

Addressing Effects Of Climate Change To Boost Development

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Introduction

The human impact on climate change since the last century has been widely studied and known to have been a principal cause of climate change due to carbon emissions and the release of greenhouse gasses into the atmosphere, mainly for energy production. Climate change due to the build-up of those greenhouse gases results in harmful effects on human health, the ecosystems and the environment as a whole. There are other natural causes of climate change as well that mostly occur due to volcanic eruptions, solar variations, ocean currents, the earth's orbital change and a few others that lead to greater production of greenhouse gases leading to climate change. Carbon emissions, deforestation, agriculture, and the use of commercial and household energy systems all contribute to an upsurge in greenhouse gas accumulation. The resulting climate change then affects our agriculture, water suppliers, transportation and power systems, the natural environment and even our own safety and health. The resulting climate change does not affect humans or the weather only; all animal, plant, and living and non-living components of the ecosystem, such as the rocks, soil, lakes, and oceans, are affected as a consequence. Therefore, there is a vicious cycle between economic development, climate change, and environmental degradation, where each causes the other and is affected by the other.

Major Environment Effects of Climate Change

Although climate change has been attributed to a number of detrimental effects on the environment, a few environmental effects are key to address. Among them are deforestation, water pollution and a loss of biodiversity. The conversion of forested areas to non-forest land is commonly termed deforestation, which occurs most commonly as a result of development activities that require land for pasture, arable land, logged area, urban use or wasteland. Forest removal creates an imbalance between the ecosystem and the loss of equilibrium, which results in a decline of biodiversity and natural habitat for various species. Deforestation is among the major contributors towards climate change. In fact, after fossil fuel combustion, it is the largest anthropocentric source of carbon dioxide emissions into the earth's atmosphere (G. R. van der Werf, 2009). Furthermore, the degradation of forests is both a cause and an effect of global warming and climate change, as the other environmental effects created by climate change begin to affect forests even where human activities are not the primary cause of forest removal. For example, the frequency and intensity of forest wildfires are a consequence of climate change-induced modifications. An outbreak of pathogens and

insects due to a modified ecosystem and other extreme events, such as floods and high winds, are becoming greater drivers of deforestation and the resulting harmful effects than elevated atmospheric carbon dioxide or generally higher temperatures (Virginia H. Dale, 2001).

Water pollution occurs when water bodies are contaminated as a result of pollutants indirectly or directly being discharged into the system without the removal of harmful compounds through prior adequate treatment. The entire biosphere of organisms and plants whose lives depend on those water bodies is affected as a result, and they are exposed to contaminants that further lead to various harmful consequences. The water cycle is being deeply impacted by global warming, leading to changes in the amount, timing, distribution and quality of the available water. This results in entire communities, industries, and ecosystems being affected in turn, whose functions and activities indirectly or directly depend on the water. Another consequence of climate change is the declining water quality itself. The changes in water temperature affect the amount of oxygen dissolved by water and thus produce more stress on the insects, fish, crustaceans or any other aquatic life forms that are reliant on oxygen. The pollution load in streams and rivers will flow towards the larger bodies of water, contaminating both (UCS, 2018).

The loss of biodiversity refers to the extinction of plant, animal or aquatic species worldwide or can also refer to the loss or local reduction of species in a particular habitat. It refers to the link between different organisms that survive on earth and bind to each other in an interdependent ecosystem, where a certain role exists for all species. The loss of biodiversity has a negative impact on society as a whole. The primary affected area is the health of individuals, natural resources, and the climate, which contribute to poverty, pollution, and the extinction of species. Climate changes can destroy or alter habitats such as wetlands or forests, leading to disruptions in the species' natural cycle and migrations. Often, these endangered species cannot migrate because they are trapped. The predicted increase of overall global temperatures by 1.8 to 2 ° C poses a threat to millions of species that can come towards the brink of extinction. The loss of carbon capacity of the earth, in turn, contributes further to [global climate change](#). Furthermore, an increase in ocean acidification can also occur as a result of climate change, leading to a sustained decrease in the ocean's PH levels, which consequently will negatively affect biodiversity (Dudley, 2004). Species that depend upon each other to survive and co-exist naturally affect human lives and society as a result. Therefore, there are important considerations to be made in developing sustainable development models that do not affect the earth's ecosystems while continuing towards progress and economic growth. Unfortunately, that balance has not yet been maintained by a significant majority of countries, and even highly developed countries have only recently passed legislation that makes sure that development models do not impact important components of the ecosystem.

Deforestation and Economic Development

According to a study, the increase in the rate of deforestation rises according to that country's economic growth in lesser developed countries. The effect, however, disappears in more weather

countries, according to the findings. Africa, in particular, is specifically vulnerable to forest cover loss as the GDP of sub-Saharan African countries rises and catches up to the rest of the world (Jesús Crespo Cuaresma, 2017). Further studies (Gary Koop, 2001) investigate the distributional factors and their role in expediting the impact of development and growth in tropical developing countries on forest depletion.

The distributional profile of a country, according to the findings, plays a large role in determining whether deforestation levels in that country will be affected by economic development, either positively or negatively. For instance, in those countries where socioeconomic inequality is relatively high, economic development will tend to impact deforestation and aggravate the loss of forests, as opposed to those countries whose distributional profiles are more egalitarian, wherein the impact of development and growth will have minimal effects on the forest cover (Gary Koop, 2001). Therefore, in such countries, addressing the issue of deforestation may not impact development as much as it can in developing countries.

There is a complex interaction between many drivers and factors that lead to deforestation, among which some are highly context-specific. The driving forces, in the general sense, are the per capita increase in consumption and demographic growth, which tend to be primary forces. Agriculture-based countries where there has been a specific expansion of subsistence and commercial agriculture are chief drivers of deforestation by far. This, however, is more complex than it apparently seems. Findings in contemporary research have highlighted that a large proportion of humans continue to live in relatively poor rural environments, wherein they are more dependent on environmental or forested resources than most commonly realize. For rural economy and livelihoods, the income from natural resources, habitats or forests accounts for 28% of their total household income, often even more than how much cropping contributes. For a large number of people in many countries of the world, forests are vital to their ways of life, identity, spirituality and sense of self-worth as much as they are important to their economic well-being and livelihood. Therefore, in this case, when urban development begins to lead towards forest degradation, deforestation begins to negatively affect rural economic development in many parts of the world. Therefore, these small producers contribute towards playing an important role in environmental and developmental efforts that concern forestry, food security, climate change, livelihoods and the green economy (EU Commission, 2014). It is therefore important to understand the overall impact in a holistic manner towards any policies and legislation made, and efforts to reach an important balance between forestation and urban economic development must be researched.

Water Pollution and Economic Development

Water pollution and economic development are also intricately linked, with several complex variables that must be analysed to develop the proper link. Study the Impact of Economic Development on Water Pollution in Malaysia A study was conducted to evaluate the impact of water pollution as a result of various development activities in a rising economy like Malaysia (Suleyman A. Muyibi, 2007).

The study aimed to examine the problems that were causing water pollution as well as the policy measures adopted by the Malay government, as they indicated different development trends and their relation to water pollution. The causative relationship between the problems that resulted as a consequence of technological means of controlling water pollution was also presented, and appropriate government policy measures were suggested. The findings confirmed earlier predictions that with the rise in various development indicators, there was a rise in river pollution in Malaysia and pointed towards many interactive effects of river contaminants that government policymakers are not aware of. The resulting contaminants and effects not only harm life but also the ecosystem, and the findings conclude that rapid and consistent growth of urban industries in Malaysia and overall economic development have, although they increased its citizen's economic well-being, resulted in water pollution across almost all regions of the country. Government measures are not sufficient and tend to favour economic development over environmental degradation without examining the consequences it will pose to other sections of the community whose sustenance and livelihood depend on the river's proper function (Suleyman A. Muyibi, 2007).

In another case study in China, the Yangtze River basin and its contamination levels were studied. The research suggested that water volume and flow decrease from the upper portion to the lower part of the river as pollution and development around the area increase, especially in areas that have a transboundary. The water of the Yangtze Estuary flows directly into the East China Sea and is located at the intersection of Shanghai and the Jiangsu Province. As urban economic development in China continues to increase, the water of the Yangtze River, which is a source of drinking water for many people and serves multiple other functions, is affected. Furthermore, it affects agricultural irrigation, aquaculture, and tourism. The river also plays a role in the economic and social development of the people, the overall well-being of the people, and the environment they live in. Therefore, the negative effects of development affect the water, which in turn affects other economic and social activities of the people. The findings conclude that indirectly or directly, the aquatic environment of the Yangtze estuary and the pollution in it negatively influence the socioeconomic function of the river itself along with its neighbouring area. It was noted that the impact of development in areas near the upper river caused serious economic loss to the areas surrounding the lower part of the river, such as Chongqing County. Suggestions in this regard have been made in the study in order to find a solution for the situation (Zhang, 2014).

Conclusion

It is clear that economic development, especially in developing countries, has adversely impacted forestation and caused water pollution, although some studies suggest that environmental degradation begins to slow down or even reverse in the case of highly developed countries, which is arguably on a smaller level than the overall trend. Deforestation and water pollution lead towards climate change, and climate change further then creates more deforestation and water pollution in a cycle. The same cycle is seen when economic development begins to reduce forestation and cause water pollution, but then deforestation and water contamination harm the development of rural

communities that are dependent on forests or water resources.

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