

Forum: United Nations Environment Programme (UNEP)

Issue: Promoting the Use of Renewable Energy

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Introduction

François Hollande, the former president of the Republic of France, once stated - "We have a single mission: to protect and hand on the planet to the next generation." Fossil fuels, which is formed from the natural decay of organic materials such as plants and animals, currently provides a significant percentage of society's energy demands. It is labeled as a nonrenewable resource because it negatively impacts the environment and the health of people. When coal is burned to produce electricity, it produces harmful gases which are trapped in the Earth's atmosphere and prevent the sun's energy from escaping, causing respiratory issues such as asthma.

As society's hunger for energy continues to grow, the Earth's supply of fossil fuels is rapidly diminishing. Experts point to renewable energy as a sustainable alternative to fossil fuels; energy such as solar power, hydropower, tidal power, wind power, geothermal energy and nuclear energy may potentially have the capacity to replace the energy demands that have long been met by traditional petroleum and coal. The subject of climate change has long been escalated to international levels of discussion and cooperations, and many member states of the United Nations have begun to utilize alternative energies. While countries continue to search for new energy sources that can minimize environmental damage, the sheer cost of renewable energy renders a complete conversion from fossil fuels to renewable energy sources slow and difficult.

Definition of Key Terms

Global Warming

As humans release heat-trapped gases to power society, the levels of greenhouse gases have become higher now than in the last 650,000 years. The effects include the melting of glaciers, rising sea levels, dying cloud forests, and wildlife scrambling to keep pace. Experts refer to the combination of all these

results as global warming, which are the changes in the Earth's climate and long-term weather patterns as a result of human activity.

Greenhouse Gases

Greenhouse gases occur naturally and are essential to the survival of all organisms as they prevent a portion of the sun's heat from reflecting back into space in order to maintain a livable climate on Earth. However, after a century of industrialization, deforestation, and large scale agriculture, the amount of greenhouse gases in the atmosphere have risen to levels not seen in 3 million years. Experts have identified a direct correlation between the amount of GHGs in the atmosphere to the average global temperature on Earth. As society continues to advance, so does the cumulative level of greenhouse gases emissions (GHGs).

Renewable Energy

Renewable energy is energy that is generated from natural processes and can be continuously replenished. Forms of renewable energy include solar, geothermal heat, wind, tides, water, and various forms of biomass. Many countries have already begun to transition to cleaner forms of energy, yet the high cost of renewable energy and the competition posed by highly subsidised carbon-intensive energy technologies continue to pose as a barrier to a complete transition. Experts argue that renewable energy technologies could be deployed more rapidly if energy policies focused more on subsidizing renewable energy research and projects.

Fossil Fuels

Fossil fuel is a general term used to address buried combustible geologic deposits of organic materials that is converted into crude oil, coal, natural gas, or heavy oils to generate energy. The burning of fossil fuels is currently the largest source of carbon dioxide emissions of carbon dioxide and the main contributor to global warming. In fact, the current secretary general of the United Nations - António Guterres - has warned that the world is facing "a direct existential threat" and must rapidly shift from dependence on fossil fuels by 2020 to prevent "runaway climate change".

Sustainable Development

Sustainable development is the organizing principle for meeting human technological and social development goals while sustaining the capacity of environmental systems in providing the natural resources and ecosystem services upon which societies and their economies depend. The United Nations have established a collection of 17 global goals known as the Sustainable Development Goals (SDGs), also known as "Transforming our World: the 2030 Agenda for Sustainable Development". The SDGs cover a

broad range of social and economic development issues, including poverty, hunger, health, education, climate change, gender, equality, water, sanitation, energy, environment and social justice. While these goals are interrelated, each has its own specific targets to achieve, acting as an intergovernmental agreement to replace the Millennium Development Goals (MDGs) that terminated in 2015. Unlike the MDGs, the SDG framework does not distinguish between MDCs and LDCs, but instead have goals that apply to all nations. Paragraph 54 of the United Nations General Assembly Resolution A/RES/70/1 of September 25, 2015 contains the goals and targets.

Background Information

The United Nations Framework Convention on Climate Change (UNFCCC)

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty with the objective to “stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”. It was adopted on May 9th, 1992, opened for signature at the Earth Summit in Rio de Janeiro from June 3rd to 14th, 1992, and finally entering into force on March 21st, 1994. The framework creates limits on greenhouse gas emissions for individual gases and encourages the development of potential international treaties to address its objective. Even so, none of the limits set by the UNFCCC are binding, and the framework contains no enforcement mechanisms.

The United Nations Environment Programme

The United Nations Environment Programme (UNEP) is an agency of the United Nations that is responsible for coordinating environmental activities and assisting developing countries in implementing environmentally friendly policies and practices. Most United Nations discussions on topics regarding the process of transitioning to renewable energy takes place under the UNEP, and the the agency has published the UNEP Guide for Energy Efficiency and Renewable Energy Laws to assist member states in achieving sustainable objectives. Furthermore, the UNEP has funded multiple programmes, such as the India and Kenya Solar Programmes, to help LED-countries provide renewable energy for themselves.

UN Sustainable Development Goals

The United Nations Sustainable Development Goals are a collection of 17 global goals set by the United Nations General Assembly in 2015. They are part of Resolution 70/1 of the United Nations General Assembly: "Transforming our World: the 2030 Agenda for Sustainable Development". That has been shortened to "2030 Agenda", and address global challenges including those related to poverty, inequality,

climate, environmental degradation, prosperity, and peace and justice. The goal that should be focused on in this committee is Goal 11: Sustainable Cities and Communities. The United Nations stated that “There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transportation and more.”

Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the UNFCCC that was adopted in Kyoto, Japan, on December 11th, 1997 and entered into force on February 16th, 2005. It recognizes that developed countries are principally responsible for the high levels of GHG emissions in the atmosphere as a result of long periods of industrialization, and as a result, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities.” This protocol is effective in that it sets emission reduction targets that are internationally binding, as opposed to the non-binding limits set by the UNFCCC.

Chernobyl disaster and the Fukushima Daiichi nuclear disaster

The Chernobyl disaster was a catastrophic nuclear accident that occurred on April 25th to 26th, 1986 at the Chernobyl Nuclear Power Plant in Pripyat, Soviet Union. The event occurred during a safety simulation of a power-failure, in which the plant’s safety systems were intentionally turned off. A combination of inherent reactor design flaws and the reactor operators arranging the core in a manner contrary to the checklist for the test lead to uncontrolled reaction conditions, releasing radioactive materials that precipitated onto parts of the western USSR and other European countries.

The Fukushima Daiichi nuclear disaster was an energy accident at the Fukushima Daiichi Nuclear Power Plant in Ōkuma, Japan, initiated primarily by the tsunami following the Tōhoku earthquake on March 11th, 2011. Immediately after the earthquake, the active reactors shut down their sustained fission reactions, disabling the emergency generators that would have provided power to control and operate the pumps necessary to cool the reactors. The insufficient cooling led to three nuclear meltdowns, hydrogen-air explosions, and the release of radioactive material.

The effects of radiation from these two nuclear disasters were immense. The World Health Organization (WHO) released a report that estimates an increase in risk for specific cancers for certain subsets of the population inside the Fukushima Prefecture, with girls exposed as infants in the most affected areas having a 70% higher risk of developing thyroid cancer, a 7% higher risk of leukemia in males exposed as infants, a 6% higher risk of breast cancer in females exposed as infants and a 4% higher risk, overall, of developing solid cancers for females. Radiation also drastically affected surrounding marine life, and large quantities of radioactive particles from the incident have since been detected around the world.

While many experts believe that nuclear energy is the single source of renewable energy that has the capacity to completely replace fossil fuels and satisfy the energy demands of society, these two incidents undermined the public's faith in nuclear and poses as a barrier to the adoption of nuclear energy for many countries.

Major Parties Involved and Their Positions

United States of America

The United States addresses 82% of its energy demands through the burning of fossil fuels. Since 201, the U.S. have been making strides towards alternative forms of energy, with 11.7% of its energy coming from renewable forms of energy. In 2009, former U.S. president Barack Obama called for the doubling in use of renewable energy in the next three years, and in his 2012 State of the Union Address he reaffirmed his commitment to renewable energy.

The U.S. also has multiple government agencies that monitor its environment, including but not limited to the Environmental Protection Agency (EPA), The Department of Energy (DOE), and the Natural Resources Conservation Service (NRCS) that collaborate together to analyze and implement legislation to ensure sustainable development.

People's Republic of China

The People's Republic of China (PRC) is one of the leading countries in renewable energy productions, with the majority of its production being hydroelectric and solar power. The Chinese administration views renewable energy sources as a form of energy security, and has invested more capital in its renewable energy program during the 2000s focusing specifically on hydropower and nuclear power. Being a country with a vast territory, China requires a lot of energy and their usage of renewable energy is viewed as one of the factors that allows them to maintain their status as one of the most powerful economies today.

Brazil

Brazil is a leading example of a developing country that successfully utilizes more renewable energy than fossil fuels. 85.4% of all of Brazil's energy comes from renewable resources, particularly sugarcane ethanol which the country has in abundance. The main reason behind their advanced use of renewable energy sources is the occurrence of an oil shortage in the 1970s, which forced Brazil to focus on developing renewable energies.

United Nations Economic Commission for Africa

The United Nations Economic Commission for Africa (ECA) funded the project 1213X which began in 2012 with the goal of reducing energy poverty by giving access to renewable and clean energy in sub-Saharan Africa.

Greenpeace

Greenpeace is an activist organization working for the purpose of creating “an all-around better and greener earth.” To create a cleaner planet, the organization has launched the Energy Revolution in 2005 in an attempt to lessen the usage of fossil fuels all over the world. Making outlooks for large countries such as the United States, their ideology is that smaller countries should follow in the footsteps of the bigger leading countries in converting to renewable energy.

Inter-American Development Bank (IDB)

The Inter-American Development Bank (IDB) - established in 1959 - provides aid to Latin American countries and countries in the Caribbean with their social and economical development. Recognizing that Latin America and the Caribbean are only using 30% of their hydroelectric capacity, the IDB has launched different types of programmes all over the region to provide countries with reliable and renewable energy sources.

Timeline of Events

Date	Description of event
3-14 June 1992	United Nations Conference on Environment and Development (UNCED), or the Earth Summit, was held in Rio de Janeiro. Rio Declaration was published with 27 principles to advance sustainable development around the globe.
1994	UNESCO agrees to secure political support in the name of developing renewable energies.
1998	The World Solar Programme 1996-2005 was ratified by the United Nations General Assembly.

April 2003	The UNEP launches a four-year Indian Solar Loan Programme.
2005	Greenpeace launches the Energy Revolution Scenario
2007	Indian Solar Loan Programme wins Energy Globe after providing 100,000 people with solar energy in over 18,000 households across India.
20-22 June 2012:	The United Nations Conference on Sustainable Development (UNCSD) was held in Rio to secure renewed political commitment for sustainable development and assess the progress of previous commitments and addressing new and emerging challenges.
2012	United Nations former Secretary-General Ban Ki-moon launches the initiative "Sustainable Energy for All". The goal of this initiative is to reach universal access to modern energy services, double the rate of energy efficiency, and double the share of renewable energy in the global energy mix by 2030.
2012	ECA funds project 1213X; mission to reduce poverty by providing stable energy sources in Sub-Saharan Africa.
2013	China becomes the leading country in renewable energy development and production.

Relevant UN Resolutions, Treaties, and Events

- World Solar Programme 1996-2005, 26 October 1998 (GA/RES/53/7)

- Promotion of new and renewable sources of energy, 22 February 2009 (GA/RES/62/197)
- Promotion of new and renewable sources of energy, 20 March 2013 (GA/RES/67/215)

Possible Solutions

Combination solar wind power is an alternative approach to producing clean, non-polluting energy from two of the most abundant renewable energy sources. This system uses a hybrid solar panel and wind turbine generator to create electricity which is then stored in batteries. India, for example, is rated the top producer of solar energy in the world. A third of India's energy comes from renewable sources. In Brazil, wind power is one of the fastest growing sources of energy. Although the costs of renewable energy are rising, the government remains committed to developing wind power and other sources of renewable energy. However, the main issues with this form of energy production is the high initial capital costs and problems with efficiency. Combination solar wind power does not possess the capacity to match the amount of energy produced by fossil fuels. It cannot therefore replace fossil fuels as a single source of renewable energy. The high costs further discourages many governments from investing into research and development.

Utilizing Hydropower. Hydropower or hydroelectricity is the conversion of energy from flowing water into electricity, and it is considered a renewable energy source because the water cycle is constantly renewed by the sun. Historically, one of the first uses of hydro power was for mechanical milling, such as grinding grains. It has since then developed into modern hydro plants produce electricity using turbines and generators, where mechanical energy is created when moving water spins rotors on a turbine. This turbine is connected to an electromagnetic generator, which produce electricity when the turbine spins. The country of Zimbabwe built mini-hydropower plants to provide energy for citizens living in rural areas, resulting in less environmental degradation. Additionally, the Republic of Korea is building tidal power plants all along its coasts, and the Korean administration is investing more than \$1 billion over the next couple years to build plants. Even so, hydropower plants are extremely expensive to build and can therefore only be afforded by developed countries. But more importantly, many experts cite the environmental consequences of hydropower as the main barrier towards its adoption. Hydroelectric power plants may affect fish is a complex interaction between numerous physical and biological factors.

Nuclear power is the use of nuclear reactions that release nuclear energy to generate heat, which most frequently is then used in steam turbines to produce electricity in a nuclear power plant. As a nuclear technology, nuclear power can be obtained from nuclear fission, nuclear decay and nuclear fusion reactions. Many countries have begun to adopt nuclear energy. For example, the government of the Philippines is

considering reviving a nuclear power plant to help the country with its energy needs, but it is stirring local and international protest. This is because incidents such as the Chernobyl disaster and the Fukushima Daiichi nuclear disaster have shown the world the potential disastrous consequences of nuclear failure and the horrifying long-term effects that they have.

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