

Natural Resource Depletion: Taking Action to Ensure Sustainable Development for the Present and Future Generations

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Natural Resource Depletion: Taking Action to Ensure Sustainable Development for the Present and Future Generations

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Abstract

This paper explores approaches through which natural resources can be sustainably used and equitably managed in order to foster Sustainable Development for present and future generations. The paper argues that natural resources are key in unlocking Sustainable Development across all its dimensions. However, despite their important role in promoting Sustainable Development, the paper notes that natural resources are being depleted at an alarming rate with severe consequences for people and planet. The paper discusses the causes and effects of natural resource depletion. In light of its impacts on people and planet, the paper argues that tackling natural resource depletion is vital in the quest towards sustainability. The paper suggests ways through which natural resources can be sustainably harnessed in order to prevent natural resource depletion and ensure Sustainable Development for the present and future generations.

1.0 Introduction

Natural resources play a key role in fostering Sustainable Development. Natural resources are key assets with the potential to drive development and wealth creation¹. It has been argued that if well managed, natural resources including oil, gas, and minerals can propel economic and social transformation at all levels². According to the United Nations Environment Programme (UNEP), natural resources are the foundation of social

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¹ International Institute for Sustainable Development., 'The Sustainable Use of Natural Resources: The Governance Challenge' Available at <https://www.iisd.org/articles/deep-dive/sustainable-use-natural-resources-governance-challenge> (02/10/2025)

² Organisation for Economic Co-operation and Development., 'Natural Resources and Development' Available at <https://www.oecd.org/en/topics/sub-issues/natural-resources-and-development.html#:~:text=If%20well%20managed%2C%20oil%2C%20gas,economic%2C%20social%20and%20environmental%20hazards>. (Accessed on 02/10/2025)

and economic development³. As a result, the abundance of natural resources is regarded as a great advantage for a country's economic and social development, while resource shortage is associated with underdevelopment⁴. Natural resources are drivers of economic growth and poverty reduction, offering significant opportunities for human progress and prosperity towards Sustainable Development⁵.

It has been argued that natural resources provide economic, social and cultural benefits towards Sustainable Development⁶. Economically, natural resources are not only a source of food and raw materials but are also a source of income for individuals and the state⁷. Natural resources such as land, water, forests, minerals, metals and oil have significant economic benefits and are important sources of livelihoods, income and influence for countries and communities around the globe⁸. Socially, natural resources like water bodies, forests and mountains have physical, recreational and therapeutic benefits thus contributing to the improvement of the quality of life of individuals and communities⁹. Culturally, it has been argued that communities especially in Africa attach importance to some natural resources that may be revered as shrines, dwelling places for ancestors and sacred sites where rites of passage and other cultural celebrations take place¹⁰.

³ United Nations Environment Programme., 'Sustainable Natural Capital' Available at <https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resourceefficiency/sustainable-natural> (Accessed on 02/10/2025)

⁴ Bridge. G., 'Natural Resources' *International Encyclopedia of Human Geography*, 2009., pp 261-268

⁵ Omri. A., & Omri. H., 'Natural resources for achieving Sustainable Development: effects and mechanisms' Available at <https://link.springer.com/article/10.1007/s10668-025-06145-z> (Accessed on 02/10/2025)

⁶ Muigua. K., 'Natural Resources and Environmental Justice in Kenya' Glenwood Publishers Limited, 2015

⁷ Costanza. R., 'The Ecological, Economic, and Social Importance of the Oceans.' *Ecological Economics*, Volume 31, No. 2 (1999)

⁸ United Nations Environment Programme., 'Natural Resources and Conflict: A Guide for Mediation Practitioners' Available at https://peacemaker.un.org/sites/peacemaker.un.org/files/NRCMediation_UNDPAUNEP2015_0.pdf (Accessed on 02/10/2025)

⁹ Costanza. R., 'The Ecological, Economic, and Social Importance of the Oceans.' Op Cit

¹⁰ Muigua. K., 'Natural Resources and Environmental Justice in Kenya' Op Cit

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Natural resources are therefore integral in the quest towards Sustainable Development. As a result, it has been argued that equitable use and management of natural resources is key in unlocking all dimensions of sustainability: social justice, environmental conservation, and economic development¹¹. According to the United Nations *2030 Agenda for Sustainable Development*¹², social and economic development depends on sustainable use and management of our planet's natural resources¹³. However, despite their key role in ensuring Sustainable Development, natural resources all over the world are being depleted at an alarming rate, due to human and environmental factors, threatening the livelihoods, health and well-being of individuals who depend on these resources while also undermining environmental sustainability¹⁴. In light of the threat of natural resource depletion, sustainable use and management of natural resources is key in ensuring Sustainable Development for present and future generations.

This paper explores approaches through which natural resources can be sustainably used and equitably managed in order to foster Sustainable Development for present and future generations. The paper argues that natural resources are key in unlocking Sustainable Development across all its dimensions. However, despite their important role in promoting Sustainable Development, the paper notes that natural resources are being depleted at an alarming rate with severe consequences for people and planet. The paper discusses the causes and effects of natural resource depletion. In light of its impacts on people and planet, the paper argues that tackling natural resource depletion is vital in the quest towards sustainability. The paper suggests ways through which natural resources

¹¹ International Institute for Sustainable Development., 'The Sustainable Use of Natural Resources: The Governance Challenge' Op Cit

¹² United Nations General Assembly., 'Transforming Our World: the 2030 Agenda for Sustainable Development.' 21 October 2015, A/RES/70/1., Available at <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> (Accessed on 02/10/2025)

¹³ Ibid

¹⁴ International Institute for Sustainable Development., 'The Sustainable Use of Natural Resources: The Governance Challenge' Op Cit

can be sustainably harnessed in order to prevent natural resource depletion and ensure Sustainable Development for the present and future generations.

2.0 Natural Resource Depletion: Causes and Effects

Natural resource depletion refers to the reduction of the planet's natural resources including both renewable and non-renewable resources¹⁵. Natural resource depletion has also been defined as the reduction of both the quality and quantity of natural resources due to overconsumption, excessive extraction, unsustainable use and natural and environmental factors¹⁶. This phenomenon occurs when the rate at which natural resources are consumed exceeds the rate at which they can naturally regenerate or be replaced¹⁷.

The depletion of natural resources is a major global environmental concern that requires urgent action in order to foster Sustainable Development¹⁸. Natural resources are essential for human survival and well-being providing vital ecosystem services including clean air, water, food, energy and climate regulation¹⁹. However, these resources are being depleted at an alarming rate posing serious threats to both human and ecosystem health²⁰. For example, land degradation has led to the loss of nearly 40 per cent of the planet's arable land putting the health, livelihoods, and security of billions of people at

¹⁵ United Nations Environment Programme., 'We're gobbling up the Earth's resources at an unsustainable rate' Available at <https://www.unep.org/news-and-stories/story/were-gobbling-earths-resources-unsustainable-rate#:~:text=The%20extraction%20and%20processing%20of,increase%20by%2043%20per%20cent> (Accessed on 02/10/2025)

¹⁶ What is resource depletion?., Available at https://www.tutor2u.net/economics/reference/what-is-resource-depletion?srsltid=AfmBOopiSIR8oxkOcJjkHT4QWw5HAFfoky8nCKvmu_OsEmaiYMBsQtRq (Accessed on 02/10/2025)

¹⁷ Ibid

¹⁸ Huo. J., & Peng. C., 'Depletion of natural resources and environmental quality: Prospects of energy use, energy imports, and economic growth hindrances' *Resources Policy*., Volume 86, October 2023

¹⁹ Ibid

²⁰ Ibid

risk²¹. In addition, it is estimated that the world is losing about 4.7 million hectares of tropical forest every year with severe consequences for people and planet due to loss of critical ecosystem services provided by forests such as clean air, water, food, climate regulation and biodiversity conservation²².

In addition, human and environmental factors including pollution, agricultural expansion, overfishing and drought are depleting and degrading the planet's water resources affecting both the quality and quantity of water on Earth²³. It has been argued that climate change is posing a serious threat to freshwater ecosystems all over the world changing rainfall patterns and water quality thus affecting millions of people who depend on waterways for their livelihoods²⁴. In addition, due to extraction exceeding natural replenishment rates, the planet's mineral resources including both metallic minerals such as iron, copper, aluminum, gold, and silver and non-metallic minerals such as sand, gravel, limestone, phosphate, are being depleted²⁵. Further, excessive demand and consumption of energy resources is fuelling the depletion of fossil fuels including oil, natural gas and coal²⁶. It has been argued that due to overconsumption, fossil fuels are facing the threat of complete depletion in the coming decades²⁷.

²¹ United Nations Environment Programme., 'UN summit puts global spotlight on land degradation' Available at <https://www.unep.org/news-and-stories/story/un-summit-puts-global-spotlight-land-degradation> (Accessed on 02/10/2025)

²² United Nations Environment Programme., 'Forests' Available at <https://www.decadeonrestoration.org/types-ecosystem-restoration/forests> (Accessed on 02/10/2025)

²³ United Nations Environment Programme., 'Supporting Sound Ecosystem Management' Available at <https://www.unep.org/regions/africa/regional-initiatives/supporting-sound-ecosystem-management#:~:text=The%20UNEP%20Africa%20Office%20supports,on%20by%20floods%20and%20droughts> (Accessed on 02/10/2025)

²⁴ Ibid

²⁵ Mineral Resource Depletion., Available at <https://energy.sustainability-directory.com/term/mineral-resource-depletion/> (Accessed on 02/10/2025)

²⁶ Kirsch. S., 'Running out? Rethinking resource depletion' *The Extractive Industries and Society.*, Volume 7, Issue 3, 2020

²⁷ Ibid

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Natural resource depletion is therefore a major global challenge. This problem is driven by both human and environmental factors. For example, global population growth has driven an increased demand for natural resources including arable land and water often leading to the depletion of such resources²⁸. In addition, the economic benefits of natural resources has led to over- extraction and overexploitation of natural resources including forests, minerals, and fossil fuels such as oil and gas, leading to their depletion²⁹. Environmental factors are also a major cause of natural resource depletion. For instance, the impacts of climate change including rising temperatures, changes in precipitation patters, droughts and sea-level rise have adverse impacts on natural resources including arable land, water, forests and wetlands often leading to their depletion and degradation³⁰. In the African context, challenges such as rapid population growth, agricultural expansion, poor environmental governance, unsustainable extraction of resources and climate change have led to deforestation, land degradation, illegal mining, illegal logging, the illegal trade in wildlife, unregulated fishing and environmental degradation leading to the depletion of the continent's precious natural resources³¹.

Natural resource depletion severely impacts progress towards Sustainable Development. For instance, depletion of natural resources affects the availability of clean air, water, food and energy therefore threatening human health, well-being and progress³². The depletion of natural resources also undermines the livelihoods of billions of people all over the world who depend on resources such as land, forests, fisheries and waterways for their

²⁸ International Institute for Sustainable Development., 'The Sustainable Use of Natural Resources: The Governance Challenge' Op Cit

²⁹ Ibid

³⁰ Huo. J., & Peng. C., 'Depletion of natural resources and environmental quality: Prospects of energy use, energy imports, and economic growth hindrances' Op Cit

³¹ United Nations Environment Programme., 'Our work in Africa' Available at <https://www.unep.org/regions/africa/our-work-africa#:~:text=Collectively%2C%20the%20continent%20has%20a,oriented%2C%20climate%20resilient%20and%20sustainable> (Accessed on 02/10/2025)

³² Huo. J., & Peng. C., 'Depletion of natural resources and environmental quality: Prospects of energy use, energy imports, and economic growth hindrances' Op Cit

sustenance³³. The overconsumption and depletion of resources also threatens economic development in the long run³⁴. Natural resource depletion also threatens environmental sustainability. Depletion of natural resources through deforestation, land degradation, unsustainable mining and agricultural expansion leads to biodiversity loss, soil erosion, degradation of ecosystems and air, water and soil pollution affecting both human and ecosystem health³⁵.

Natural resource depletion is therefore a negative phenomenon that affects both humanity and nature. It is therefore imperative to take action and ensure sustainable use and management of natural resources in order to ensure Sustainable Development for both present and future generations.

3.0 Combating Natural Resource Depletion for Sustainable Development

Natural resource depletion is a major threat to Sustainable Development with severe consequences for people and planet. This undesirable phenomenon affects the availability of vital ecosystem services including clean air, food, water and energy thus threatening human health and well-being³⁶. Natural resource depletion also affects livelihoods and economic development³⁷. Further, natural resource depletion also harms environmental and ecosystem health through pollution, environmental degradation and biodiversity loss³⁸. It is therefore necessary to take urgent and transformative action in order to combat natural resource depletion towards Sustainable Development for the present and future generations.

³³ International Institute for Sustainable Development., 'The Sustainable Use of Natural Resources: The Governance Challenge' Op Cit

³⁴ Ibid

³⁵ Huo. J., & Peng. C., 'Depletion of natural resources and environmental quality: Prospects of energy use, energy imports, and economic growth hindrances' Op Cit

³⁶ Huo. J., & Peng. C., 'Depletion of natural resources and environmental quality: Prospects of energy use, energy imports, and economic growth hindrances' Op Cit

³⁷ International Institute for Sustainable Development., 'The Sustainable Use of Natural Resources: The Governance Challenge' Op Cit

³⁸ Huo. J., & Peng. C., 'Depletion of natural resources and environmental quality: Prospects of energy use, energy imports, and economic growth hindrances' Op Cit

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In order to tackle natural resource depletion, it is imperative to foster sustainable resource extraction. Resource extraction involves a wide range of activities aimed at harnessing natural resources including mining, drilling, quarrying, harvesting, fishing and logging³⁹. Unsustainable resource extraction fuels environmental and social problems including natural resource depletion, pollution, destruction of ecosystems, environmental degradation, health concerns, human rights violations, climate change, and displacement of indigenous peoples and local communities⁴⁰. It is therefore vital to embrace sustainable resource extraction including through responsible consumption patterns that conserve natural resources, embracing principles of circular economy including through recycling and reusing resources in order to conserve resources, optimizing environmental conservation during resource extraction including through sustainable and ethical mining practices and reducing waste, pollution and environmental degradation⁴¹.

In addition, there is need to strengthen environmental governance frameworks all over the world. It has been argued that shortcomings in global, regional, national and local environmental governance frameworks are fuelling environmental threats including resource depletion, environmental degradation, climate change and biodiversity loss⁴². It is therefore necessary to bolster environmental governance frameworks all over the world including through putting in place appropriate legal, policy and institutional frameworks at the global, regional, national and local level and utilising science and technology in environmental conservation⁴³. Sound environmental governance

³⁹ Minimize environmental and social harms in resource extraction., Available at <https://systemschangelab.org/circular-economy/minimize-environmental-and-social-harms-resource-extraction> (Accessed on 02/10/2025)

⁴⁰ Ibid

⁴¹ Wang. S., & Yang. L., 'Mineral resource extraction and resource sustainability: Policy initiatives for agriculture, economy, energy, and the environment' *Resources Policy.*, Volume 89, February 2024

⁴² United Nations Development Programme., 'Strengthening environmental governance' Available at <https://www.undp.org/nature/our-work-areas/environmental-governance> (Accessed on 02/10/2025)

⁴³ United Nations Environment Programme., 'Environmental Governance' Available at <https://www.unep.org/regions/west-asia/regional-initiatives/environmental-governance> (Accessed on 02/10/2025)

frameworks are key in tackling natural resource depletion by preventing human-induced threats such as deforestation, illegal mining, illegal logging, pollution, the illegal trade in wildlife, unregulated fishing and environmental degradation which affect both the quality and quantity of natural resources⁴⁴.

Further, it has been argued that strengthening public participation including through embracing the role of local communities and indigenous peoples is key towards preventing natural resource depletion and bolstering environmental governance⁴⁵. Indigenous peoples and local communities all over the world have for many centuries utilised traditional ecological knowledge to manage environmental challenges including water scarcity, pollution, soil erosion and resource depletion⁴⁶. Their knowledge and practices are therefore key in conserving natural resources including water, land and forests and curbing destructive practices including climate change, biodiversity loss, land degradation, overfishing and deforestation⁴⁷. Harnessing the participation of indigenous peoples and local communities is therefore important towards preventing natural resource depletion and fostering Sustainable Development.

There is also need to confront climate change in order to prevent natural resource depletion. Climate change and natural resource depletion are intertwined challenges. For example, climate change fuels the degradation and depletion of natural resources including water, land and forests due to its adverse impacts such as rising temperatures, droughts and changes in precipitation patterns⁴⁸. Further degradation, depletion and

⁴⁴ United Nations Environment Programme., 'Our work in Africa' Op Cit

⁴⁵ Muigua. K., 'Reflections on Managing Natural Resources and Equitable Benefit Sharing in Kenya.' *Law Society of Kenya Journal*, Vol. 15, No. 1 (2019)

⁴⁶ Egeruoh-Adindu. I., 'Leveraging Indigenous Knowledge for Effective Environmental Governance in West Africa.' Available at <https://www.scirp.org/journal/paperinformation?paperid=121949#:~:text=Indigenous%20knowledge%20systems%20such%20as,effective%20in%20promoting%20environmental%20sustainability> (Accessed on 02/10/2025)

⁴⁷ Ibid

⁴⁸ United Nations Environment Programme., 'We're gobbling up the Earth's resources at an unsustainable rate' Op Cit

unstainable extraction of resources fuels climate change due to the release of greenhouse gas emissions including carbon which is stored in natural resources including forests, oceans and land⁴⁹. Tackling climate change is therefore a key intervention towards preventing natural resource depletion and safeguarding the planet for present and future generations.

4.0 Conclusion

Natural resource depletion is a major threat to Sustainable Development affecting both people and planet. It is therefore necessary to take action towards halting natural resource depletion in order to foster Sustainable Development. This can be realised through embracing sustainable resource extraction, strengthening environmental governance at all levels, including indigenous peoples and local communities in natural resource governance and tackling climate change⁵⁰. Taking action to combat natural resource depletion is a key agenda that should be pursued globally in order to ensure Sustainable Development for present and future generations.

⁴⁹ Ibid

⁵⁰ United Nations Environment Programme., 'We're gobbling up the Earth's resources at an unsustainable rate' Op Cit

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