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Commentary

Development and Renewable Energy's Effect on Greenhouse Gas Emissions

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DESCRIPTION

Renewable energy technologies, encompassing solar, wind, hydroelectric and bioenergy as sustainable alternatives to fossil fuels. It carries the potential to change economies, industries and societies. While renewable energy sources inherently emit fewer greenhouse gases during operation their development can lead to emissions through various indirect pathways.

Infrastructure construction manufacturing of components and energy-intensive materials production are among the factors contributing to the carbon footprint of renewable projects. Striking a balance between rapidly scaling up renewable energy installations and minimizing these upfront emissions present a substantial challenge. The rising level of Greenhouse Gas (GHG) emissions and Environmental Degradation (ED) is a major concern for the world's economies.

The urbanization and economic growth increased Greenhouse Gas (GHG) emissions both long and short term. The strong analysis was using the Augmented Mean Group (AMG) and the Common Correlated Effect Means Group (CCEMG) indicated that clean energy had a better sign for lowering Environmental Degradation (ED) than Gross Domestic Product (GDP) and urbanization. The findings of the study could help policymakers, particularly in the fields of energy economics and environmental sustainability. As a result, it is strongly advised that certain strong policy implications be implemented in order to alleviate environmental difficulties caused by the negative effects of economic expansion and urbanization.

Climate change and environmental degradation have become a global issue, particularly for academics in energy economics, environmental sustainability, and other policymakers due to the detrimental impact and different threats on the quality of life of community members. It is commonly acknowledged that Greenhouse Gas (GHG) emissions in the form of carbon dioxide have a significant influence in climate change in both industrialized and developing economies. Meanwhile, as economic activity has increased in recent decades, traditional energy sources such as consumption of fossil fuels and deforestation have become major contributors to air pollution like as carbon dioxide and Environmental Degradation (ED).

Additionally, increasing levels of Greenhouse Gas (GHG) emissions in the environment have significantly changed the world's temperatures while creating new changes to human health and other industries like agriculture. Because good quality resources from nature and qualified human resources are required for future generations to preserve economic development sustainability. This result supported the premise that South Asian economies are dealing with major Environmental Degradation (ED) concerns. Some major issues have damaged South Asian economy in recent decades as environmental dangers have increased. The South Asian economies are rapidly urbanizing, resulting in increased demand of fossil fuels and other energy sources.

Many intellectuals have discussed the effects of renewable energy consumption and urbanization on Greenhouse Gas (GHG) emissions and environmental degradation in the existing literature, but it is difficult to find a single study that investigates the effects of renewable energy consumption and urbanization on Greenhouse Gas (GHG) emission and environmental degradation at the same time. As nations strive to achieve carbon reduction targets, policymakers, industries, and communities must collaborate to address the potential rebound effect of emissions during the rapid deployment of renewable energy projects. This necessitates a careful examination of the entire lifecycle of these projects, from manufacturing and construction to operation and eventual decommissioning.

Strategies such as optimizing supply chains, adopting circular economy principles, and investing in innovative low-carbon materials can significantly reduce the upfront emissions associated with renewable energy development.

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