapore has adopted very stringent policies for the reduction and minimal use of vehicles. Furthermore, to encourage public transport, the length of the rail network will be doubled from 178km in 2012 to 360 km by 2020. Third National Communication of Singapore provides that by 2020, the energy efficiency measures are expected to be only 1.15 MtCO_{2e} and the other measures such as building sectors and domestic transportation system are expected to reduce about 1.21 MtCO_{2e} and 1.16 MtCO_{2e} by 2020 (Paltev & Mehling). Singapore, with its solid foundation certifications, can accomplice its ASEAN neighbors to contribute venture, innovation and capacities. Local corporates, for example- Sembcorp and monetary establishments, DBS has broad experience creating, financing, and conveying bankable ventures in the area. Singapore is additionally putting up to \$49 million in extraordinary failure carbon advancements including hydrogen energy and carbon catch, use and capacity, and in time can impart its learnings to different nations.

Thailand

Thailand submitted its INDC to UNFCCC in October 2015 and it was ratified in September 2016. In the baseline scenario, by 2030, Thailand is expected to emit 645 MtCO_{2e} excluding land use, land-use change, forestry (LULUCF), and 84.7% of the total emission is contributed from the combustion of fossil fuels. The NDC of Thailand aims to reduce their greenhouse emission by 20% in 2030. Additionally, in its NDC, Thailand clearly stated that, in 2012, 73% of its emission came from the energy and thus now its policies and plans are more inclined towards the mitigation efforts of the energy and transport sectors of the country (Paltev & Mehling). Thailand has adopted various plans, such as- National Economic and Social Development Plan, Climate Change Master Plan 2015-2050, Power Development Plan 2015-2036, Alternative Energy Development Plan 2015-2036, Environmentally Sustainable Transport System

²⁰ 'Climate Change' (Ministry of Foreign Affairs Singapore) <<https://www.mfa.gov.sg/SINGAPORES-FOREIGN-POLICY/International-Issues/Climate-Change>> accessed on 22 March 2021

Plan 2013-2030, and National Industrial Development Master Plan 2012-2031, which forms the basis of their NDCs. The Power Development Plan's main aim is to reduce greenhouse gas emissions and increase the use of renewable sources from 8.5% in 2015 to 20% by 2036. Similarly, Thailand's Alternative Energy Development Plan aims to achieve 30% of Total Primary Energy Supply (TPES) from renewable sources of energy compared to 19% in 2015. Furthermore, the Environmentally Sustainable Transport System Plan aims to encourage the "road to rail" mode of transportation system for both passengers and freights. In Thailand, whose NDCs layout an Environmentally Sustainable Transport System Plan, mass travel designer BTS as of late gave its second oversubscribed green bond. The bond will back sky-train lines that will help in diminishing carbon dioxide outflows by 28,000 tons every year. BTS is supposedly considering changing over these emanations reserve funds into carbon credits. However, Thailand's Climate Change Master Plan, aims to reduce 7-20% reduction in the greenhouse emission from the energy and transportation system by 2020. The target of Thailand's NDC to achieve the 30% share of the total energy consumption by 2036 can be achieved by the robust energy efficiency plans and regulatory policies (Fulton, 2017).

Vietnam

Vietnam submitted its INDC to UNFCCC in September 2015 and it was ratified in November 2016. The NDC of Vietnam cites greenhouse gas emissions by 8% and by 25%, conditional on international financial support and assistance by 2030. In the baseline scenario, Vietnam is expected to emit 571 MtCO₂e with the emission from energy sources and contributing 69% of the total greenhouse gas emission by 2030. Vietnam has adopted various plans and policy measures as the basis of their NDC. Vietnam, which expects to twofold its utilization of sun based and wind energy to 20 percent of force supply by 2030. This will diminish carbon emissions by 15%, or almost twofold the decrease the nation promised under the Paris Agreement to accomplish without unfamiliar guide. In Vietnam's Revised Power Development Plans, the main aim is to achieve the goal of 10% renewable in electricity generation by 2030.²¹ Similarly, the National Green Growth Strategy for the period 2011-2020, is adopted with a vision in 2050, which provides the measures to reduce the greenhouse gas emission, energy consumption and efficiency for the year 2020, 2030 and 2050. To achieve its targeted emission reduction, Vietnam has formulated the National Green Growth Strategy, which has enumerated 17 action plans for the development of sustainable transportation systems and policy. Furthermore, the National Climate Change Strategy, provides various measures to curb the greenhouse gas emission from the industry, electricity, transport and urban development by the use of efficient production technologies and the use of CNG in the transportation system. However, National Socio-economic Development Strategy 2011-2020 provides that the target of

²¹ David Dennis, 'Southeast Asia's Coming Climate Crisis' (CENTER FOR STRATEGIC & INTERNATIONAL STUDIES, 22 May 2020) <<https://www.csis.org/blogs/new-perspectives-asia/southeast-asias-coming-climate-crisis>> accessed on 1 April 2021

NDCs can be achieved by management of urban energy consumption through effective and efficient utilization of renewable resources.

Thus, it is very evident that ASEAN countries are highly vulnerable to climate change's negative impacts. With the future prospects of worsening climate change, the ASEAN countries must seek the common interest in climate change negotiations and to promote their interest (Wijaya & Idris, 2017).²²

IV. ANALYSIS

For understanding the effects of the current plans and approaches precisely on the carbon emissions in the climate and whether such plans are sufficient or successful to arrive at the ideal objective or not. Also, it is crystal clear that without sufficient analization of the goal, ASEAN member countries won't accomplish its point of low carbon advancement nations. The environment activity plans, which is also called as “Nationally Determined Contributions” (NDCs), submitted as a component of the Paris Agreement are viewed as deficient by various scientific community. As per the Climate Action Tracker, Indonesia and Singapore's environment activity plans are profoundly deficient and lacks clarity, and the plan of Vietnam is considered quite complicated one to meet the Paris Agreement objective.²³ Also, not only making plans will not solve the issue, but also proper excution of the plans are required if we are expecting results. BTS is apparently considering about changing over these emanations savings into the carbon credits. Singapore, with its solid framework certifications, can accomplice its ASEAN neighbors to contribute speculation, innovation and capacities.²⁴

But Indonesia, Thailand, Singapore and numerous others submit are not submitting further driven plans. We need to turn the present circumstances around and make ASEAN governments increment the aspiration of their environment activity plans by the United Nations Climate Change Conference (COP26), in the United Kingdom in 2021 to handle this monstrous danger to our entitlement to wellbeing and life that is environment changes, that said by APHR.

On this regard, Walden Bello had said that APHR is approaching governments in Southeast Asia to focus on improving their responsibilities to handling environmental change in front of COP 26. Until now, just Myanmar, Laos, Cambodia and Timor-Leste have done as such. For the wellbeing and endurance of all, different countries should take cues from them.

²² Arief Wijaya and Shira Idris, ‘ASEAN Countries Must Countries Together to Confront Climate Change’ (World Resources Institute, 16 November 2017) <<https://www.wri.org/blog/2017/11/asean-countries-must-act-together-confront-climate-change>> accessed on 20 March 2021

²³ ‘Reduce risk of future epidemics by improving climate change commitments now, MPs warn’ (reliefweb, 22 April 2020) <[Reduce risk of future epidemics by improving climate change commitments now, MPs warn - World | ReliefWeb](https://reliefweb.int/news/2020/04/reduce-risk-of-future-epidemics-by-improving-climate-change-commitments-now-mps-warn)> accessed 2 April 2021

²⁴ Simon Tay and Meixi Gan, ‘ASEAN’s potential contribution to climate action’ (The Jakarta Post, 20 November 2020) <<https://www.thejakartapost.com/academia/2020/11/20/aseans-potential-contributions-to-climate-action.html>> accessed 1 April 2021

V. CONCLUSION

In this paper, the researchers have reviewed the NDCs of ASEAN countries regarding their commitments towards the Paris Agreement. Paris Agreement is the first ever universal and legally binding climate change agreement adopted at the Paris Climate Conference in December 2015. The Paris Agreement sets out the global framework to avoid the threat of climate change by reducing global warming to below 2 degrees Celsius and undertaking various efforts to limit it to 1.5 degrees Celsius. ASEAN countries have also ratified the UNFCCC, Kyoto Protocol and also participated in the Paris Agreement.

In the Paris Agreement, ASEAN countries are committed to reducing their greenhouse gas emissions by the year 2030 and introducing various plans and policies to achieve their target or commitment. For ASEAN, the initial step is to meet up as a local area zeroed in on environment activity, assess the situation, and re-invigorate endeavors toward the aggregate objectives in front of COP26 one year from now. ASEAN countries are already facing and will face a wide variety of challenges from climate changes. ASEAN countries are highly vulnerable to the adverse impacts of climate change, severely affecting their socio-economic development and political stability. Further, it is recognized that many of the most vulnerable sectors, such as agriculture, forestry, health sector and water management requires the prioritization of the adaptation needs in the ASEAN countries. Adaptation plans must be integrated by the ASEAN countries into top-down and bottom up approaches for planning to enable sustainable development and the efficient use of resources for adaptation. ASEAN countries face the major challenge of reducing the greenhouse gas emission and at the same time expanding their energy supply in order to meet the needs of rapidly developing countries. In aggregate ASEAN countries are making good progress towards their goal of the Paris Agreement, but it still requires the additional measures to sufficiently decrease the emission. However, some countries are close to or even achieved their goals for 2030, while the others need substantial additional efforts. In order to achieve the target of reduction of greenhouse gas emission, other policy instruments are needed to promote clean technology.²⁵ Wind and solar energy provides an attractive option for lowering the emission, basically a switch from fossil fuel to a renewable source of energy promotes lower carbon generation and enables higher penetration of renewable energy by serving as a backup capacity of the ASEAN countries.

The ASEAN countries have tried to achieve their target by their NDCs for their commitment toward the Paris Agreement. Various national plans and policies are formulated in their NDCs with regard to the CO₂ mitigation potential and further, no attempts have been made to discuss the relevance of the various plans and measures and the likelihood of achieving such stated targets. Similarly, more analysis is needed for accurately understanding the impacts of the current plans and policies on the carbon emission in the environment and whether such plans are adequate or effective to reach

²⁵ Sergey Paltsev and Michael Mehling, 'Pathways to Paris: Association of Southeast Asian Nations (ASEAN)' (MIT) <<https://globalchange.mit.edu/sites/default/files/P2P-ASEAN-Report.pdf>> accessed on 26 March 2021

the desired target or not. For ASEAN, the initial step is to meet up as a community zeroed in on environment activity, assess the situation, and re-invigorate endeavors toward aggregate objectives in front of COP26. Furthermore, it is clear that without adequate analysis of the target, ASEAN member countries will not be able to achieve its aim of low carbon development countries. Thus, the national contributions to the Paris Agreement regarding the clearer vision of pathways of various sectors, associated costs, benefits and the reduction of greenhouse gas potential must be clearly outlined in their NDCs.