Ilkogretim Online - Elementary Education Online, 2021; Vol 20 (Issue 2): pp. 2994-2999
http://ilkogretim-online.org
doi: 10.17051/ilkonline.2021.02.318

A Study Of The Effects Of Non-Renewable Energy Sources On The Environment

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Abstract

In this article, we will discuss how using non-renewable energy sources can have a range of negative effects on the environment, either as a result of how they are obtained and processed, or as a result of how they are used and then disposed of. The continued use of non-renewable resources undoubtedly has an influence on our health and welfare, and these consequences are intimately related to the effects non-renewable have on our environment. These merits further examination, which is what this article sets out to accomplish with an emphasis on the negative consequences of non-renewable energy sources on the ecosystem. The most popular non-renewable energy sources are listed here, along with the effects they have on the environment and human health.

Keywords: Environment, Non-renewable resources, Harmful effects.

1.Introduction

Fuels that cannot sustain themselves naturally are classified as non-renewable. Examples include non-renewable energy sources like natural gas and others. In contrast to renewable energy sources like water, sun, and wind, the majority of which are converted to electricity in a clean manner, the conversion of fossil energy to usable fuel can cause toxic emissions, and its collecting might disrupt local wildlife [1]. When fossil fuels are processed, dangerous greenhouse gases are released into the atmosphere. These molecules, particularly carbon dioxide, damage the ozone layer which protects us form solar radiation. Air pollution also has a substantial impact on our respiratory health . [2]Sulfur and other compounds that are released into the atmosphere, frequently as a result of the combustion of fossil fuels into power, are what cause acid rain. It can harm local habitats and corrode machinery. Solid waste confinement facilities house toxic ash, which can burst and wreck havoc in the neighbourhood. Shorelines and ecosystems close by are severely harmed by oil spillage.

2.Objectives

Energy sources that rely on fossil fuel reserves that have been accumulated over many years are considered non-renewable. This causes these energy reserves to be depleted. Many nations have seen a dramatic decline in these resources and are currently experiencing the negative repercussions of extracting these subsurface energy assets. These nations include India and China as examples [3]. The environmental damage is so severe that simply visiting these two nations will allow you to observe first-hand the numerous research studies that are readily visible to the unaided eye. This trend needs to be reversed if the world is to survive the process of degeneration that is continuing or happening at a far faster rate .

3.Methodology

Sources of energy that are not renewable, such as coal, natural gas, and oil. Tragic commons is a phrase. As in the overgrazing animal example, nobody maintains the pasture because it is not their property, therefore everyone grazes more livestock and uses up more resources. environmental footprint [4-5]. Finally, using environmentally friendly design and construction methods sometimes had more to do with political correctness than it does with the benefits they actually provide for the environment. The advantages of switching to non-renewable energy sources like photovoltaics and deep cycle batteries are frequently discussed. sources of both renewable and non-renewable energy. The fact that energy sources do not form or replenish quickly qualifies them as non-renewable. Renewable energy sources like solar and wind quickly refuel through natural processes [6].

4.Fossil Fuels

The cost of extracting fossil fuels is expected to eventually render them unprofitable, pushing humanity to rely more on alternative energy sources like solar and wind power (see renewable energy. [7]These carbon sources are thought to be non-renewable carbon sources even though it is unclear how quickly they form and replenish on the ocean floor. The best way to extract them at costs and speeds that are profitable for business has not yet been determined. At the moment, mankind's main energy source is fossil fuels. Since the creation of ICE techniques in the 19th century, demand for oil and other fossil fuel extraction has been high. The continuous use of fossil fuels at the current rate is predicted to exacerbate climate change and fuel global warming [13].

5.Nuclear Fuels

[8]When it comes to conventional sources of renewable energy like falling water and solar, the WCED, an organisation established by the United Nations but independent from it, has classified reactor designs that generate more fissionable material nuclear fuel than they ingest, or fast reactors, as well as nuclear fusion when it is evolved. The American Petroleum Institute notes that while breeder reactor nuclear fuel is termed

sustainable and renewable, ordinary nuclear fission is not, and that radioactive material from used used reactor fuel must be kept with extreme caution for up to a 1000 years. With the utilisation of alternative sources of renewable energy like geothermal energy, rigorous control of radioactive disposal products is also necessary. [9] Naturally occurring radioactive material is required as fuel for nuclear technology based on fission. The most popular fission fuel, uranium, is mined in 19 different nations and is found in the earth in relatively small proportions. The uranium that is extracted is used to power nuclear reactors that generate electricity. The fissionable uranium-235 in these reactors produces heat, which is then used to drive turbines that produce electricity.

[10]It is believed that uranium excreted from the ocean floor would continuously replenish uranium removed from saltwater for industrial use, keeping the density of seawater constant. Few kilogrammes (picture attainable) of uranium were extracted from the ocean in test projects as of 2013. The method would be economically feasible if widely used and aimed at light water reactors, according to a paper published in the journal Marine Science & Engineering in 2014, thanks to advancements made in the efficiency of seawater uranium removal. The production of nuclear energy is associated with potentially dangerous radioactive pollution since it depends on unstable components. Particularly, nuclear power reactors produce 11,000 metric tonnes of high-level waste (HLW), which includes spent fuel, and roughly 400,000 metric tonnes of low and intermediate level waste (LILIW). The question of whether or not nuclear fuel is sustainable has nothing to do with worries about the use of nuclear energy and the high-level radiation that the nuclear industry creates, which is extremely deadly to people and wildlife if correctly contained. The Chernobyl catastrophe, the rotation of nuclear fuel, 0.01 millisievert (mSv) from the legacy of previous atmospheric nuclear experimentation, 2.0 mSv from naturally occurring radioactive isotopes, and 0.4 mSv from cosmic rays were all taken into account in the UNSCEAR 2008 estimate of the mean annual human radiation exposure; exposure levels vary by location. This uranium emits multiple radiation types in a chain with a half-life of approximately 7 billion years, just like when it was found in the ground naturally. Geoscientists have been informed of the tried-and-true methods that prevented the waste from this 1.6 billion yearold NNR that operated for tens of millions of years from severely harming the local animal and plant life thanks to the knowledge gained from examining the NNFR in Oklo, Gabon. The preservation of this spent nuclear fuel and the related metabolic by products of fission have increased public concern over the risks of leaks and containment.

6.Earth Minerals And Metal Ores

Non-renewable resources include metal ores and soil minerals. The metals themselves are abundantly present in the crust of the Earth, and human extraction only takes place where organic geological phenomena (like temperature, stress, organic life, erosion, and other activities) have concentrated them to the point where it is profitable to do so. The localised metal ore reserves close to the surface that humans can economically mine are not replenishable in our lifetimes. More rare and unbounded than others are some rare

earth rocks and ions. These are in great use in the industrial sector, especially in the electronics sector.

7. Environmental Impacts of Non-Renewable Energy Sources

7.1 Greenhouse gas emissions

The effect of using non-renewable energy sources that is arguably most known is the release of greenhouse gases, specifically CO2 and methane, which contribute to climate change. The quantity of greenhouse gases emitted by different non-renewable energy sources varies, though. For instance, among all fuels, coal is estimated to emit the highest proportion of CO2. Calculations of the US electricity sector's CO2 emissions in 2015 show that coal contributed 71% of those emissions while natural gas contributed 28%. Natural gas really emits much less CO2 when used to power a vehicle than either coal or gasoline, producing between 50 and 60 percent less CO2 from coal and between 15 and 20 percent less heat-trapping gas from gasoline.

7.2 Air pollution

The use of non-renewable energy sources has an impact on more than only the planter's climate through raising carbon dioxide emissions. Additionally, they release a variety of poisons that have an impact on both human health and the ecosystem. For instance, the US's single largest producer of mercury pollution is coal-fired power stations. Mercury, when released into the atmosphere, either settles on the ground or mixes with water. From there, it moves up the food chain, accumulating on creatures like fish. Although it has significant effects on our species, studies have shown that mercury exposure could have negative neurological and neurobehavioral effects in foetuses and early children .

7.3 Acid rain and water pollution

However, pollution has an impact on more than just the air we breathe. Hazardous chemicals that are discharged into the atmosphere usually follow the water cycle. This is the case with acid rain, which is brough on by exposure of the atmosphere to things like sulphur. This concoction of chemicals causes the rain to become slightly acidic. Machine corrosiveness and environmental disruption are both effects of acid rain. By changing the acidity of streams and lakes, acid rain has a negative impact on the ecosystem and can be especially harmful to fish and other aquatic animals. Additionally, it would destroy tress harming forest ecosystems.

8.Conclusion:

Buildings consume over 40% of all energy globally each year. Air conditioning, lighting, heating, and cooling systems are the main uses of this energy. The need for eco-friendly cooling and heating systems has resurfaced as awareness of the damaging effects of CO2, NOx, and chlorofluorocarbon emissions on the environment grows. Therefore, it was deemed desirable to limit energy use, the rate of depletion of the world's energy resources, and environmental degradation. The quantity of primary energy used can be greatly reduced using passive approaches, particularly when using natural or hybrid

ventilation rather than air conditioning. However, reducing dependency on fossil fuels can also be significantly reduced by employing renewable energy in buildings and agricultural greenhouses. Therefore, by reducing emissions both locally and worldwide, promoting innovative renewable uses and supporting the market for renewable energy would aid in the preservation of the ecosystem. This will also contribute to bettering the environment by replacing traditional energy sources that emit greenhouse gases and air pollutants with renewable ones. Maintaining high indoor environmental quality (IEQ) while running heating, ventilation, and air conditioning systems in buildings in a way that is both inexpensive and efficient is a multifaceted problem. This report presents a comprehensive analysis of projected future energy consumption trends and the accompanying environmental implications (acid precipitation, ozone depletion, and greenhouse effect or global warming). According to the study's findings, large-scale plants should be used to encourage, promote, execute, and show off environmentally beneficial renewable energy, particularly for use in remote rural areas.

Reference:

1. Jebli, Mehdi Ben, Slim Ben Youssef, and Ilhan Ozturk. "Testing environmental Kuznets curve hypothesis: The role of renewable and non-renewable energy consumption and trade in OECD countries." Ecological Indicators 60 (2016): 824-831.
2. Dogan, Eyup, and Fahri Seker. "The influence of real output, renewable and non-renewable energy, trade and financial development on carbon emissions in the top renewable energy countries." Renewable and Sustainable Energy Reviews 60 (2016): 1074-1085.
3. Dogan, Eyup, and Fahri Seker. "Determinants of CO2 emissions in the European Union: the role of renewable and non-renewable energy." Renewable Energy 94 (2016): 429-439.
4. Doytch, Nadia, and Seema Narayan. "Does FDI influence renewable energy consumption? An analysis of sectoral FDI impact on renewable and non-renewable industrial energy consumption." Energy Economics 54 (2016): 291-301.
5. Bento, João Paulo Cerdeira, and Victor Moutinho. "CO2 emissions, non-renewable and renewable electricity production, economic growth, and international trade in Italy." Renewable and sustainable energy reviews 55 (2016): 142-155.
6. Güney, Taner. "Renewable energy, non-renewable energy and sustainable development." International Journal of Sustainable Development & World Ecology 26.5 (2019): 389-397.
7. Ali, Sadia, Sofia Anwar, and Samia Nasreen. "Renewable and Non-Renewable Energy and its Impact on Environmental Quality in South Asian Countries." Forman Journal of Economic Studies 13 (2017).
8. Dogan, Eyup, and Ilhan Ozturk. "The influence of renewable and non-renewable energy consumption and real income on CO2 emissions in the USA:

evidence from structural break tests." Environmental Science and Pollution Research 24.11 (2017): 10846-10854.
9. Saudi, Mohd Haizam Mohd. "The role of renewable, non-renewable energy consumption and technology innovation in testing environmental Kuznets curve in Malaysia." (2019).
10. Bulut, Umit. "The impacts of non-renewable and renewable energy on CO2 emissions in Turkey." Environmental Science and Pollution Research 24.18 (2017): 15416-15426.