



Natural Resources Depletion

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Abstract

The catchphrase of the early 21st century has become global warming, climate change, and the consequent push to embrace significantly more ecologically concerned attitudes towards our finite natural resources. When natural resources are being used up more quickly than they can be regenerated, this is referred to as resource depletion. One can distinguish between a country's non-renewable and renewable natural resources. Natural resources play a major role in a country's economic growth. It appears that most current patterns of urbanization, agriculture, and the use of energy and natural resources are unsustainable and need immediate correction. Natural resource usage does not appear to be justified, which might have negative economic effects on the country. Depletion of resources is being accelerated by population explosion. This article examines how, between 1990 and 2023, the use of renewable energy sources and the loss of natural resources affected environmental deterioration.

Keywords: Environmental Degradation; Natural Resources; Economic Growth; Renewable Energy

Introduction

Burning biomass and burning fossil fuels are linked to human activity and produce greenhouse gases that alter the environment and global climate. In the previous several decades, human activity has expanded in many ways, leading to fast industrialization and urbanisation, which has increased energy consumption and negatively impacted the environment [1]. Thus, from all angles, including energy consumption, economic growth, and environmental policies at the national and international levels, the study of energy consumption, economic growth, and environmental degradation becomes crucial [2]. The way that resources are consumed varies across economically developed and underdeveloped nations. Because they aspire to a higher standard of living, individuals in industrialised nations have a greater demand for resources than are necessary for a fair standard of living. As a result, people overuse the resources to the point where it gravely harms the ecosystem. However,

because their quality of living is simpler, people in emerging nations have less need for resources. However, the careless depletion of resources is brought on by their growing population, lack of environmental knowledge, and desire to quickly improve their living standards [1-3].

Natural Resources Depletion in ASEAN Countries

The people of the ASEAN (Association of South-East Asian Nations) nations depend on the land, seas, forests, and water resources for their livelihoods and economic possibilities [4]. River systems like the Mekong River Basin and Lake Toba provide water to the majority of the ASEAN member nations. The ASEAN countries are under more pressure to manage their natural resources as a result of rising economic and demographic expansion as well as ongoing social inequality [5]. In addition, the ASEAN nations deal with a variety of environmental issues, including air pollution, land and water

pollution, environmental degradation, and the loss of natural resources [6]. The aforementioned dynamics must result in an increase in waste production and resource consumption. Even with their abundance of natural resources, ASEAN nations continue to struggle to strike a balance between environmental sustainability and economic development.

Storms, typhoons, floods, and other natural calamities are common in Indonesia and the Philippines. Tin, copper, and nickel are the most common minerals taken out of ASEAN nations [7]. The volume of bauxite produced is considerably larger. But when it comes to the value, it is smaller. Moreover, the minerals found in ASEAN nations include gold, diamonds, iron, zinc, and lead. Principal metals utilised in the ASEAN nations are aluminium and copper, with minor amounts of nickel, tin, lead, and zinc also being utilised. The topic of growing energy depletion is discussed as Southeast Asia emerges as the world's fastest-developing region [8].

The topic of growing energy depletion is discussed as Southeast Asia emerges as the world's fastest-developing region [9]. With a combined GDP of \$3 trillion, the ASEAN nations are home to almost 660 million people. Furthermore, the World Economic Forum has predicted that by 2020, the economy of this area will rank fifth globally. As predicted, energy depletion is increasing due to the region's rapid development [10]. Over the past 15 years, the energy depletion among ASEAN nations has reached around 60%, and by 2040, it is expected to increase by over 2/3 [11]. The increased rates of economic expansion are the main factor contributing to energy depletion. To the best of the authors' knowledge, there is little research on how the depletion of natural resources, minerals, and energy affects economic growth, especially when it comes to ASEAN nations.

Natural Resources' role in Human well-being and Economic Development

The question of economic growth with justice, or growth with a fair distribution of the benefits of economic progress, was at the centre of development economics in the 1970s. However, it has been noted that the benefits of economic expansion did not automatically flow down, and poverty—which is defined as “the pronounced deprivation of well-being”—was seen to be becoming worse with time. Since human progress and well-being are now seen as human rights, a global agreement can address the problem of sustainable development, which aims to alleviate poverty by severing the link between environmental degradation and deprivation [12]. Consequently, it turns into a “shared responsibility” between wealthy and poor nations. All environmental problems have been linked to the materialistic lifestyle of the west and its ever-growing “ecological footprints,” which support their ostentatious

level of consumption. Furthermore, it is now established that the impoverished, or developing nations in the third world, are contributing to the depletion of natural resources and environmental degradation worldwide, which makes them accountable for the ozone hole, global warming, natural disasters brought on by climate change, etc., and the end of the world. If the impoverished cycle is not addressed, sustainable development could continue to be an unattainable goal [13].

Causes of Resource Exploitation and Depletion

- The rapid and effective extraction of natural resources is made possible by technological advancements. For instance, chopping down a single tree with a saw alone used to require many hours in the past. The rate of deforestation has significantly risen as a result of greater technology [14].
- A rapid rise in population that is currently falling. The 7.132 billion people on the planet today use a lot of natural resources.
- Consumerism-based cultures. Materialistic perspectives result in the extraction of gold and diamonds for jewellery manufacturing, which are superfluous resources for human survival or progress.
- Conflicts are frequently the result of excessive demand because of fierce rivalry. The relationship has been documented by organisations including the United Nations and Global Witness [15].
- Imbalanced allocation of resources.

Effects of Depletion of Natural Resources

The implications of depleting natural resources are expected to worsen in the future due to a number of factors, particularly for resources like soil, water, ecosystem services, and climate that are either completely or largely outside of the market. There would be increased strain on natural resources if the global population grows by more than 2 billion people between 2010 and 2050. Growing earnings will have an even bigger impact than the environmental challenges brought on by population increase. In the twenty years that have passed since 1990, there are now two billion middle-class people on the planet. It is likely that an additional 3 billion people will become middle class in the next 20 years. This shift, which will see most people on the planet able to own private automobiles, contemporary appliances, and a daily meat-based diet, marks a significant turning point in the amount of pressure humans place on the environment [16]. Other major problems that will arise out of exploitation of natural resources are: Deforestation, Desertification, Extinction of species, Forced migration, Soil erosion, Oil depletion, Ozone depletion, Greenhouse gas increase, and Climate Change, Extreme energy, Water pollution, Natural hazard /Natural disaster [17].

Economic Growth and Resource Depletion

The last several decades have seen a notable intensification of the link between economics and ecology due to trends of economic globalisation. In a discussion on how economic development affects the use of resources, ecologists and economists emphasise this correlational pattern. The direct effects of economic expansion serve as the foundation for the ecological argument. Developing nations are misusing their lands for economic purposes in an effort to attain economic progress [18]. Developing nations are now responsible for a tremendous amount of environmental damage, whether it be from resource exploitation, deforestation and erosion, or pollution of the air and water. It becomes obvious that a large portion of the government-enforced economic growth initiatives cause serious environmental harm. Furthermore, the major source of income for emerging nations continues to be the export of natural resources. Nevertheless, there is a lot of pressure from both local and foreign sources to remove raw materials from forests in order to meet export demands, which leads to an overuse of the natural resource base [19].

Environmental deterioration paired with technological innovation

It is considered that technical innovation contributes significantly to environmental cleansing. National environmental rules and technical innovation are both responsible for reduced pollution levels and increased ecological efficiency. Many studies have examined the relationship between technological innovation and ecological well-being [20]. Examined the impact of Canada's growing population, GDP, and technological adoption on the nation's CO₂ emissions. They claim that increased incomes and people are to blame for CO₂ emissions, while technological advancement is credited with lowering them. Their conclusions indicated that a number of economic and technical advancements would lower carbon emissions. Additionally, Aslam et al. [21] investigated the relationship between China's CO₂ emissions and patent technology [21]. According to the research, there might be a considerable reduction in carbon emission by implementing new technology. Additionally, their research showed that compared to other regions, the eastern regions are more effective in putting new ideas and environmentally beneficial practices into practice. Technological Innovation results about CO₂ emissions in Malaysia. According to research, new technologies improve energy production and reduce CO₂ emissions, both of which are beneficial to the environment [22].

Conclusion and Future Aspects

Exploiting natural resources is usually done to spur economic expansion and advancement. Several discourses

on development study have focused on the contentious negative link between the availability of natural resources and economic growth and development. It is frequently stated that the exploitation of natural resources may lead to economic progress and expansion. This claim, however, is frequently refuted by competing theories that contend that an excess of natural resources really causes more problems than advantages. The governments of emerging nations possessing abundant natural resources have implemented policies aimed at increasing the utilisation of these resources in order to provide revenue for economic growth. The detrimental repercussions of policies that prioritise the exploitation of natural resources as the primary means of achieving economic growth and development have received little attention over time. Exploitation of natural resources has demonstrated the capacity to irreversibly alter the environment and the standard of living for those living in the impacted areas.

References

1. Balch JK, Nagy RC, Archibald S, Bowman DM, Moritz MA, et al. (2016) Global Combustion: the Connection Between Fossil Fuel and Biomass Burning Emissions (1997–2010). *Philos Trans R Soc Lond B Biol Sci* 371(1696): 20150177.
2. Marlon JR, Bartlein PJ, Carcaillet C, Gavin DG, Harrison SP, et al. (2008) Climate and Human Influences on Global Biomass Burning Over the Past Two Millennia. *Nature geoscience* 1(10): 697-702.
3. Ito A, Penner JE (2005) Historical Emissions of Carbonaceous Aerosols from Biomass and Fossil Fuel Burning for The Period 1870–2000 *Global Biogeochemical Cycles* 19(2).
4. Islam MR, Khan NA (2018) Threats, Vulnerability, Resilience and Displacement Among the Climate Change and Natural Disaster-Affected People in South-East Asia: An Overview. *Climate Change Mitigation and Sustainable Development* 23(2): 297-323.
5. Pongsri C (2014) Sustainability of Inland Fishery Resources against the ASEAN Economic Community Backdrop: Challenges and Opportunities. *Fish for the People* 12(3): 2-8.
6. Khan MK, Teng JZ, Khan MI, Khan MO (2019) Impact of Globalization, Economic Factors and Energy Consumption on CO₂ Emissions in Pakistan. *Sci Total Environ* 688: 424-436.
7. Koirala N, Thuan NH, Ghimire GP, Thang DV, Sohng JK (2016) Methylation of Flavonoids: Chemical

- Structures, Bioactivities, Progress and Perspectives for Biotechnological Production. *Enzyme Microb Technol* 86: 103-116.
8. Wei B, Zhang X, Wu R, Zou P, Gao K, et al. (2019) Pore-Scale Monitoring of CO₂ and N₂ Flooding Processes in A Tight Formation Under Reservoir Conditions Using Nuclear Magnetic Resonance (NMR): A Case Study. *Fuel* 246: 34-41.
 9. Middleton C, Allouche J, Gyawali D, Allen S (2015) The Rise and Implications of the Water-Energy-Food Nexus in Southeast Asia Through an Environmental Justice Lens. *Water Alternatives*.
 10. Nawaz MA, Azam A, Bhatti MA (2019) Natural Resources Depletion and Economic Growth: Evidence from ASEAN Countries. *Pakistan Journal of Economic Studies* 2(2): 155-172.
 11. Liu YN, Li Q, Zheng P, Zhang Z, Liu Y, et al. (2015) Developing a High-Throughput Screening Method for Threonine Overproduction Based on an Artificial Promoter. *Microbial cell factories* 14: 1-11.
 12. Gylfason T, Zoega G (2006) Natural Resources and Economic Growth: The Role of Investment World *Economy* 29(8): 1091-1115.
 13. Aubell HSJ, Mensah HK (2007) Natural Resource Exploitation, Environment and Poverty; Linkages and Impact on Rural Households in Asutifi District in Ghana (Master's thesis, Hogskoleni Agder).
 14. Lotze HK (2004) Repetitive History of Resource Depletion and Mismanagement. *Marine Ecology Progress Series* 274: 282-285.
 15. Xiong Y, Guo H, Mariani NDD, Andong S, Li D (2018) Mineral Resources Depletion, Environmental Degradation, and Exploitation of Natural Resources: COVID-19 Aftereffects. *Resources Policy* 85: 103907.
 16. Nawaz MA, Azam A, Bhatti MA (2019) Natural Resources Depletion and Economic Growth: Evidence from ASEAN Countries. *Pakistan Journal of Economic Studies* 2(2): 155-172.
 17. Mittal I, Gupta RK (2015) Natural Resources Depletion and Economic Growth in Present Era. *SOCH-Mastnath Journal of Science & Technology* 10(3).
 18. Riekhof MC, Regnier E, Quaas MF (2019) Economic Growth, International Trade, and the Depletion or Conservation of Renewable Natural Resources. *Journal of environmental economics and management* 97: 116-133.
 19. Zargar A, Sadiq R, Naser B, Khan FI (2011) A Review of Drought Indices. *Environmental Reviews* 19(NA): 333-349.
 20. Adebayo TS, Oladipupo SD, Adeshola I, Rjoub H (2022) Wavelet Analysis of Impact of Renewable Energy Consumption and Technological Innovation on CO₂ Emissions: Evidence from Portugal. *Environ Sci Pollut Res Int* 29(16): 23887-23904.
 21. Aslam B, Zhang G, Amjad MA, Guo S, Ji M (2023) Does the Impact of Financial Development Reinforce Sustainability Ecological Footprint? Fresh Evidence from Middle and High-Income Economies. *Journal of Cleaner Production* 429: 139573.
 22. Ali MSE, Weimin Z, Javaid MQ, Khan MK (2023) How Natural Resources Depletion, Technological Innovation, and Globalization Impact the Environmental Degradation in East and South Asian Regions. *Environmental Science and Pollution Research* 30(37): 87768-87782.