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Opinion

Deforestation and Forest Degradation, New Renewable Energy, Human Health in Managing Climate Change

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Forest and Human Health

Forests provide important health benefits for everyone, especially to people who are closely related to the ecosystems, including urban residents. Although the use of forests for food security and nutrition have been widely discussed, their diverse roles in human health has received little attention [1]. According to previous studies, forests provide ecosystem services such as food, medicinal plants, clean water, firewood, and income, which have an indirect impact on human health and well-being. It was also discovered that their direct effects range from physical, mental, to social benefits [2]. This makes it necessary to maintain forests' health to ensure the well-being of the people by mitigating climate change and regulating infectious diseases. Furthermore, they have a positive impact on air quality through the deposition of pollutants into the vegetation canopy, reduction in summer air temperature, and ultraviolet radiation. However, ecosystem services and goods provided are threatened by deforestation, and forest degradation, including biodiversity, pollution, and climate change [3].

New Renewable Energy

Climate change policies have caused a shift towards renewable energy sources such as biomass from forests, oil palm plantations, and others. During the first half of the twentieth century, air pollution in many cities was largely dominated by local emissions from the burning of fossil fuels for energy production, heating, manufacturing, and transportation. This triggered climate change with frequent and severe impacts, namely the emergence of smog in various countries, causing a large and sudden increase in deaths. Meanwhile, several studies have been carried out in the last decade on new renewable energy to replace fossil fuels. Based on the transition from fossil energy to environmentally friendly bioenergy, the EU is also promoting the use of wood biomass for energy production to mitigate climate change, maintain, or increase forest biodiversity and ecosystem conditions. Although environmentally friendly energy has been developed, there are still some challenges to the health of people. According to a previous report [4], there is increasing evidence of the detrimental health effects of wood-burning/biomass emissions. This is because they are currently dominated by emissions from inefficient small stoves, placing renewable energy in direct conflict with the perception of being a healthy source and domestic heating. The potential adverse health effects associated with biomass emissions also contradict their role in reducing other exposures driving climate change. According to the current conservative estimates, the contribution of biomass smoke to premature mortality in Europe is at least 40,000 deaths per year. This is based on the population exposure of 10% and the most recent estimate of the total death burden from fine Particulate Matter (PM) exposure in Europe (EU28) of over 400,000 premature deaths annually.

Handling Climate Changes

The maintenance of forests will also contribute to people's health, however, their cover in various countries is gradually decreasing due to deforestation and degradation. This includes the

conversion into oil palm plantations to meet new and renewable energy needs. Both forests and oil palm plantations play a role in dealing with climate change from their biomass. However, in terms of biomass content and biodiversity, forests are relatively larger in number compared to oil palm plantations. The virgin biomass which is densely packed with trees has the highest content, which begins to decrease for secondary and non-dense forests. This will lower the biomass content when the land is used for agroforestry, plantations, grazing fields, or converted for other purposes such as urban development and infrastructure [5]. Forest environmental services including people's health are far greater than oil palm plantations. One of the factors that encourage the expansion of oil palm plantations and the reduction in forest areas is the greater economic value. Meanwhile, the 5 countries with the potential to expand oil palm plantations due to their large productivity are stated below.

a. Indonesia has been the number one producer of oil palm in the world since 2006. Based on Mundi Index data, the oil palm production in 2019 reached 43,500,000 tons with an average growth of 3.61% per year. This is supported by the availability of oil palm plantations covering an area of 16,381,000 ha.

b. Malaysia has oil palm production of 19,300,000 tons in 2019 with an average growth of 0.96% per year. This is due to the availability of the plantation area covering 5,350,000 ha.

c. Thailand has oil palm production of 3,000,000 tons per year and an average growth rate of 3.45% per year, with a land area of 810,000 ha.

d. Colombia is a Latin American country and is among the large producers of oil palm in the world. The country produces 1,680,000 tonnes per year, with an annual potential of 3.38% for oil palm growth and a plantation area of 260,000 ha.

e. Nigeria is a country in the African continent and ranked 5th among the world's largest oil palm producer. Although the country produced approximately 1,000,000 tonnes in 2019, the export capacity is 600,000 tonnes per year, with a land area of 2.5 million ha [6].

Due to the continuous increase in demand for oil palm, in the global market, there is a need for the government's policy to expand its plantations. Moreover, the world's medical and nursing science and technology have been significantly advanced. In 2005, the World Health Assembly through its resolution WHA58.28 urged for the implementation of e-Health to develop information and communication technology infrastructure for health and promote equity, affordability, and universal access [7]. However, this was not optimally implemented, especially during the Covid- 19 pandemic which has not ended for 3 years. The delay in the procurement of vaccines has also caused a massive and rapid spread of the virus globally. The case of the Covid-19 pandemic has not yet been overcome by all countries; a mysterious hepatitis disease has emerged in children which is currently increasing. This disease is still under in-depth research, especially in its relationship with Covid-19 [8]. Adenovirus investigations are being conducted in countries, where cases have been identified. These include more clinical details, exposure histories, toxicological testing such as environmental and food toxicity, and additional virological/ microbiological testing. Moreover, affected countries have also initiated enhanced surveillance activities.

This has made WHO recommend blood testing with initial anecdotal experience, serum, urine, stool, respiratory, and liver biopsy samples with further virus characterization including sequencing. Other infectious and non-infectious causes also need to be thoroughly investigated. Through a more extensive search for hepatitis incidence, several cases will be detected before confirming causes and implementing preventive measures [9]. It was discovered that advances in medical science and technology are slower compared to the rate of deforestation and forest degradation. Therefore, various diseases that emerge due to forest destruction cannot be overcome in a short time. Previous studies also showed that every country included in the Conference of the Parties (COP) gathers annually to conduct a review related to the United Nations Framework Convention on Climate Change, which is a major agreement. The agreement stated there is a need for countries to work together and determine the solution to stop global warming. Although the 26th COP in Glassgow, England has been obtained, which led to strategic decisions in dealing with climate change. However, there are still problems with financing climate change, especially in developing countries. This is because the assistance from developed countries has not been significant, therefore, the expected solution has not been achieved.

Conclusion

Forests will continue to decrease in size and be replaced for non-forest purposes such as the expansion of oil palm plantations and others. Although both are solutions for handling climate change, forests provide greater environmental services for people's health. Meanwhile, advances in medical science and technology are still slower compared to the rate of deforestation and forest degradation. This is exacerbated by the absence of climate justice between developed and developing countries on the costs of handling climate change.

Conflict of Interest

No conflict of interest.

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