A CRITICAL ANALYSIS ON THE RATIONALE ARRANGEMENT OF SUSTAINABLE DEVELOPMENT GOAL NO.7- AFFORDABLE AND CLEAN ENERGY

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Abstract
The world is making a progress towards accessibility in the energy sector and with encouraging signs in the inclusion of the clean energy need in policy making of many states. A well-developed energy system benefits all sectors, including business, medicine, and education as well as agriculture, infrastructure, communications, and high technology. However, the implementation of the energy policies into one’s State policy makes it difficult to achieve the goal. The first section sets out the tone by detailing the background of the formation and recognition of SDG’s in global community. The second segment of this paper aims at analyzing the rationale behind the arrangement of SDG’s that is why one goal is prioritized over other. All the 17 goals are positioned based on the reasoned priority. The final portion delves into the areas which can be improved through strategical planning and implementation.

I. Introduction

The existential and usage of energy resources are vital for the survival of human beings. This unavoidable need for the energy resources has created a huge market, monopoly, unaffordability and inaccessibility to the consumers. Over 13% of the world's population still lacks access to new generation and modern power. Energy is the primary contributor to climate change, accounting for over 60% of all greenhouse gas emissions. This put forth the need have proper and viable rules and laws to regulate the use age of energy and also to protect it. From creating awareness among the people to mitigate the ongoing effects on the environment, the States have the responsibility to address and resolve each and every aspect of the issue. Access to energy is in itself a unresolved need whereas access to the clean energy is still unimaginable to achieve. In 2012, 4.3 million people died as a result of indoor air pollution caused by the combustion of combustible fuels for household energy. Of them, 6 out of 10 were women and girls. It is very evident that access to energy and more importantly and wisely clean energy resources is the realm of this paper’s discussion.

The Sustainable Development Goals (SDGs), or ambitious global development goals, are a series of 17 goals that have been deliberated, debated, decided, passed, signed, and acknowledged as "shared" goals of all nations. The SDGs are maintained and rigorously monitored by the ECOSOC's High-Level Political Forum (HLPF). The forum oversees target achievement by evaluating indicators during an annual ministerial conference. Nations are represented by their external affairs ministry or any other ministry designated for that purpose. The aims are so lofty that each one would necessitate a massive monetary expenditure, which would bankrupt the world. There are various obstacles to attaining the goals within the time frame. The problem exists at numerous levels, ranging from municipal to international. Mitigation of these challenges at the appropriate time is critical to achieving the goals to the greatest extent possible. The Sustainable Development Goals are the result of decades of work by governments and the United Nations, particularly the UN Department of Economic and Social Affairs.

At the Earth Summit in Rio de Janeiro, Brazil, in June 1992, and over 178 countries adopted Agenda 21, a set of ambitious targets aimed at enhancing human well-being while safeguarding the environment. All UN Member States adopted the Millennium Declaration in September 2000 at the United Nations headquarters during the Millennium Summit. At the meeting, the UN General Assembly adopted eight Millennium Development Goals (MDGs) with the goal of eliminating poverty and hunger by 2015. It was adopted in 2002 at the World Summit on Sustainable Development in South Africa, reiterating and reinforcing the international community's obligations to eradicating poverty and environmental conservation, with a stronger emphasis on multilateral partnerships, Agenda 21, and the Millennium Declaration.

In June 2012, member states adopted the "The Future We Want" outcome document from the United Nations Conference on Sustainable Development (Rio+20) in Rio de Janeiro, Brazil, where they decided, among other things, to begin the process of developing a set of Sustainable Development Goals (SDGs) to build on the MDGs and to establish the UN High-Level Political Forum on Sustainable Development. Additionally, the Rio+20 agreement includes mandates for future financial programmes, small island developing states, and other steps to accomplish sustainable development. General Assembly members convened an Open Working Group in 2013 to draft a proposal for the SDGs.

The United Nations General Assembly began drafting the post-2015 development agenda in January 2015. The process culminated in September 2015 with the adoption of the 2030 Agenda for Sustainable Development, which includes 17 SDGs. This year marked a
watershed point for multilateralism and international policymaking, with the passage of a flurry of key agreements:%

a) Sendai Framework for Disaster Risk Reduction (March 2015)

b) Addis Ababa Action Agenda on Financing for Development (July 2015)

c) Transforming our world: the 2030 Agenda for Sustainable Development with its 17 SDGs was adopted at the UN Sustainable Development Summit in New York in September 2015.

d) Paris Agreement on Climate Change (December 2015)

e) The annual High-level Political Forum on Sustainable Development is now the primary UN platform for monitoring and reviewing the SDGs.

II. Rationale behind SDG Arrangement

The 17 SDGs and 169 targets did not arise from a normative vacuum, nor were they inserted into one. Goal setting as a governance technique to prioritize, motivate, and provide directions, according to international law commentators, could help reform or rearrange existing institutions to improve their overall performance in fostering sustainable development. As a result, it's reasonable to assume that they're ordered in a specific disruption sequence. Prioritize objective 1 over 2 and 2 over 3 and so on in the order of disruption. However, not all countries adhere to the planned priority. This is due to a number of factors, including the country's economic and industrial progress, goals already accomplished and goals yet to be realised, the country's Human Development Index, and macroeconomic indicators such as GDP, per capita income, Purchase Power Parity, and foreign investments.

This is also dependent on the countries' foreign policies. For example, a free-market nation such as the United States of America invests in foreign countries and attracts foreign investment. Panama, the Cayman Islands, and the Bahamas are tax havens that serve as international monetary repositories and contain monetary funds that are disproportionate to their population.

On the other hand, there are protectionist countries that rely less on other countries, such as Cameroon, which has a protectionism policy that allows for restricted international investment and is governed by domestic rules. This is due to the debt trap tactic being used by several powerful nations to deploy their armed forces and trade around the globe. This is diplomatic imperialism at its finest.

Diplomatic imperialism is exemplified by this example. To avoid this kind of muddle, the UN has devised a list of prioritized aims in a certain order of disruption. For different causes, the order of disruption is broken, and there is no competent body to adjudicate and guide nations in the right direction, resulting in diffraction of priority aims.

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9 ibid
11 Transforming our World: The 2030 Agenda for Sustainable Development (UNGA Resolution A/RES/70/1, 21st
12 THE 17 GOALS | Sustainable Development (un.org), accessed on 06.04.2021, 14:30 hours
A). Achieving Sustainable Development Goal 7: Analysis and Indicators

**Definition:** Indicator 7.1.1 The percentage of the population who has access to electricity is referred to as the proportion of the population who has access to electricity. SDG 7 is committed to ensuring that everyone has access to modern energy that is affordable, reliable, and environmentally friendly. For the purposes of this indicator, the percentage of the population who has access to electric power sources is referred to as Indicator 7.1.1. This information is supplied in the form of a percentage and is broken down by country, as well as by United Nations regional and global categorization. The rationale behind this is that it addresses one of the most fundamental and crucial issues in sustainable development: access to electricity. Many social and economic benefits flow from this objective, including the expansion of income-generating businesses and a reduction in household responsibilities.

Goal 7.1.1, "Equal access to energy for all," focuses on making electricity readily available to everyone in the globe. It is only possible to assess access rates if the primary lighting source is a local energy supplier, solar systems, mini-grids, or stand-alone systems. Since they have a limited operating capacity and are often utilised as backup sources of illumination, generators, candles, batteries, and other similar sources are not taken into account while designing the lighting system.15

**The Conceptual idea:**

The percentage of persons in the researched area (country, region, or global context) who have constant access to electricity is referred to as energy access in this scenario. The Global Electrification Database at the World Bank compiles national household surveys and census data from 1990 to 2018. All three databases are based on similar surveys and include data from LATAM and CARICOM countries as well as the Middle East and North Africa as well as Europe and Central Asia. The Global Electrification Database includes 215 surveys from 140 nations at the time of this analysis; however surveys from high-income countries as defined by the United Nations were removed. 16

**The major setbacks:**

The World Bank is striving to evaluate demand side access rates in order to better understand the access levels of the people. Governments, ministries, and other institutions usually charge supply-side access charges. The information is gathered through national household surveys and censuses. However, due to their rarity, short-term ground level patterns are difficult to discern. Remote data gathering and last-mile connectivity concerns might lead to data collecting inaccuracies, skewing results.

Home energy access tracking can be started using data from the existing international household survey, however there are various

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15 Ibid
flaws that must be corrected in the future. More information on these crucial service aspects, which are emphasized in SDG7, would be helpful for people in many places of the world where having an electricity connection at home does not guarantee the quality and dependability of the energy delivered or its affordability.

In order to capture these broader dimensions of service quality, the Multi-Tier Framework for Measuring Energy Access (World Bank) was developed. This framework allows for a more refined approach that recognizes different levels of energy access while also taking energy access affordability and reliability into consideration. In the process of creating and testing this new methodology, significant progress has already been accomplished. Despite the fact that this method has not yet been published, it represents a consensus among a large number of international organization’s working in the energy industry. Additionally, the World Bank’s Household Survey Technical Working Group is debating whether to incorporate this methodology into the standardized household questionnaire design that will be used every three years between 2015 and 2030 in all low-income countries as part of a larger Sustainable Development Goals monitoring initiative.¹⁷

As a result of the new reporting capabilities, Eventually, it will be possible to report on more detailed data, like the type of electricity supply (grid or off-grid), the capacity of electricity supply (watts), the length of service (daily hours and evenings), and the reliability of service (the number and length of unplanned service interruptions) (in volts). With this technique, not only can the energy access of households be assessed, but so can the availability of energy to support companies and supply vital community services like health and education.

B). SDG Indicator 7.1.2

Cleaning up our cooking, heating, and lighting patterns is expressed as a percentage of the overall population, which is then split by the total number of people who use clean fuels and technology for cooking, heating, and lighting habits (see Figure 1). Indicator 7.1.2: The proportion of the population whose principal source of energy comes from clean fuels and technological advances.¹⁸ In the normative guidance of the WHO guidelines for indoor air quality in the home, emission rate targets and specific fuel recommendations (such as those against raw coal and kerosene) are used to define "clean" in terms of indoor air quality.

The Conceptual idea:

With solid and non-solid cooking fuels being classed as polluting and non-modern (respectively), current global data collection focuses on the primary source of energy for cooking. When it comes to the lack of access to clean cooking fuels, this is an important indicator. However, it does not include information on the sort of device or technology used to cook and other wasteful home energy usage habits, such as light and heating.


According to WHO's new evidence-based normative recommendations (WHO Guidelines for Indoor Air Quality Guidelines: Household Fuel Combustion), both fuel and technology must be addressed in order to protect public health effectively.\textsuperscript{19} In the form of emission targets, these guidelines provide technical advice on how to keep fuel and technology (such as a stove, light, etc.) combinations clean in the home. Apart from that, the laws recommend staying away from burning raw coal in the house and kerosene lamps should be avoided (a non-solid, highly polluting fuel). They also recommend that all significant domestic energy users (such as those who cook, heat their homes, and light their homes) switch to more energy-efficient fuels and technology combinations to ensure health benefits.

This would result in the World Health Organization's recommendations for "access to clean fuels and technology" being redefined as "access to modern cooking solutions in the home" rather than "access to non-solid fuels." It is anticipated that health and other "nexus" advantages would be better evaluated and realized as a result of this transition.

**Rationale:**

Home energy use in low and middle-income countries is dominated by activities such as cooking, lighting, and heating. Households frequently cook and heat with inefficient technology and solid fuels (such as wood, charcoal, or biomass) (e.g. open fires, stoves, space heaters or lamps). Inefficient energy use in the house for cooking, heating, and lighting is well-known to be associated with high levels of indoor pollution. Every year, it is estimated that cooking with inefficient fuels kills over 4 million people, mostly women and children. Tuberculosis, HIV, and malaria combined have nothing on this. Clean fuels and technology for all major domestic energy sources can prevent these harmful health impacts, or in some circumstances, advanced combustion cook stoves (those that fulfil WHO emission rate targets) and strict guidelines for their safe use can be used in some cases. Technical practitioners currently consider universal access to energy to encompass both electricity and clean fuels and technologies for cooking, heating, and lighting, given the relevance of safe household energy use as a human development issue. Because of this, sustainable energy for all includes clean cooking as a universal access aim in the Secretary General's Sustainable Energy for All initiative.\textsuperscript{20}

**Constraints and recommendations**

Because it is currently not possible to obtain nationally representative indoor concentrations of criteria pollutants such as fine particulate matter and carbon monoxide, a practical surrogate for estimating human exposure to household (indoor) air pollution and its associated disease burden is the type of primary fuels and technologies used for cooking, heating, and lighting. While epidemiological studies give scientific evidence, they may also be used to determine the value of these alternatives.


\textsuperscript{20} Supra note 16
Due to the fact that cooking accounts for the majority of total household energy use, the indication is based on the primary type of fuel and cooking technology. The fact is that many households cook with a variety of fuels and stoves, which, depending on local climate and geography, might increase home (interior) air pollution levels. To add insult to injury, in many countries, kerosene, a highly polluting and poisonous fuel, is the primary source of lighting and cooking energy.21

While the existing evidence base from international household surveys is a good starting point for tracking household energy access to cooking fuel, there are significant weaknesses that will need to be rectified over time. Only a small amount of information is available on the many fuels and lighting equipment that people use in their houses. In order to better gather data on cooking, heating, and lighting fuels and technologies, the World Health Organization worked with the World Bank and the Global Alliance for Clean Cook stoves to conduct a survey enhancement process with representatives from country statistical offices and national household surveying agencies. New questions were developed as a result of the research, replacing and expanding the current questions used in national multipurpose surveys to gauge household energy use.22

c). SDG Indicator 7.2

The renewable energy share in total final consumption measures the amount of energy derived from renewable resources as a percentage of total final consumption.

Recommendations for Energy Statistics
https://unstats.un.org/unsd/energystats/methodology/ires

21 ibid
22 Ibid.
23 The IEA collects energy data at the national level according to harmonised international definitions and questionnaires, as described in the UN International Energy Statistics:
Consumption of renewable energy comprises hydro, wind, solar, solid biofuels, liquid biofuels, biogas, geothermal, marine, and renewable waste as well as hydro, wind, solar, and other forms of renewable energy. Finally, total final energy consumption is computed by subtracting non-energy usage from the total final consumption. An observation about a particular form of renewable energy source when it comes to renewable energy sources like solar, the most common are photovoltaics (PVs) and solar thermal systems. Biofuels like bio-gasoline and biodiesel can be liquid or solid depending on the application. The term "renewable waste energy" refers to power generated from municipal solid trash that has been recycled.

The organization’s mission statement:

A custodian agency, the IEA builds on national data efforts to promote common standards, definitions and methodology for raw data and derived indicators, with the ultimate goal of establishing international comparable datasets, to track progress towards the SDG 7.2 target.

Energy statistics is an area where UNSD aims to assist national statistical systems in producing high-quality data and balances.24 Stages of the mission are as follows: Collecting data (since 1950), developing energy statistical methodology and standards (e.g. IRES, ESCM), and building capacity (to
distribute such methods and assist countries in enhancing their energy statistical systems) are all part of this effort. Because it collects the underlying data needed to construct the indicator for all countries, UNSD was selected as an indicator 7.2.1 custodian.\(^\text{25}\)

**Rationale**

Global energy security would be affected in three ways if we achieve our 2030 target of "significantly boosting renewable energy's participation in the global energy mix." The use of renewable energy sources is critical to global efforts to green economies and solves climate change, both of which are major global issues. Renewable energy is defined in a variety of ways, but all agree that it is any form of energy whose use does not deplete its supply in the future. They include solar, wind, ocean, hydro, geothermal, and biofuels (in the case of bioenergy, which can be depleted, sources of bioenergy can be replaced within a short to medium-term frame). When looking at renewable energy consumption, it's vital to look at how much renewable energy is actually being used, rather than how much is being generated. By focusing on end-user usage, it reduces distortions caused by conventional energy sources' propensity for substantial energy losses along the manufacturing chain.\(^\text{26}\)

**D). Limitations and suggestions**

a) Existing renewable energy statistics have the flaw of not being able to discern whether renewable energy is produced in a sustainable manner. For example, the use of wood and charcoal by households in poor countries accounts for a significant portion of today's renewable energy consumption, which is sometimes, linked to unsustainable forestry practices. Although this remains a big difficulty, attempts are being made to increase the capacity to quantify the sustainability of bio-energy.

b) Data on off-grid renewables is scarce and underrepresented in national and international energy statistics.

c) It is assumed that all technologies have the same percentage of transmission and distribution losses when allocating renewable energy consumption from electricity and heat output. In other cases, such as when renewable energy is located in more remote areas with higher losses, this isn't always the case.

d) Also, the share of renewable energy in power and heat output will determine the amount of electricity and heat that is imported and exported. However, in other circumstances, such as when a country generates all of its electricity from fossil fuels but imports considerable amounts of its electricity from a neighbouring country, this simplification may have a significant impact on the indicator.

e) The Global Tracking Framework 2013\(^\text{27}\) describes the methodological problems associated with defining and tracking renewable energy in further detail. Traditional solid biofuels data is in short supply around the world, therefore building capability in tracking such energy consumption, particularly developing


\(^{26}\) Ibid

national-level surveys, is critical for accurate global energy tracking.

E). SDG Indicator 7.3

Definition: An economy's energy intensity can be expressed as the amount of energy it consumes per unit of monetary worth of economic output.

Concepts:
The International Recommendations for Energy Statistics define total energy supply as production plus net imports minus international marine and aviation bunkers plus stock changes (IRES).\(^{28}\) Economic output can be measured using the Gross Domestic Product (GDP). For international comparisons, GDP is computed in purchasing power parity terms, which are stable across time.\(^{29}\)

Rationale:
It's a technical term for the quantity of energy it takes to produce one unit of economic output. It's a counter-factual measure of how well a country's economy utilises energy to generate wealth. A lower energy to output ratio indicates progress because it suggests less resources are needed to produce one unit of output.\(^{30}\)

Limitations and suggestions
The measurement of energy intensity is only a rough approximation of energy efficiency. It can be influenced by a variety of elements that aren't always related to efficiency, such as the environment, the economy's structure, the nature of economic activity, and so on. More disaggregated data, such as those at the sectoral and end-use level, are needed for a better assessment of energy efficiency progress.\(^{31}\)

III. CONCLUSION

This paper aims at analyzing the reason behind the arrangement of the SDG’s with special reference to goal no.7 and it is concluded with rational reasons to support the arguments and suggestion to improve the present SDG arrangement. On analyzing the argument that the major issue with respect to achievement of SDGs is lack of funds is supported. Through this doctrinal study the author suggests that there must be a common pool of fund created and should be regulated by the HLPF of the SDG division. The contributions should be made according to the GDP and shall constitute 3% of every nation’s GDP. The UN-SDG division should spend the funds equally to all nations, thereby creating a level playing field. While performing this function, Goal no. 17 can be achieved even without any separate attention. This can be done by means of a PPP model. Over time, Public Private Partnerships have proven to be more effective; this not only involves private players but also develops a great global partnership by involving a global or MNC and pairing it with a local enterprise in every project in a given area. This increases sustainability of local environment while achieving the goals by global involvement.


\(^{31}\) Ibid
The Sovereign debts should be avoided and economic sustainability of both project and nation has to be scrutinized by the HLPF committee of the UN-SDG division. This scrutiny essentials blocks debt trap diplomacy and leads to a brighter and a fair world order. With respect to SDG goal 7, the major issue is with the environmental effects that are caused while achieving the goals. To make a paradigm shift towards the sustainable renewable energy, there has to be some necessary evil done to the environment. It can be human displacement and deforestation while setting up of solar power plants or marine ecological imbalance while setting up a hydro power plant or tidal power plant. The projects should be designed in such a way it causes minimal damage possible while erecting such massive structures for the purpose of achievement of the goals. Another issue is with respect to the ambitious Paris Agreement commitments. To mitigate this issue, nations have to essentially modify their energy policies in such a way it accommodates the possibilities of achieving the commitments while marching towards the SDGs.

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