Committee: Young Delegates Forum

Issue: Addressing the increased need towards universal access to electricity, clean water and energy sufficiency.

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Position: President, Deputy President, Deputy President

INTRODUCTION

People in More Economically Developed Countries (MEDCs) take basic everyday necessities such as sufficient energy, water and electricity for granted. These provisions, though are not available consistently, affordably, and widely.

Due to climate change, water in drier areas and countries (such as the sub-Saharan Africa) has become even scarcer than before. Insufficient water sources and poor economic situations of certain countries also contribute to the shortage of drinkable water in certain communities.

Electricity and the access to energy has become something the western world takes for granted. But currently, we are facing an energy crisis. Due to humanity's abuse of natural resources and different economic hardships in Less Economically Developed Countries (LEDCs) but also due to the geographical position of some countries, energy is hard to come by in a sufficient amount.

This guide will provide you with information about the aforementioned issues, but we also strongly encourage you to do your own research based on your countries policies.

Do not hesitate to contact us by email if any questions arise (ivigaliotou@gmail.com, sofiakoumianaki@gmail.com, kalliopivareli2007@gmail.com)

We are looking forward to meeting you in November,

Ivi,

Sophia,

Kalliopi

DEFINITION OF KEY TERMS

WWDR (The United Nations World Water Development Report)

It is a global report that provides an authoritative, comprehensive assessment of the world's freshwater resources. It is produced annually by the World Water Assessment Programme and released by UN-Water.

Natural Resources

''Industrial materials and capacities (such as mineral deposits and waterpower) supplied by nature''[1]

Microgrid Technologies

An electricity grid system of electric wires for a small area, not connected to a country's main electrical grid.

Sustainable Development Goals (SDGs)

The 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership.

Sustainability

''the use of natural products and energy in a way that does not harm the environment, the ability to continue or be continued for a long time''[2]

Off-grid technologies

Off-grid is a new adjective which describes the situation of not using public utilities such as electricity, gas, water and mains sewerage. A truly off-grid home or building is completely autonomous in that it operates independently, not relying on any central supply of power or water.[3]

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[1] "Natural Resources Definition & Meaning." *Merriam-Webster*, Merriam-Webster, https://www.merriam-webster.com/dictionary/natural%20resources.

[2] "Sustainability." *Sustainability Noun - Definition, Pictures, Pronunciation and Usage Notes | Oxford Advanced Learner's Dictionary at OxfordLearnersDictionaries.com*, https://www.oxfordlearnersdictionaries.com/definition/english/sustainability?q=sustainability.

[3] "Off-Grid - Definition of off-Grid, Living off the Grid, BuzzWord from Macmillan Dictionary." *Macmillan Dictionary*, www.macmillandictionary.com/buzzword/entries/off-grid.html.

BACKGROUND INFORMATION

The importance of Electricity Access

Electricity access in a sufficient amount and an affordable price has ultimately become a fundamental necessity for human life. With that access people are able to cook, clean, communicate, warm their house and utilize consumer electronics, all of which have become a necessity in today's society. Unfortunately, according to the UN, 13%[4] of the world's population does not have access to modern electricity, and about 3 billion people rely on other sources (such as wood, coal, and charcoal) for everyday uses, like cooking and heating.

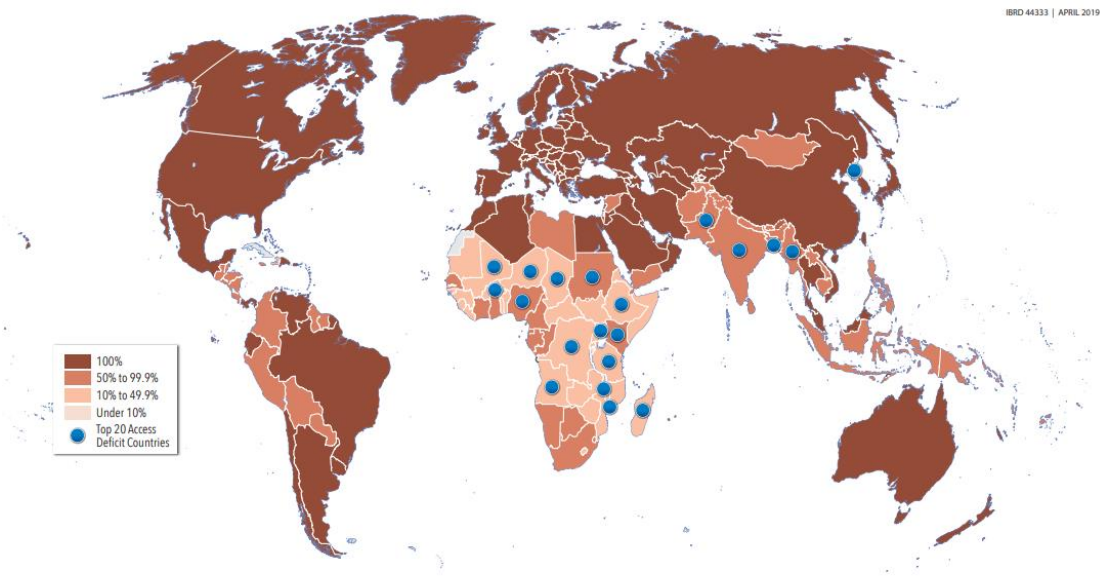

Figure 1: Share of population with access to electricity in 2017[5]

[4] "2019-Tracking SDG7." *Tracking SDG 7*, trackingsdg7.esmap.org/.

[5] "Tracking SDG7." *Tracking SDG 7*, https://trackingsdg7.esmap.org/.

Causes of the current Energy Crisis

Right now, the world is facing a big energy crisis, due to a lot of reasons, such as climate change and human contribution to the destruction of the environment, conflicts, as well as our abuse of natural resources. Unfortunately, it is only now, in the midst of a crisis when we have understood the importance of energy in a sufficient amount and the effects its absence can have on the human race.

Wars & conflicts

Currently, the Russian invasion of Ukraine has impacted the world to extreme lengths. Along with the humanitarian crisis, Russia, one of the biggest oil exports in the word, has been faced with the deep condemnation from massive organizations, and most countries in the world. The result of that has been organizations such as the EU ''cutting ties'' with Russia and the oil it provides European Countries with, which has ultimately led to a somewhat expected rise in prices for gas and petroleum.

To add to that, conflict in the Middle East (which is full of oil rich nations) has resulted in difficulty in exporting oil and the rise of its price. For example, the United States has sanctioned Iranian Oil which has resulted in major problems with gas distribution, at an affordable price because of the Russian invasion of Ukraine and oil embargoes on Russian oil.[6] This has ultimately led not only the American middle and lower class (but also LEDCs and the most vulnerable social groups) to an inability to afford gas for transportation and heating.

[6] Hansler, Jennifer. "US Imposes Sweeping New Sanctions on Iran's Financial Sector." *CNN*, Cable News Network, 8 Oct. 2020, https://edition.cnn.com/2020/10/08/politics/iran-banks-sanctions/index.html.

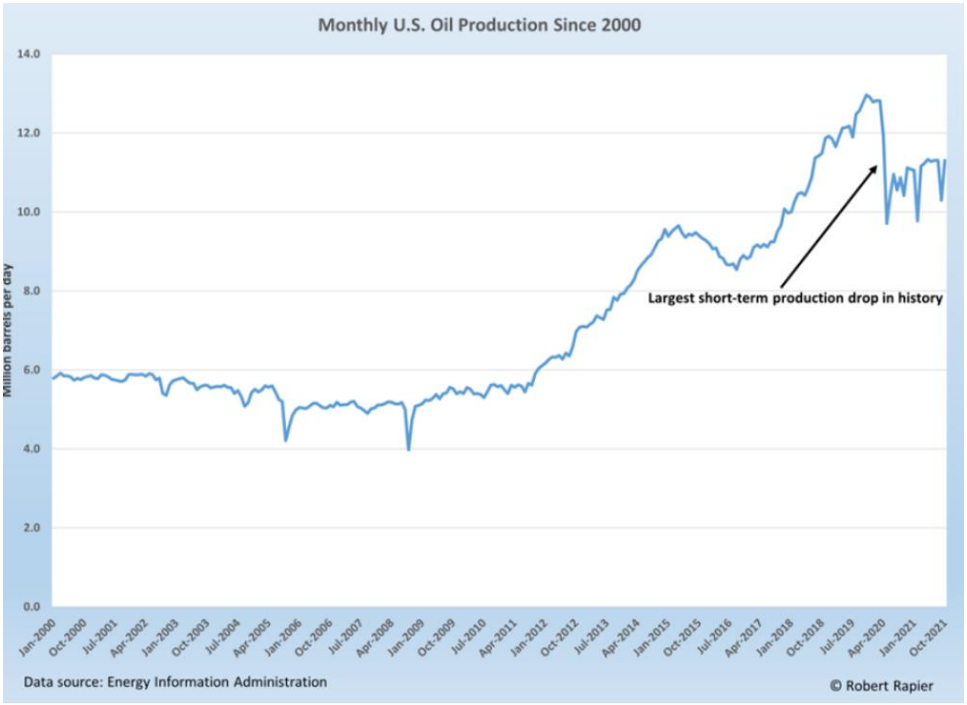

Figure 2: Monthly US Oil Production Since 2000[7]

Overpopulation, overconsumption, and the abuse of natural resources

The Earth's population is growing rapidly, and unfortunately, we are failing to adapt. Along with the increase in population, overconsumption is also a very big part in the energy crisis. Due to overpopulation, more people need to have access to energy, and natural resources, such as petrol and natural gas. Our abuse of these products and the massive growth in the market need for them, leads to the shortage and massively growing prices in everyday products such as gas, petrol, petroleum gas, plastic and natural gas.

Water shortage

Water is an element without which not a single person would be able to survive. It is found in our bodies, in our environments and it is crucial for the creation, sustainability and well-being of any (found) living thing. Environments without water are usually inhabitable and incapable of growing life. So, it has become apparent that the need for water is increasing mainly because of human activity.

[7] "Petroleum & Other Liquids - U.S. Energy Information Administration (EIA)." *Petroleum & Other Liquids - U.S. Energy Information Administration (EIA)*, https://www.eia.gov/petroleum/ .

Causes

There are many causes for the scarcity of water, most of which are attributed to human acts. Climate change has brought massive changes to the weather, resulting in heavy droughts, longer and hotter summers and warmer winters. Water pollution, meaning water that could be contaminated, is also of massive importance. Lastly, since the Earth's population is growing continuously, demand for water also increases. If we are not conditioned to manage our resources, water scarcity will be one of the biggest problems we will have to face.

Food insecurity

Water is essential for growing produce. Around 70% of fresh water is used for agriculture, meaning that in the case of extreme water shortage we would not be able to grow sufficient products for the world's population to consume.

This has multiple negative effects on people. For example, food insecurity results in an increase in health related issues (because of the decrease in nutrient intake and unbalanced diets).

To add to that, a country's economy can slow down if its people do not have access to food. Unemployment rates and conflicts can be a result of that.

"Water Wars"

The increasing need for water, especially when there is a shortage of it, may increase human conflict, as countries or different areas will be fighting for water sources. Currently there are multiple conflicts, either on national or personal level, for water sources. For example, India and Pakistan are arguing, among other things, over the control of upstream water barrages and infrastructure projects.

Global Impact

The absence of sufficient and affordable energy and clean drinking water can, and has caused major problems to humanity at the moment. Food insecurity and scarcity,

inability to afford basic human needs (oil for transportation and heating, but also the production of basic products made of plastic). Though, ultimately the most devastating consequence is the loss of human life and the complete destruction of our environment.

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

South Sudan

The country that has the least access to electricity is South Sudan with only a seven percent of its population having access to electricity. From 2019 the least-electrified countries are located in Africa. While the number of people that have access to electricity has increased in the past two decades, in Sub-Saharan countries it has been stable. (The region shows a difference in access between urban and rural areas. In 2019, nearly 80 percent of the urban population in Sub-Saharan Africa had access to electricity, while the same was true for less than 30 percent of rural dwellers.)

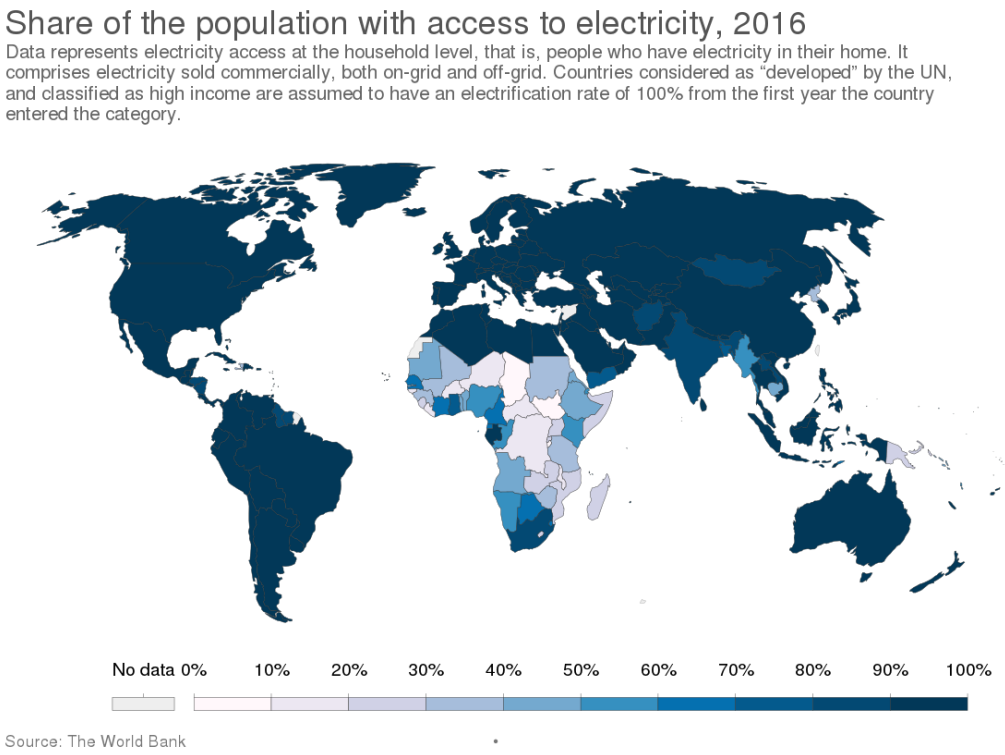

Figure 3: Global access to electricity by country.[8]

[8] "Wikimedia Commons." *Choice Reviews Online*, vol. 46, no. 11, 2009, pp. 46–5933. *Crossref*, https://doi.org/10.5860/choice.46-5933.

Nigeria

Nigeria has an energy consumption of 24.72 BkWh in total with only 55.4% of the country's population having access to electricity, while in rural areas the share was 24.6%.

Canada

On the other hand Canada had the highest consumption level in 2018, almost a hundred times larger than the one in Nigeria.

Afghanistan

It may be known for Sub-Saharan areas to have the least access in clean water, however, the highest rates are observed in Afghanistan. Only 22% of Afghanistan's citizens have clean drinking water and 30% of them have proper sanitation facilities.

China

The country with the most energy capacity is China with an installed capacity for renewable energy at about 795 GW, while coal power capacity was 1040 GW. In 2020, China added 48GW of solar power and 71GW of wind power and 13GW of hydropower, thus bringing the total installed renewable capacity to more than 900 GW.[9]

USA (United States of America)

Following China is U.S.A. with an energy capacity of 1,143,757 MW. The United States also exports and imports some electricity to and from Canada and Mexico.

SELCO Foundation

The SELCO foundation seeks to inspire and implement effective solutions in order to alleviate poverty through making sustainable energy more accessible throughout India in ways that are sustainable from every view. SELCO believes that an end-user centric, demand driven approach on ecosystem building leads to interventions that are long-term and

[9] "Off-Grid - Definition of off-Grid, Living off the Grid, BuzzWord from Macmillan Dictionary." *Macmillan Dictionary*, www.macmillandictionary.com/buzzword/entries/off-grid.html.

replicable. Ecosystem approach recognizes the pressing need to develop a fertile environment to enhance sustainable energy access solutions for the poor.

The World Bank

The World Bank is a unique global partnership that is committed to helping countries work towards universal access to affordable, reliable and sustainable energy. Since 2010 the Bank has provided more than $5 billion for energy access in over 35 countries through some 70 projects.

Energy Sector Management Assistance Program (ESMAP):

ESMAP is a partnership between the World Bank and 24 partners that aims to help the low and middle-income countries at matters that concern poverty and growth through sustainable energy solutions. It supports the scale-up of a comprehensive approach by the World Bank including innovative technologies, business models, policy and planning and leverages private and public financing.

Power for all

It is an organization that since 2015 has been focused on growing the market for distributed renewable energy (DRE) to end energy poverty. In every developing country they've worked on utilizing awareness, advocacy, and market activation to end the unequal distribution of energy resources and biases in the global power system.

One drop foundation

It is aiming to ensure sustainable access to safe water, sanitation and hygiene for the most vulnerable communities through innovative partnerships, creativity and the power of art.

PlanetWater

It is a non-profit U.S. based organization focused on providing clean water to the world's most impoverished communities. Their mission is to transform the health and well-

being of children worldwide through providing access to safe drinking water, sanitation, and hygiene.

TIMELINE OF EVENTS

Date	Description of Event
1994	The Energy Charter Treaty (ECT) provides a multilateral framework for energy cooperation that is unique under international law.[10]
2009	The third Report, "Water in a Changing World", was launched at the fifth World Water Forum held in Istanbul. "Water in a Changing World" took a holistic approach, addressing a number of themes throughout the report. The Report has four main sections, apart from the introduction and the recommendations: "drivers of change," "the use of the resource for humans and for ecosystems," "the state of the resource," and "responding to a changing world: what are the options?"
2015	The SDGs are established.
2019	Leave no one behind (LNOB) is the central, transformative promise of the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs)[11].

UN INVOLVEMENT: RELEVANT RESOLUTIONS, TREATIES AND EVENTS

Sustainable Development Goal 6: Clean Water and Sanitation

Water and Sanitation are one of the most important services in order for a person, let alone a people to survive. Because of that, the UN with the SDG6 has set a goal to

[10]"Energy Charter Treaty - Energy Charter." *Energy Charter Org*, 18 Feb. 2019,www.energycharter.org/process/energy-charter-treaty-1994/energy-charter-treaty.

[11]"Leave No One Behind." *Un.Org*, unsdg.un.org/2030-agenda/universal-values/leave-no-one-behind. Accessed 28 July 2022.

provide all people with clean water and sanitation. In order to achieve that goal certain events and actions have been planned by the UN such as The 2023 Water Conference.

Sustainable Development Goal 7: Affordable and Clean Energy

One of the main services that are necessary to live a comfortable life in modern ages has become Energy and to be more specific, sustainable, clean, affordable and sufficient energy. The UN is focused on achieving access to sustainable energy beyond the electricity sector and increasing the access to electricity in areas such as the sub-Saharan Africa.

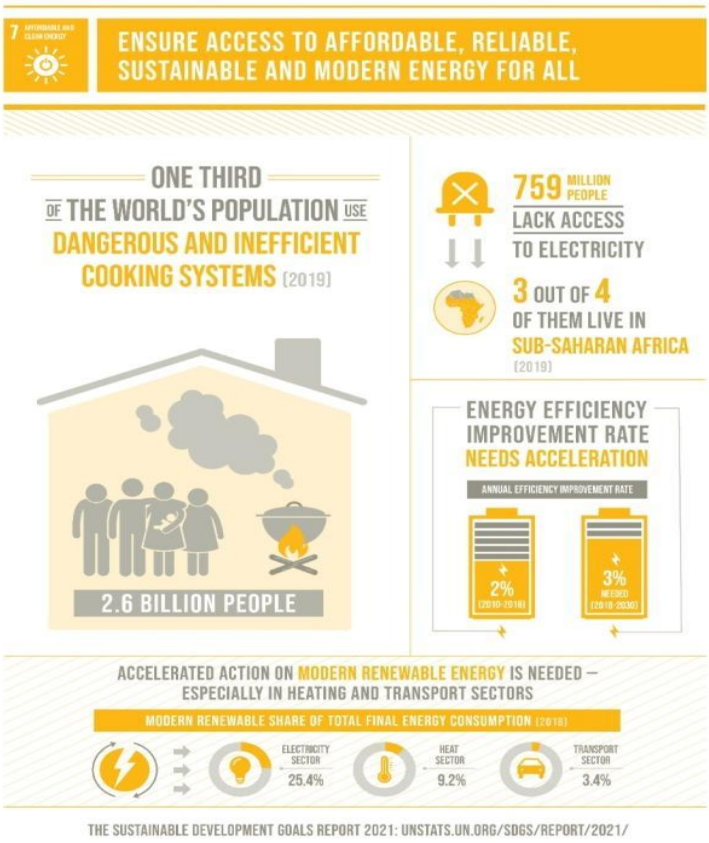

Figure 4: SDG7 Report[12]

[12] "Goal 7 | Department of Economic and Social Affairs." *United Nations*, United Nations, https://sdgs.un.org/goals/goal7.

UN resolution 64/292

This Resolution passes by the General Assembly in 2010 and recognizes that access to clean water and sanitation is a fundamental human right. It also recognizes the need for action towards increasing access to clean water and sanitation.

UN resolution 74/225

Voted in 2021 this resolution aims to start an energy revolution based on renewable energy. Energy efficiency is urgently needed not just to accelerate economic progress and development, but also to slash emissions that are rapidly warming our planet.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Off-grid technologies

Globally, at least 34 million people in 2017 gained access to basic electricity services through the use of off-grid technologies. Off-grid technologies are stand-alone electricity systems that are independent from the electricity grid. Off-grid technologies apart from being really useful they are also environmental friendly.

Tangus-Segura transfer

Water option contracts for reducing water supplying risks, an application to the Tangus-Segura transfer. The Tagus-Segura Water Transfer links the Bolarque Reservoir on the Tagus River with the Talave Reservoir on the Segura.

Amit and Ramachandran 2010.

When it comes to basic needs under supply constraints, fairness considerations lead to negative externalities. The objective of this paper is to design an infinite horizon contract or relational contract that ensures self-enforcing behavior by the agents to mitigate the externality due to fairness issues.

POSSIBLE SOLUTIONS

Microgrid technologies

Microgrids can deliver clean, reliable electricity to various regions of the world that don't have access to centralized generation and transmission. Microgrid technologies are useful because they have the potential to benefit both electricity providers and consumers. Microgrids have long been used in remote areas to power off-grid villages, military operations or industrial projects. But increasingly they're being used in cities or towns, in urban centers, on university or corporate campuses, in hospitals or at data centers.[13]

Funding education

In this particular issue there is a major lack of experts that can figure out suitable solutions for the need of access to basic facilities, such as electricity, water and energy sufficiency. This can happen by economically supporting education in order to help people become experts on the matter and be able to find effective solutions to handle it efficiently. The aim is to expand this region of education so that individuals would be able to elaborate on it and study this particular object concerning access to basic human needs.

Access to clean water

Educating the community in health and hygiene is vital. People who live in areas that lack water need to be well informed about the dangers and the consequences of using unsafe water. This type of education teaches families and communities about the long-lasting effects of healthy living.

[13] Climate-Admin. "Microgrids Keep These Cities Running When the Power Goes Out." Inside Climate News, 30 Nov. 2020, insideclimatenews.org/news/04122017/microgrid-emergency-power-backup-renewable-energy-cities-electric-grid.

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