Forum: United Nations Development Programme (UNDP)

Issue: Ensuring Universal Access to Affordable, Reliable and Modern Energy Services (SDG 7)

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Introduction

"Ensure access to affordable, reliable, sustainable, and modern energy for all" - the ultimate vision of goal 7 of the Sustainable Development Goals (SDGs), marks the urgent need for international effort to be committed to ameliorate the lack of electrification around the globe. As we are marching into the 5th year succeeding in the establishment of SDGs, the ongoing project has proved to be to some degree effective in enhancing the issue. According to the United Nations (UN), the global electrification rate has increased from 83% to 87% percent since the adoption of SDGs. Additionally, from 2010 to 2017, global access to clean cooking fuels and devices has also improved from 57% to 61%.

Nevertheless, despite the international effort that has been continuously devoted to the program, the approximately 840 million people around the world still have no access to electricity or other modernized power sources. Furthermore, the lack of energy sources is especially notable in the case of indoor air pollution. Around 3 billion people, especially in developed countries, still depend on polluting cooking fuels and stoves such as charcoal, animal dung, and wood to produce their daily food. This resulted in the death of over 3 to 4 million people, provoked by diseases such as lung cancer, heart attack, or pneumonia that triggers by the emission of smoke containing contaminate particles. Climate change, global warming, and the rapidly increasing amount of greenhouse gases are all indirect consequences of indoor air pollution. These dilemmas can only be resolved under the support of both the federal and provincial governments of the region, together with the assistance of more developed countries. Thus, delegates must cooperate with each other to come up with solutions that can not only encourage the devotion of resources into developing countries but also ameliorate the local government system to achieve transparency.

Definition of Key Terms

Decentralized Energy Generation

The generation of energy from many different resources. (Domestic power net is required to connect it together)

Centralized Energy Generation

Centralized Energy generation refers to the large-scale generation of electricity at centralized facilities. Located away from end-users, these facilities are connected to a network of high-voltage transmission lines, then distributed through the electric power grid to end-users.

Clean Fuels

Clean fuel is an energy source that has a relatively low carbon intensity. Common clean fuels include natural gas, ethanol, and electricity.

Biomass

Biomass is the biological material used for energy production, especially refers to animals and plants. Common types of biomass include wood, tree bark, animal dung, and skin.

Renewable Energy

Renewable energy refers to energy located from a non-depletable source when used, such as wind and solar power.

Greenhouse Gases

Greenhouse gases contribute to global warming by absorbing infrared radiation reflected off the earth’s surface, effectively retaining the sun’s heat within the earth’s atmosphere. This leads to its contribution to the global climate change crisis.

Energy Efficiency

Energy efficiency refers to the act of using less energy to perform a task, eliminating energy waste. This brings a variety of benefits: reducing greenhouse gas emissions and demand for energy imports, as well as lowering both household and economy-wide energy costs.

Energy Transition

Energy transition refers to the process of transforming the global energy sector from fossil-based to renewable energy sources. At its heart, this means reducing energy-related CO2 emissions, as well as rebuilding pre-built infrastructure designed to accommodate CO2-releasing energy sources, such as coal.

Conference of the Parties (CoP)

The Conference of the Parties is an annual meeting held by the nations of the United Nations Framework Convention on Climate Change to assess the progress from measures taken by nations towards achieving climate action goals.

Background Information

Prior International Actions

Since global awareness on the issue of climate change and grew rapidly during the late 20th century, several large-scale international efforts to mitigate their impacts have been implemented, including efforts to promote and provide clean electricity generation globally. These large-scale international efforts focus on addressing a wide variety of issues surrounding this topic, from addressing the pollutants produced through coal electricity generations to figure out how international efforts to resolve these issues would be feasible for developing nations, which may not have the resources of developed nations.

United Nations Framework Convention on Climate Change (UNFCCC)

Ratified in 1992, The United Nations Framework Convention on Climate Change is an international treaty aimed at addressing the issue of climate change. Implemented in 1994 with the signatures of 166 nations, the UNFCCC now represents near universal global involvement with 196 nations involved. Serving as the basis for landmark treaties such as the Kyoto Protocol as well as the more recent Paris Agreement, the UNFCCC has been at the forefront of international attention related to the problem of climate change. The UNFCCC's main objectives include those of reducing harmful energy-related emissions, as well as preventing deforestation and other climate change-related projects.

Kyoto Protocol

As the first international treaty concerning climate change and environmental pollution addressed by the UNFCCC, the Kyoto Protocol is a treaty representing a near-universal commitment by the international committee with 192 parties to it. The Kyoto protocol aimed to control and track greenhouse gas emissions while making up for differences between the nations which would

become signatories. The Kyoto protocol has also served as the basis for several other international treaties regarding climate change such as the Paris Agreement. The Kyoto Protocol is significant in encouraging increased energy efficiency by member nations, also pushing for the development of renewable energy resources. However, the Kyoto Protocol's measures, most of which exclusively target developed nations to offset GHG emissions, have meant the brunt of the economic burden has rested on the shoulders of developed nations. The failures of the Kyoto Protocol lie in its inability to retain ratification by member nations as a result of these economic burdens, a factor which played a role in the creation of the Paris Agreement later.

Paris Agreement

Created at CoP 21 in Paris, December 2015, the Paris Agreement aims to set strategic goals concerning climate change into the future by aiming to keep climate change levels well below 2 degrees Celsius above pre-industrial levels. The agreement also aims to increase the ability of countries to deal with and respond to the impacts of climate change by providing new technology and financial resources. So far, the Paris Agreement has been ratified by 174 countries, which would mean keeping global temperatures by 2100 below an approximate 2.7^{o}C above pre-industrial levels. With a transparency framework for keeping track of progress & individual mitigation targets, the Paris Agreement is seen as an effective measure, approved by a large number of states in spite of the US withdrawal from the Paris Agreement.

Sustainable Development Goals (SDGs)

From the establishment of the Sustainable Development Goals in 2015, the United Nations Sustainable Development Summit, the United Nations Development Programme(UNDP) together with other NGOs and IGOs have committed and made a sufficient degree of progress. According to the United Nations, the percentage of the population globally with access to electricity increased from 78% to 87% between 2000 and 2016, and the number of people with electricity access doubled in the least developed countries. Moreover, the renewable energy used in global energy consumption gradually increased from 16% in 2010 to 17.5% in 2016. And yet, in 2016, a number of 3 billion people are still continuously using combustion and inefficient fuel that can cause further pollution, and over 800 million still have no access to electricity. Currently, the SDGs are still under progress and aim for achieving universal access to affordable and clean energy by 2030.

Caption #1: Sustainable Development Goal 7

Global Alliance for Clean Cookstoves

The Global Alliance for Clean Cookstoves, also called the Clean Cooking Alliance, was originally launched by Hillary Clinton, the former US secretariat, in 2010. It has associated and been provided support from the United Nations Foundation and the World Health Organization. Mainly focus in countries such as Bangladesh, China, Ghana, India, Kenya, Nigeria, and Uganda, the Clean Cooking Alliance aimed to reduce House Air Pollution (HAP) by investing in cleaner cooking tools (stoves) and establishing a network in order to distribute those devices, and also spread awareness to increase the consumer demand. By 2020, it has distributed over 100 million cookstoves in developing countries. However, the result of this program does not end in an obvious positive impact. Criticized by the pro-republican media, the Clean Cooking Alliance has been described as redundant and unnecessary, seen as it did not significantly reduce the possibility for a user to get diseases such as pneumonia and heart attack. Furthermore, its impact on the gradually warming planet remains unseen and questionable. This result eventually caused the initial investors to withdraw their investment and thus, marked the unofficial end of this program.

Power Africa

Power Africa is an initiative program launched by President Obama in July 2013, during his tour to Africa. It is a project aims to foster the partnership between different governments, private sectors, and technical experts in order to enhance energy development in Africa. The program mainly focused and partnered with countries such as Nigeria, Tanzania, Kenya, and Ethiopia. Its goal is to install 60 million new electricity connections and reach a total of 30,000 MW of cleaner energy generation. Throughout the program, the United States Agency for International Development (USAID) cooperates closely with the African Development Bank Group (AFDB) and also other

financial institutions to assist the local government in creating long term projects and also relevant policies.

Key Issues

Impacts of house air pollution caused by the use of inefficient fuels

Damage to the human body

The use of inefficient combustion fuel proved to be extremely damaging to both the human body and the general environment. According to the Global Burden of Disease (GBD) studies in 2013, household air pollution (HAP) ranks as the most significant environmental health risk. Shockingly, each year, a rate of 3 to 4 million people died because of indoor air pollution. There are various diseases that can be resulted from the over intake of smoke, black carbon, and detrimental matters that comes from the burning of combustion fuels or biomass. The most notable damage to the body will most likely first appear in the respiratory system, in which diseases such as pneumonia and lung cancer will take place. Also, indoor pollution proved to be having significant damage to the heart and can trigger a stroke, heart attack, or ischaemic heart disease. In this case, children and women are the most substantial victims. Children, being exposed to massive amounts of indoor pollution each day, mostly resulted in childhood pneumonia and eventually develop into permanent lung diseases as they grow up. As in the case of women, who usually remain indoors during the majority of day time and are responsible for daily cooking, especially have negative health impacts.

Caption #2: A woman using wood to cook

Effects on global air pollution and greenhouse gas

The detrimental impact that occurs due to the burning of biomass or inefficient

fuels can also extend to the greater environment. In fact, house air pollution, or HAP, actually made up 12% of global ambient air pollution, according to the Clean Cooking Alliance. By cooking food using solid fuel such as wood, animal skin, and charcoal, numerous air pollutant matters will be emitted into the environment. Especially for particles such as black carbon and carbon dioxide, which are major contributors to global warming and climate change.

Renewable Energy

Common types of renewable energy include solar, hydro, and wind. Actually, before the The appearance of cheaper energy sources such as nuclear and fossil fuels, humans are highly dependent on so-called renewable energy. However, as recent cries for environmental issues became resilient as ever, the demand for more reliable and cleaner energy sources has increased rapidly in recent years. Asia Pacific region's engagement in the development of renewable energy and the relevant technology is also notable by the international community in recent years. Most of the countries in the Asia Pacific highly depend on fossil fuels, or oil, originally. Nevertheless, it is gradually replacing Europe and the US, becoming the primary leader in renewable energy development.

Improvement in Asia-Pacific region

Accounting for about 60% of the global population, the Asia Pacific is among one of the largest energy consumers and is demanding a rapidly increasing amount of energy each year. Although it has a relatively inadequate electrification rate at first, countries in the Asia region managed to produce a significant level of improvement toward the situation in recent years. In countries such as China and India, the number of modernized electricity networks is rapidly being installed. In the case of China, it officially reported that 100% of its population has access to electricity, thus marking its achievement of universal access to electrification in 2014. As in India, Nepal, Lao, and Cambodia, the electrification growth rates are among the fastest compared to the rest of the world. It is positively estimated that the Asia-Pacific area is very likely to achieve universal access to electricity by 2030, accomplishing the SDGs. However, although the general access to electricity is being widely improved, there is still much effort needed in order to ensure the aspect of clean cooking quality. Because of its slow development in relevant technologies, such as natural gas and modernized cooking stoves, and also its lack of investment devoted into the area, over half of the population in the Asia Pacific still have no clean cooking assurance, thus the region is most likely fail to achieve the SDGs target in 2030 regarding clean cooking fuels.

Caption #3: Electricity pylon in Yunnan province, China

Major Countries and Organizations Involved

World Bank

The World Bank, based in Washington, D.C, is an international financial institution that works for the development in countries that are relatively poor. It aims to tackle poverty and other development problems by funding and global partnership. It also provides additional support to the government of developing countries, such as suggestions for policy and technical assistance. In the case of this issue, it recommends and urges governments from Sub-Saharan Africa to implement relevant policies and assist them in conducting long-term electrification projects.

International Renewable Energy Agency (IRENA)

The International Renewable Energy Agency is an intergovernmental organization dedicated to supporting the transition of nations to sustainable energy sources. IRENA serves as a platform for international cooperation on renewable energy, acting as a repository of policy, technology, resource, and financial knowledge on the matter as well.

International Energy Agency (IEA)

Established in the wake of the 1973-1974 oil crisis, the International Energy Agency is an intergovernmental organization initially created to respond to disruptions in oil supply, as well as to act as an

organization dedicated to monitor and publish statistics on the international oil market and other energy sectors.

India

Although poorly electrified at first, India outperformed its SDG target by accomplishing its future target for 10 years and almost achieving universal access. As early as in the 1940s, the Indian government has been actively engaging to achieve universal access to electricity. In 2003, the adoption of the Electricity act further pushed forward and enacted cooperation between both the central government and the local, provincial government to commit actions regarding electricity access. In order to speed up the government's aim at achieving access for all by 2012, the "Rajiv Gandhi Grameen Vidyutikaran Yojana" program was adopted. This program did, successfully facilitate the progress of electrification and resulted in the electrification of more than 120 thousand villages by building and enhancing infrastructure in those rural villages and provide free connections for those who are under the poverty line. According to its official statement, approximately 83% of rural area houses in India had access to electricity in 2015.

The Saubhagya scheme in 2018 further contributed to electrification by providing a connection for not only rural households but also extending its coverage to other households who lack electricity connection by fitting a certain requirement. In aspects of clean cooking improvement, the India government's Ministry of New and Renewable Energy (MNRE) launched a program called the National Biomass Cookstove Initiative, which functions to enhance the development of biomass cookstove and aims to improve the quality of it in order to reduce its risk of causing health problems.

The Democratic Republic of Congo (DR Congo)

Located in the area of Sub-Saharan Africa, the Democratic Republic of Congo is among the world's lowest electrification countries, with only 9% of its population having access to electricity and 15 million households without power. The power sector of DR Congo mainly relies on hydropower, with its plentiful mineral resources allowing it to potentially install 100,000 MW of power capacity. In 2006, the Congo government together with other NGOs developed a series of pilot projects mandate under the Regional and Domestic Power Markets Development Project (PMEDE) in 2006 that wishes to enhance the power access in rural areas of the country. One of the examples of those pilot projects includes the distribution of 20,000 solar-power lanterns to selective districts. Additionally, 5,000 basic solar power home systems are being distributed to schools and medical institutes. With the assistance of Power Africa, Congo established a new agency called ANSER, or National Agency for Rural Energy Services in 2014, that functions to manage the large scale electrification project across the country. However, excluding the numerous efforts conducted by both the Congo government and the foreign ministries, the progress toward universal access remains

questionable. According to the World Energy Council, “The DRC’s progress toward providing universal access to electricity is uncertain following claims of massive corruption”, suggesting the severe corruption issue within the government itself.

Timeline of Events

Date	Description of event
11 December 1997	Kyoto Protocol is adopted.
2010	The Global Alliance for Clean Cookstoves (Clean Cooking Alliance) is founded.
2015	China achieves universal access to electricity.
September 2015	17 SDGs adopted by the UN Sustainable Development Summit.
December 2015	The Paris Agreement is adopted and signed.

Relevant UN Resolutions and Treaties

- Transforming our world: the 2030 Agenda for Sustainable Development, 21 October 2015, (**A/RES/70/1)**
- Ensuring access to affordable, reliable, sustainable and modern energy for all, 6 February 2017, (**A/RES/71/233**)
- International Energy Charter, May 2015
- Paris Agreement, 2015
- Kyoto Protocol, 11 December 1997

Possible Solutions

One possible solution to ensure universal access to modern energy services would be to encourage further policy support for certain technologies in nations. One major issue plaguing nations working to solve this issue is the high cost of providing electricity across vast areas, especially in rural areas where the cost of infrastructure needed to cover areas often outweighs the economic benefits of providing electricity to these areas. Therefore, the development of new, more cost-efficient technologies is needed to reliably supply many areas of the world, which may have unreliable access to energy sources, or maybe

even not have access at all. Because of this, new commitment is needed for technologies, such as decentralized renewable energy, which would dramatically increase reach in rural areas. By removing the need to connect rural areas from vast, centralized electricity systems, governments can considerably reduce the costs of increasing energy reach in their nations. However, this also introduces many new problems at the same time, such as the high costs of building decentralized energy systems often outweighing the costs and environmental impacts of building far-reaching centralized energy systems through the high costs needed to construct and maintain these decentralized systems.

Transparency in exchange for monetary support in nations undertaking energy-related projects would be one solution to make all nations be able to contribute to mitigating greenhouse gas emissions. A major issue plaguing cooperation between countries related to funding for large projects is the lack of transparency and trust. National commitment, as well as other forms of action, are key to providing energy. Therefore, tracking these commitments is a necessary step to building trust & transparency so that nations can rely on each other doing a fair share in helping to reduce emissions. One way to do this would be to implement incentives in the form of monetary support & advisors in return for increased transparency of actions and reports from nations receiving monetary support. This would encourage participation from countries who see the lack of financial incentives discouraging, ensure the prevention of embezzlement of funds, and also help determine the needs of different nations, and the priorities needed to deal & coordinate appropriately in response to these reports. However, this solution would not be possible without increased trust between nations, as well as funding from other parties such as MEDCs and other organizations.

Working with organizations to decrease government liabilities in other areas may help nations with funds for projects to move towards clean energy, away from traditional energy sources. Many nations also believe that they do not have the funds to partake in activities concerning the deliverance of clean energy, as it is less cost-effective as compared to other more traditional alternatives which would help boost economies. However, cooperation with organizations such as the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) could help to prove useful with advisors who work on implementing efficient agricultural & health systems in these nations to concentrate efforts on climate action, which would also direct funds toward the growth of clean energy sources in nations. This would allow nations to reduce liabilities in other areas to obtain funds for reducing emissions and preventing deforestation. However, nations may view this as a violation of their own national sovereignty, and the impacts these projects may give nations is questionable. The costs for researching & developing these efficient systems may still prove too high for many nations, due to the fact that major restructuring of a nation’s pre-existing infrastructure is often needed in order to introduce new energy sources.

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