Finding a balance between the preservation of and the economic development in ecologically vulnerable environments

UNEP

Kıvanç Akay Çelikpala

Deputy Chair

Forum: United Nations Environment Program

Issue: Finding a balance between the preservation of and the economic development in ecologically vulnerable environments

Name: Kıvanç Akay Çelikpala

Position: Deputy-Chair

Introduction

Undeniably, economic development in an area that is susceptible to change usually results in the destruction of the environment and the ecological landscape of the area. Whether this is in less developed or developed parts of the world, it is still an issue that greatly affects the ecosystem and the lives of populations around the world. Furthermore, this destruction is often the product of uncontrolled economic development policies and unsustainable practices. Thus leading to the assumption that these two concepts are a trade-off and mutually exclusive; however, if certain criteria are met and this economic development is made in accordance with green-policies and the preservation of the environment in mind, this problem wouldn't be in place. It can be argued that economic development and environmental protection can go hand-in-hand to achieve a much cleaner and safer environment for us all. Jayachandran notes, "This [failed attempts at a balance between development and protection] does not imply, though, that economic development is always bad for the environment. Development can expand the set of choices available to us—for example, if a new, cleaner way to generate energy is invented. Economic prosperity can strengthen people's willingness to forgo a part of their income to achieve a cleaner environment." (2022: p.1). What can be understood is that although this is a difficult task to achieve, it is feasible.

Definition of Key Terms

Biodiversity

The variety of plants and animals present in a particular ecosystem, such as the Amazon Rainforest.

Carbon Sequestration

The process of capturing and storing carbondioxide with the aim of reducing its amount in the atmosphere

Circular Economy

A kind of economic system where resources and goods are recycled and renewed, particularly to support ecologically friendly or sustainable production methods.

Deforestation

The systematic removal of trees in a particular area or region which leads to enormous loss of biodiversity and vegetation.

Flora

All of the plant life existing in a certain environment, biome, or a particular region.

Fauna

All of the animal life existing in a certain environment, biome, or a particular region.

LEDC

Less economically developed country.

MEDC

More economically developed country.

Over-tourism

A phenomenon whereby certain places of interest are visited by excessive numbers of tourists, causing undesirable effects for the places visited.

Precision Agriculture

A system of farming where satellite imaging and data analytics are used to enhance efficiency and optimize crop production.

General Overview

Ever since humans have switched from being nomads to permanently living in areas as communities, they have changed the environment around them, for the better or for the worse. Therefore, environmental changes are inevitable when humans decide either to settle in an area or to

develop the area for their own benefits. However, in a world where profit comes before everything else, these changes have led to and are continuing to lead to immense problems. When economic development happens without regulations regarding the environment, the local population of humans, animals, and plants is greatly affected. For example, when large-scale factories and other production facilities open in towns and cities. While creating new job opportunities and increasing the overall living standards in that town/city, these new facilities cause environmental degradation and generate pollution in the mean-time. Thus, when economic development happens especially in ecologically vulnerable areas, it is expected that it will lead to even bigger problems regarding the flora and fauna of the area.

Environmental Kuznet's Curve

Although the American economist Simon Kurtz's original theory was in the context of income inequality, the Environmental Kuznet's Curve's hypothesis can explain the relationship between environmental degradation and the rise in GDP per capita in countries. It argues that there is an inverted U shape between these two variables. This hypothesis can be split into three stages; the first being the initial stage where when a country experiences economic growth and the per capita income increases, environmental degradation happens to get worse. This stage is followed by the second stage where a turning point can be seen. As a country experiences further growth, technological advancements happening in the country lead to its negative impact on the environment decreasing. The final stage or the improvement stage, is when a country has reached higher levels of economic growth and can afford to make investments in cleaner energy resources, e.g. Western Europe, making its negative impact even lower. However, it should be kept in the mind that the Environmental Kuznet's Curve is just a theory and cannot be counted as certain and the sole way countries experience economic growth and environmental degradation.

Biodiversity Loss and Habitat Destruction

Economic development, which is the most significant contributor to societal advancement, usually causes the foreseen inevitable: biodiversity loss and habitat destruction. With countries -especially developing countries- striving for economic growth, the flora and fauna of areas in development have to bear the consequences of this ambition. Activities such as; immense agriculture, logging, deforestation, and infrastructure development are the primary causes for this loss of biodiversity. This never-ending strive results in the conversion of natural habitats to agricultural lands, urban areas, or industrial zones resulting in extensive issues in the environment.

Deforestation is a major factor in habitat loss as well and is fueled by the need for commodities such as agricultural land and timber. The ramifications are especially severe in areas with great biodiversity, for example tropical rainforests like the Amazon, where the delicate equilibrium of ecosystems is upset with deforestation. Nearing the size of the continental United States, the Amazon is the largest rainforest in the world and absorbs more greenhouse gasses than any other rainforest. It also holds 10% of all species on earth, making the rainforest extremely important when it comes to biodiversity. Since the 1980s, the Amazon has lost about 20% of its forest coverage–almost 800 thousand square kilometers. Even though Brazil has made efforts to lower the rates of deforestation in the area, expansion of ranching and unsustainable farming practices are still significantly affecting the region. This puts vulnerable species in severe danger and threatens their existence. Furthermore, with deforestation being the second primary cause in the emission of greenhouse gasses, it can be concluded that deforestation dramatically affects the biological landscape of the entire planet. Since the main absorbers of greenhouse gasses are rainforests, climate change accelerates and affects the lives of each living being on earth. Therefore, the environmental footprint of vulnerable environments like rainforests that are subjected to economic development is immense.

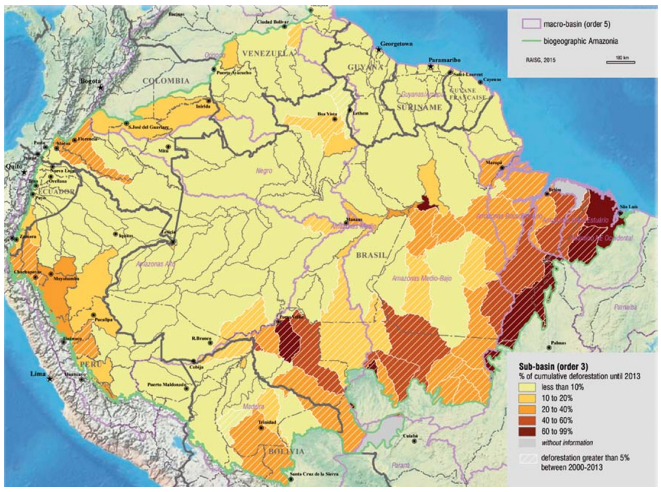

Figure 1: the scale of deforestation in the Amazon

Furthermore, with the need for more arable land increasing year by year since earth is experiencing population growth like never before, agricultural practices have led to extensive loss of biodiversity and habitat. When looking at the case of immense agricultural expansion done without regulation or environmental impact in mind, it can be seen that rapid growth has led to a great loss of green-land. The case of oil palm plantations can be regarded as one of the main contributors to this loss of forests. Palm oil is one of the most productive crops ever, and is only grown in the tropics. Its tree produces high quality cooking oil but also, food products, detergents, cosmetics and, to a small

extent, biofuel. With the need for palm oil increasing, farmers have resorted to forest cutting to expand their businesses and gain more money. However, these expansions into tropical rainforests have resulted in the loss of habits for millions of animals living there like orangutans.

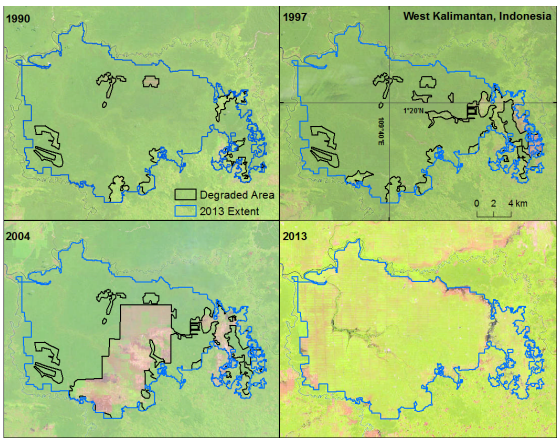

Figure 2: Example of deforestation site analysis within an oil palm plantation Bawat, West Kalimantan, Indonesia.

Moreover, infrastructural development and urban sprawl frequently invade natural habitats, splintering landscapes and separating wildlife populations. The construction of roads, dams, bridges etc. severely put populations at risk just like deforestation. Since these developments greatly alter the ecological landscape of environments, biodiversity is threatened. When looking at the case of dams, change in natural water temperatures, water chemistry, river flow characteristics, and silt loads can be seen. Therefore, it can be presumed that these modifications can have a detrimental impact on the local wildlife and vegetation along the river that the dam is situated on. To give examples, construction of large dams have led to the extinction of many fish and other aquatic species, the disappearance of birds in floodplains, huge losses of forest, wetland and farmland, and erosion of coastal deltas.

In conclusion, economic development comes at a substantial environmental cost, while humans may benefit from the development in the area in terms of revenue, the wildlife and plantlife are enormously put in danger.

Technological Advancements

With the world evolving at an unprecedented pace when it comes to technological advancements, a balance between economic development and environmental protection has never been as possible as now. New sustainable technologies now offer an opportunity to separate economic growth from environmental damage. Examples of these sustainable technologies include

but are not limited to; usage of alternative energy sources such as solar or wind power which could be detrimental in the reduction of fossil fuels' impact, new ways to store/get rid of waste and adopt a circular economy model, and the implementation of precision agriculture. However, it can be argued that for these technological advancements to take place, a country must achieve a certain level of economic development in the first place. The reason why economic development in developing countries generally leads to environmental changes is that their populations' priority is not to protect the environment but to achieve economic growth. Since the priorities of countries extremely differ, an equilibrium cannot be reached when it comes to this issue. While MEDCs can perfectly achieve this balance, LEDCs simply do not have the resources or the technology to actually prevent ecological degradation as a result of economic advancement. Nonetheless, to achieve the needed economic growth new technologies can and should be resorted to.

The Impact of Climate Change

Climate change is a huge contributor to economic degradation but also is a result of this ecological degradation. Meaning that there is a circular relationship between climate change and environmental problems, with climate change being the cause but also the consequence. This intricate link between these two problems can also be connected to economic development. Industrialization and resource-incentive activities have greatly contributed to greenhouse gas emissions and therefore to ecological degradation especially in vulnerable environments. Climate change itself presents considerable challenges and dangers to economic development too. With the number of natural disasters increasing in recent years, regions susceptible to these disasters have been damaged considerably. Extreme weather events such as hurricanes, rising sea levels, and changes in temperature patterns have the potential to disrupt supply networks, harm infrastructure, and imperil food security.

Since climate change is an issue that causes a variety of problems regarding both ecological degradation and economic development, there needs to be international cooperation on levels never seen before in order to solve the problem from its root. Just like when the international community got together to prevent further ozone depletion in the 1980s. This shows us that worldwide cooperation to achieve environmental goals is actually feasible. Thus, the implementation of policies that encourage technological innovation and employment growth is necessary to resolve the problem. Climate change deeply affects vulnerable populations and environments and leads to ultimate destruction. Therefore, agreements like the Paris Climate Accords need to be upheld by governments.

Case Studies

Although the environment usually isn't a concern when it comes to economic development, some countries have implemented policies to lower their negative effects on the ecological landscape of their countries. With these methods, they are able to protect the environment for the native population of animals and plants but also for their human population as well.

Costa Rica's Tourism Model

Costa Rica's tourism model differs from other countries in terms of various reasons. First of all, the tourism model is based on three fundamental pillars; sustainability, innovation, and inclusiveness. Recognized by the Global Sustainable Tourism Council and the United Nations World Tourism Organization, The Costa Rican Tourism Institute provided the tourism industry with guidelines to manage their businesses sustainably in 1997 under the name "Certification for Sustainable Tourism''. Businesses who decide to adhere to these guidelines and decide to get education on sustainability provided by the program get a CST mark after the process that shows tourists that the business follows sustainable practices. Moreover, the Costa Rican government made the country more expensive to visit to prevent over-tourism ruining the country. As over-tourism is a significant factor in the destruction of the environment. For example, over-tourism has ruined the Hawaiian islands the past few years. Overconsumption of water and other resources like electricity has caused the lives of natives to get harder but also the heavy environmental impact of over-tourism has affected the environment of the islands greatly. Hence, the move that the Costa Rican government has made in order to stop the heavy influx of tourists has resulted in a reduction in poverty in neighboring communities by 16% by encouraging ecotourism rather than unsustainable tourism practices by 2000 but also in the protection of the wildlife, forests, and the general environment of the country. The investments that the country has made over the years has resulted in a much safer environment for all.

Norway's Forest Management

Forests and industries pertaining to forests are extremely valuable in Norway, since these industries create various jobs and careers, the value given to forests is much higher than other countries. What is particular about Norway's forest management is that the government has found a way to both use their forests as a way to gain money but also protect the environment during this process. First of all, sustainable forestry practices are one of the main reasons that make Norway stand out. The country aims to prevent deforestation and other

environmental problems with means such as; certification programs that ensure the sustainable management of forests like the Forest Stewardship Council, reforestation of areas after tree cutting has taken place, protection of old-growth forests, the feeling of ownership of forests by the public with free access to forests, and finally carbon sequestration which helps in recognizing the importance of forests in combating with the issue of climate change. With the help of these sustainable solutions put in place by the Norwegian Government, Norway possesses a unique place in the preservation of forests while also making a profit from them. Norway's forest management system is a perfect example to finding a balance between economic development/prosperity and the protection of the environment.

Timeline of Key Events

Date	Event
1960s	Environmental awareness comes to light
June 5, 1972 – June 16, 1972	UN Conference on the Human Environment, a major step in international cooperation to find a balance between development and the environment.
June 3, 1992 – June 14, 1992	Establishment of the Rio Declaration, which aimed to promote sustainable economic development practices.
June 2001	The first Millennium Ecosystem Assessment, which assesses the impact of human activities on the environment and targets a balanced approach.
2010	Aichi Biodiversity Targets: 20 targets aimed to address biodiversity loss
22 April 2016	Paris Climate Accords

Major Parties Involved

United Nations

Over the course of decades, the United Nations has been the largest and the most important organization to promote sustainable development and practices in the international community. Constant efforts such as conferences, agreements, etc. have all contributed to finding an equilibrium.

World Bank

The World Bank has played an important role in the advancement of sustainable practices while also promoting economic growth and development across the world ever since its creation which has made them a crucial asset in the resolution of the issue at hand.

International Monetary Fund (IMF)

The things said about the World Bank can also be said for the IMF since their conditionality in their policies bolster sustainable practices whilst giving countries financial support. Therefore, this point makes them just as important as the World Bank.

Environmental Protection Agency (EPA)

Although the EPA is an agency based in and for the United States, their regulatory frameworks and implementation of these frameworks can be a valuable benefit for the environment of the world. The standards that the EPA sets for the largest economy in the world could provide a blueprint for the rest of the international community.

Possible Solutions

Strengthening regulatory frameworks or creating new ones

With governments enforcing more strict regulations regarding economic practices to prevent further environmental degradation of ecologically vulnerable environments.

Implementing the Use of Green Technologies

Since fossil fuels have an immense negative impact on the environment, with the worldwide use of green technologies such as solar or wind power, the impact of energy use on vulnerable environments can be reduced to a minimum.

International Cooperation

Without the cooperation of each country on earth, the issue of reducing the world's carbon footprint is not possible, therefore, international cooperation and binding treaties are necessary to protect the ecological landscape.

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