



# The importance of natural resources for the well-being of humanity: An exploratory analysis

**Mandla L. Khumalo<sup>1,\*</sup>**

<sup>1</sup> Department of Psychology and Biblical Studies, Faculty of Theology, Queens College of Theology, Charlotte, North Carolina 28262, United States.

\*Correspondence: khumalomandla906@gmail.com

Received Date: January 21, 2025

Revised Date: February 28, 2025

Accepted Date: February 28, 2025

## ABSTRACT

**Background:** This study explores the importance of natural resources for the well-being humanity. It also assesses economic benefits and environmental protection perceptions of preserving these resources. Natural resources shape lives, cultures and identities. They are important in the sustainability of life. Without these resources life will be impossible for humanity. There has been an increase in the exploitation of these resources resulting in environmental degradation and this poses a threat to their sustainability. This study argues that sustainability of life is grounded in the availability and sustainability of these resources. Consequently, there is a high need for States to enforce environmental policies to safeguard against exploitation of these resources. The study tried to give answers to the question of whether natural resources can be beneficial to the well-being of humanity and also explored how these resources can be preserved for future generations. It also argues that natural resources were created by God, rather than just occurring naturally. **Methods:** This study addresses the phenomenon using a qualitative exploratory framework. Data was collected from 28 participants who were environmentalist (52%) and theologians (48%). Semi-structured interviews were conducted and the participants were purposively selected. Data was transcribed, coded and analyzed using thematic analysis techniques and three main themes emerged. **Findings:** The findings revealed that natural resources greatly enhance people's livelihoods and contribute to economic growth. They are freely given by God to be utilized and be preserved by humanity as human beings were entrusted to be guardians of the environment. They contribute to economic growth and help reduce poverty. While there are environmental policies in place, such policies are not adequately enforced. The exploitation of natural resources results in economic crises, ecological degradation and increase human vulnerability. **Conclusion:** the continued sustainability of human life is rooted in using natural resources in a responsible manner and in the conservation of these resources. Exploitation of natural resources poses a great threat to the sustainability of human life. **Novelty/ originality of this article:** This study is unique in the sense that it gives a deep exploration of the importance of natural resources including perceptions and historical theological disposition. It also provides insights into the perspectives of conserving these resources.

**KEYWORDS:** environmental protection; exploratory analysis; human well-being; natural resources; sustainability.

## 1. Introduction

The earth was created in such a way that it produces natural resources through natural processes or forces. These resources are very essential in the sustainability of life on earth and strongly improve the well-being of humanity. Natural resources like water, land, air, minerals, forests, oceans, rivers, and nature as a whole influence life, cultures and identities (Yin et al., 2022). They are also important for economic, social, spiritual, and ecological efficiencies (Amirova et al., 2020; Suryani et al., 2025). Ali & Kamraju (2023) define natural

### Cite This Article:

Khumalo, M. L. (2025). The importance of natural resources for the well-being of humanity: An exploratory analysis. *Environment Education and Conservation*, 2(1), 1-20. <https://doi.org/10.61511/educo.v2i1.2025.2118>

**Copyright:** © 2025 by the authors. This article is distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).



resources as materials and substances that naturally occur in the environment and are used for various purposes by human beings including the construction of infrastructure, energy utilities, agricultural production, technological innovations, hydrological purposes, health, and help in the reduction of chronic poverty (Shah et al., 2022; Nkonki-Mandleni et al., 2018). In a similar context, Shah et al. (2022) define natural resources as things that bring assistance to human beings in their day to day lives, which are derived conventionally from the natural environment and everything human beings need is found on the earth. They are joined together by the flow of matter and energy. In essence, every entity in its principal form, such as water, air, plants, the soil and other elements used in the production of any form of energy or essential in sustaining human livelihoods is considered as a natural resource (Wang et al., 2021). These resources make up the natural environment and they are strategically placed in different locations (Suryani et al., 2025). While there are many natural resources intended for the benefit of all, access, distribution, and utilization thereof tends to be unbalanced. Marginal groups benefit little due to lack of resources, unbalanced political ecology and policy instruments (Ahmad et al., 2023). Additionally, some people are unaware of the benefits of resources and the dangers of exploiting them. While scholars have explored the benefits and dangers of exploitation of these resources, few studies infuse a theological context in their analysis. This results in a lack of holistic understanding of the subject.

This study addresses this shortcoming by infusing a theological component on the phenomenon. A theological discourse is essential in complementing environmental science's reflections by considering how exploitation and the preservation of natural resources relates to humans' inner convictions about life, the environment particularly because humans were entrusted to be stewards of the environment. The stewardship reflected in various religious traditions and biblical text implies that God entrusted humans to care for the environment, rather than exploit natural resources (Boettcher, 2022; Genesis 1:26–28). A theological perspective in this study is justified as it provides a richer understanding of humans' roles and responsibilities in managing resources in the created world (Purwanto & Kristiawan, 2025). This study argues that natural resources availability and abundance is allowed by God as the one who places different resources strategically in different locations and they are intended for the benefit of all human beings. It further argues that natural resources can be very beneficial for humanity and they can enhance their well-being if managed appropriately. The purpose of this study is to clarify the coherence of natural resources to human sustainability. It first establishes how humans, creation and natural resources are interrelated. Second, the study examines human dependency on natural resources, and lastly, explores the implications of conserving and exploiting these resources. Consequently, the research questions for this study are: How are humans, creation and natural resources interrelated? How are humans dependent on natural resources? What are the implications of exploiting and conserving natural resources? Suryani et al. (2025) assert that over exploitation of these resources results in environmental degradation and poses a threat to the sustainability of life. This article is an exploratory study, mainly based on participants' perceptions on the subject.

Recent studies have examined different parameters on the wellbeing of humanity as a result of the utilization of natural resources. They conclude that natural resources impact the well-being and sustainability of humanity through wealth creation (Ahmad et al., 2023; Aman et al., 2022). This is demonstrated by the many industries which are centered on the utilization of these resources, either as raw or processed. These companies create a number of jobs, employing many people and in the process reducing vulnerability in societies (Ausat et al., 2023). Similarly, natural resources help in the development of small and medium-sized businesses (SMEs). Studies demonstrate that natural resources such as agricultural products, medicinal plants, water, and marine resources can help in the development of SMEs and improve human livelihoods (Sudirjo et al., 2023). While natural resources are associated with the well-being of humanity, scholars like Ali et al. (2020) highlighted a negative impact of natural resources to the wellbeing of humanity. For example, heavy rains,

conflicts, corruption, and the rising global temperatures can have a negative impact on the quality of life (Ahakwa & Tackie, 2024).

The rapid population and economic growth puts severe strains on the sustainability of these resources. As a result of the increase in population, natural resources are over exploited leading to environmental degradation (Liu et al., 2020). Exploitation of resources refers to the over usage or abuse of resources and the pollution of the quality of the natural environment (Rawat & Parihar, 2024). Miao et al. (2023) advocate for a more efficient and balanced approach to resource utilization as a way to conserve them. Their study links responsible resource utilization to the reduction of climate change and the preservation of ecological assets. Additionally, strategies such as creating coordination relationships between social, economic, and ecological groups are viewed as an essential in formulating resource utilization policies to attain human sustainability (Khan et al., 2022). Miao et al. (2023) suggest that tightening fiscal policies can help discourage investors from investing in natural resource related projects. Governments are viewed as driving forces in enforcing relevant policy instruments for conserving natural resources. market based policies such as regulating acceptable prices and quantities, and imposing economic sanctions if investors do not comply with regulations are some instruments suggested by scholars (Adigun, 2025). Recent trends in natural resources management involve the usage of geospatial data. According Naveen et al. (2024) geospatial data involves advanced technological data collection and analysis techniques which help in monitoring resources such as land, water, and forest, resulting in more sustainable utilization and conservation. Geospatial data also supports the assessment of climate change impacts including temperature changes, sea-level rise and shifts in ecosystems. This helps in implementation adaptation and mitigation strategies (Naveen et al., 2024).

Generally, natural resources are classified as renewable and non-renewable. They mutually interact and influence each other (Simaremare & Noho, 2021). Renewable resources are those which are available on a continuous basis, including solar energy, wind power, wood, plants, and animals. These resources are replaceable within the lifespan of humanity. Non-renewable resources like petroleum products, coal, and copper ore occur over geological times and not readily replaceable (Mihajlović & Đorđević, 2022). Plants and animals are renewable resources which survive as populations of different organisms, and are closely connected to each other in their habitants. For example forests, deserts, grasslands, mountains, rivers, and oceans are all part of specialized communities of plants and animals to dwell in (Adigun, 2025). Science presents a deeper classification of these resources, classifying them according to the lithosphere, hydrosphere, atmosphere, and the biosphere, with a number of various sub-resources strategically placed in these domains. The hydrosphere is associated with water, the atmosphere is associated with the air, and the lithosphere is associated with land resources (Wang et al., 2021). The strategic placement of these resources conjoint together suggests a work of a God or that of a supernatural design.

Studies tend to focus on land and water, probably because many other resources are sub-groups under these two resources (Rawat & Parihar, 2024). For example, all human activities including cultivation, mining, construction and energy generation occur on land. This makes land a key driver of ecosystems and biodiversity (Sangha, 2020). Biodiversity in agricultural landscapes rely mainly on the broad use of land. This proposes that there is a strong link between biodiversity and land use (Newbold et al., 2019). Land use relates to the interactions between climate change and human anthropogenic activities, including their impact on the Earth's ecological systems (Amirova et al., 2020). The interactions between climate change and human activities are closely associated with biodiversity. Biodiversity comprises of all ecological complexes formed by organisms, their environment, and other various ecological processes. Biodiversity brings stability to various ecosystems and also results in the sustenance of the ecological balance (Kuang et al., 2024). Soimakallio et al. (2024) argue that most of the world's products, systems and processes are connected to land use, either directly or indirectly. Similarly, biblical narratives portray the land as the

source of life. Biblical narratives suggest that all produce for human use is found on the land (Ecclesiastes 5:9; Genesis 2:7).

While studies show a number of benefits of natural resources, these resources can lead to conflicts in the world. For example, people fight over land, oceans and minerals. These conflicts require different policy responses to settle and prevent (Vesco et al., 2020). Land conflicts are not new and are prophesied about in biblical annals. The Bible predicated wars stating that, nations will rise against nations in the last days. Likewise, famines and earthquakes are also part of biblical predictions (Matthew 24:6-7). While science has varying theories about the exploitation of natural resources which is depicted as leading to climate change, theology presents a different perspective. Theological reflections suggest that the climate change predicament is inevitable and is a phenomenon which was foretold (Amos 4:6; Luke 21:11). In light of this, it can be argued that human anthropogenic actions and exploitation of natural resources are not the only causes of climate change. Theologians argue that the changes in environmental patterns are supernaturally allowed and are a way of revealing God's supremacy over humanity (Agujobi et al., 2022).

A closer examination of natural resources reveals that water as a natural resource, also plays a crucial role in sustaining life including the usage of water for irrigation purposes, drinking, generation of power, and provision of food for humanity. Additionally, materials like salt, and other products used in making jewellery, also come from water making water an important resource (Tichy et al., 2025; Wang et al., 2021). Fishermen spend a lot of time harvesting sea food in the oceans to support both their families and also contribute to economic growth (Rashid et al., 2023). Water sustains life in many ways. Water flowing from rivers, oceans and streams serves as a symbol of purification and shapes cultures. It connects places and influence social, and cultural practices (Porta & Wolf, 2021).

Analyzing natural resources requires an understanding of the foundations of the earth from where these resources are derived and examining the connection between humanity and the biotic and abiotic environment (Sangha, 2020; Adigun, 2025). While there are varying theories concerning the foundation of the earth, this study explains it from a creationism perspective. The creation theory suggests that all things were created by God and consequently, all things belong to Him (Genesis 1:1-30). Science and theology explains the creation motif differently. Theologians explain creation drawing their conclusions based on biblical text. Biblical narratives reveal that in the beginning God created the heavens and the earth (Genesis 1:1). According to the creation theory the beginning is associated with the period where God created these domains (Heaven and Earth). A more indepth examination of the beginning of things leads scholars to frustrations. Some scholars argue that if God was able to create the heavens and the earth at some point, it means He was already in existence Himself (Richard, 2023; Psalm 90:2). Consequently, theologian scholars surmise that the period of creation does not mark the beginning of all things (Rabie, 2023). This idea has some truth in it if interpreted from the canonical angle. The Bible boldly parallels God to nothing on earth. It is a Book that gives theologian and writers confidence in affirming God as from everlasting to everlasting (Psalm 103:17). The Bible is seen as an authoritative word of God which contains God's self-revelation and interventions for humanity (Adigun, 2025). Ultimately, most religious institutions suggest that anything documented in the Bible is God-breathed and is without error (2 Timothy 3:16). Lowe et al. (2023) posit that the Spiritual world or realm existed even before God created the natural world. This advocates that the Genesis creation was related to God creating a natural world which is subjected to a timeframe (Matthew 24: 35). It has been argued that the scripture in Genesis does not mention the beginning of all things, but rather addresses a certain beginning of certain things (Adigun, 2025). The text in Genesis which has led to different hermeneutical interpretations and scholarly debates states; *'In the beginning God created the heavens and the earth'* (Genesis 1:1). There is a noticeable distinction the timeframes in the text. There is no explicit mention of 'beginning of all things'.

Kgatle (2025) approached the Genesis narrative from a Pentecostal discourse. The Pentecostals pride themselves in believing that the Bible is the word of God and is authoritative. In the Pentecostal disposition, there is no questioning or critiquing the word

of God as it is perceived to be without error. Kgatle's research associates the beginning recorded in Genesis with the beginning of time, space and matter. It is not necessarily the beginning of all things. This beginning is closely connected to materialistic resources and spheres which enhance the human life (John 14:3; Matthew 6:13). The creationism theory expounds on how all these things were made clearly indicating that God called all things into existence by the power of His might (Genesis 1: 30). Genesis highlights how God first created the heavens and the earth. He then separated waters from waters (Genesis 1:7). He also created order in the universe and commanded the light to appear, separating the light from darkness (Genesis 1:14–16). Details of creating the plants, animals and other resources are recorded in scripture (Genesis 1: 1–30). After God created all these things, He then created man out of His own image (Genesis 1:26; 2:7). Human beings were placed at the center of all this magnificent creation to utilize and serve as guardians of the environment and all natural resources (Genesis 2:15).

The benefits of utilizing natural resources are embedded in the biblical records with first reference to Adam and Eve in the Garden of Eden. God allowed them to eat of every fruit in the Garden except from the tree of life (Genesis 3:3). A deeper reference of utilizing natural resources is expanded when God instructed the man to utilize the soil to plant crops after their expulsion from the Garden of Eden (Genesis 3:19). From that time onwards, humanity has continued to benefit from different natural resources in various ways, impelled by their God given ability to reason (Kgatle, 2025; Khumalo, 2025). The theological text particularly the Genesis narratives, establishes the interrelations between God, natural resources and human beings. While studies suggest that natural resources occur naturally (Shah et al., 2022; Booth & Kessler, 2021; Yin et al., 2022) in the environment, this study argues that natural resources and the environment were created by a divine God beyond human comprehension (Genesis 1:1; Hebrews 11:3). Humans contributed nothing in formulating these resources, but are closely connected to the created environment (Boiral et al., 2018). They only try to explain creation, natural resources and the environment based on their God given reasoning attributes (Genesis 1:28). Consequently, human explanations of natural resources origins are bound to have flaws (Ecclesiastes 8:17; Job 12:7–10). Figueires & Rivett-Carnac (2020) also shared the same sentiments, stating that nature is the entirety of life and non-life systems which forms part of the environment and were not created by human beings.

Natural resources contribute to economic growth and they are important in creating material wealth. They provide different assets including land, water and minerals which are essential for the sustainability of communities (World Bank Group, 2019). If natural resources are well managed, they can sustain livelihoods, create employment, and provide food and shelter. Scholarship emphasize that the degradation of such resources, poses a threat to the well-being of humanity (Mugambiwa & Rapholo, 2024). Generally, there is a huge market for natural resource commodities which serves as a basis for economic growth and industrial sustainability. This market accepts inputs from raw material and turns them into finished products using technical innovations. The inputs help in obtaining revenue and contribute to economic development (Iqbal et al., 2022). Surprisingly, the resource curse whereby countries which are rich in resources tend to grow at a slow rate compared to countries with poor resources captures the attention of researchers (Odugbesan & Rjoub, 2020; Miao et al., 2023). Studies suggest that resource curse leads to conflicts, poor governance, and increase corruption. Nonetheless, the economic theory shows no convincing explanations for the resource curse (Shah et al., 2022; Miao et al., 2023). The theory discloses that there is no sufficient evidence why resource abundance should be disadvantageous. The additional rents and foreign exchange attained from exports should allow higher levels of investments and create better capability to import capital goods which can be used to hasten economic growth (Noumba et al., 2022).

According to Pérez & Claveria (2020) the abundance of natural resources should increase economic growth particularly because they contribute to the increase in imports and exports. As these exchanges are done, more capital goods should be imported to stabilize the economy. Aman et al. (2022) assert that most wealth creation for countries

with low human development outcomes is derived from natural resources. Many nations strive to enhance the well-being of humanity through certain resource agreements to ensure the continuation of social sustainability and economic growth (Aman et al., 2022).

As earlier highlighted in this study, natural resources are increasingly being exploited and there appears to be ineffective environmental regulatory enforcement. While States have strong environmental protection policies in place, the implementation and enforcement thereof seems to be insufficient (Edet & Verra, 2025). Industrial engineering companies continue to pollute and exploit natural resources and this is cause for concern (Peša & Ross, 2021). Similarly, there is an increase in the establishment of bigger residential and industrial business infrastructure which affects the sustainability of natural resources (Mehra et al., 2021). The increase in human population densely settled in urban areas lead to this increase in development of buildings. This increase also results in more food consumption. An increase in food consumption requires an increase in agricultural production. This means more virgin land has to be cultivated and in the process natural resources are affected (Fusco et al., 2023). There is also an increase in international resource exchange and this requires transportation which includes trucks, trains, airplanes and boats. The transportation activities significantly increase greenhouse gas emission and pollute the environment (Jenkins et al., 2018; Hearn et al., 2023).

Human activities like infrastructural development and road construction has been on the rise, affecting natural resources. These activities lead to deforestation, land degradation, and reduction in invasive plant species (He et al., 2019). According to Mihajlović & Đorđević (2022) climate change is one phenomenon greatly associated with the exploitation of natural resources. Water reserves, forests and fish stocks are shrinking. Fertile farming land is being destroyed and different species are becoming extinct. This calls for paradigm shifts in human behavior and strengthening of environmental policies in order to protect ecosystems of the planet. It is also critical to maintain sustainable patterns of resource use in order to sustain human well-being and enhance economic growth (Su & Jiang, 2021; Yin et al., 2022). The prevention of environmental degradation requires enforcement of existing policies, crafting new relevant policies and adherence to environmental ethics. The regulation of resources consumption is also equally important. Environmental impact assessments should be mandatory for every investor in order to protect the environment (Askary & Hosseini, 2023). Global governance and ethics such as justice are recommended to mitigate against over exploitation of natural resources. Ethical standards founded in justice call upon responsibility and accountability from nations with wealth derived from natural resources (Yin et al., 2022). These nations are viewed as the most contributors to greenhouse gas emissions. Humanity, Governments, NGOs and companies must follow ethical principles which emphasize proactive and preventative measure to prevent future environmental degradation and ensure the sustainability of natural resources (Purwanto & Kristiawan, 2025).

## 2. Methods

This study explored the importance of natural resources for the well-being of humanity and addresses economic implications and environmental perceptions of exploiting natural resources. This study argues that sustainability of life is ingrained in the availability of these resources. Consequently, there is a high need for States to enforce environmental policies to safeguard against exploitation of these resources. There has been an increase in environmental degradation which poses a threat to the resources and also a threat to the sustainability of humanity. Additionally, the importance of preserving natural resources seems to be neglected. The abuse of natural resources results in economic crises, ecological degradation and increased human vulnerability. This study addresses the phenomenon using a qualitative exploratory framework. This approach provides an in-depth perspective in understanding the phenomenon (Putra et al., 2025). One of the important attributes of qualitative research is that it results in a complete understanding of contextual and unstructured non-numeric data. It involves having conversations with participants to

ascertain their perceptions in a natural setting (Permatasari et al., 2024). Data was collected from 28 participants who were environmentalist (52%) and theologians (48%). A total of (41%) of the participants were females and (59%) were males. A low number of participants is justified in qualitative research because it seeks to understand the 'why' and 'how' of human behavior through exploration of perceptions (Ahmed, 2025). Semi-structured in person interviews were conducted and the participants were purposively selected. The primary instrument used was an open-ended questionnaire (Rouder et al., 2021).

The exploratory method was chosen because the study involved people's perceptions, their behavior, thoughts, society and relation instead of using statistical data (Neuert et al., 2021). It was important to get participants' perceptions on how natural resources contribute to their well-being and also explore challenges and opportunities of conserving these resources for sustainability (Mugambiwa & Rapholo, 2024). Data was analyzed using thematic analysis techniques to identify key issues that relate to the relationship between the natural resources, creation, economic and the conservation of the natural resources (Permatasari et al., 2024). Data was transcribed, coded without the usage of any software and themes emerged. The themes that emerged were categorized through grouping similar codes to form three main ones and they are discussed in the results section of this study (Braun & Clarke, 2023). To ensure validity and reliability, the transcribed data was sent to the participants before final analysis were made to certify the researcher's interpretation matched their experiences. Participation in this study was voluntary. All participants were asked to sign a consent form and their identities were anonymized for ethical reasons.

### 3. Results and Discussions

#### 3.1 Benefits of natural resources

After the thematic analysis of data, three themes emerged and this section discusses these themes and gives alignment of the themes to relevant literature. The first theme was the benefits of natural resources. This theme has three sub-sections which are atmosphere, water, land benefits. The second theme that emerged was economic development and lastly environmental protection theme. These themes are summarized in Table 1. All participants revealed that natural resources sustain life. Without them humanity, animals and plants will be extinct. Natural resources were perceived as God's way of expressing His supremacy. All man made things are by-products of these resources and humanity contributes nothing in forming these resources (Genesis 1:1–30). This aligns with Figueres & Rivett-Carnac (2020), who portrayed humans as non-contributors to creation. However, humanity benefits from these resources and in the process are able to make different materials, systems and tools using them (Kgatile, 2025). Participants further reflected on two main sub-groups (sub-systems) of natural resources. The first one was the natural resources found in water and the second one was land resources. Apart from these two, participants also acknowledged the benefits of resources found in the atmosphere, like the air, rain, the sun, the moon, the stars, wind, the fowls of the air and all particles in the air needed for the sustainability of life (Wang et al., 2021).

Table 1. Results themes (benefits, economic development and environmental protection)

Theme	Importance
Benefits (atmosphere, water and land)	
Atmosphere benefits	Enhance breathing Rain for irrigation and replenishment of dams and oceans Light from the sun and the moon Energy from wind and the sun
Water benefits	Irrigation Drinking Bathing and washing Energy generation

Land benefits	Development of infrastructure Agricultural production Home for various minerals Home for different flora
Economic implications of natural resources	
Economic development	Employment creation Revenue generation Establishment of SMEs Improved livelihoods Provision of raw material and industrial inputs Investments in Public goods.
Environmental protection and policy implications	
Environmental protection	Preservation of natural resources Sustainability of ecosystems Prevention of over exploitation of natural resources Exploitation of resources results in climate change, pollution and biodiversity loss.
Policy implications	Introduction of spatial data collection to enhance environmental management. Mandatory Environmental Impact Assessment (EIA) for investors. The regulation of resource consumption Implementation of green technology. Introduction of environmental taxes.

### *3.1.1 The atmosphere and its benefits*

Space was perceived as a good medium that aids in linking people across the globe and facilitates trade (Corrado et al., 2023). Similarly, airplanes are able to fly in space transporting people to different locations worldwide. The moon, sun and the stars are resources also found in space and they supply light to the world enabling people to see each other, engage in different ventures and also design different interconnected systems, structures, machinery and different innovative tools (Genesis 1:3; Wilson & Vasile, 2023). Moreover, some participants of this study averred that natural resources like birds and bees fly in the air helping in the pollination of different plants. Additionally wind also contributes in pollination which is essential in spreading different flora (Renner, 2023). Satellites are strategically placed in space to facilitate telecommunications, weather forecasting and other technological advancements which have enhanced economic developments and brought easy in different human activities (Nwani & Adams, 2021). According to participants, air is another very essential non-visible natural resource which forms part of the atmosphere and its prime purpose is to sustain life and enhance breathing for humans. It contains a mixture of gases including oxygen, nitrogen, and carbon dioxide and other essential gases (Byjus, 2025). For example, many organisms rely on oxygen ( $O_2$ ) for survival (Yin et al., 2022). Consequently, air pollution threatens the sustainability of life (Pandey et al., 2021). Air pollution shortens the lifespan of living organisms, causes diseases, and contributes to environmental health threats (Mihajlović & Đorđević, 2022).

### *3.1.2 Water and its benefits (hydrosphere)*

Most participants viewed water as an important resource, very essential in the sustenance of life. Water is needed by the human body for varying purposes including drinking and bathing (Wang et al., 2021). Water is also very vital in agricultural practices. Agriculture aids in food production resulting in a constant supply of food. Without water, there will be no food and consequently there will be no life (Nyahunda & Tirivangasi, 2021). For most participants, all human beings including religious individuals benefit immensely from the availability of this resource. Theologian participants gave credit to God for the provision of water. It became evident that both theologians and environmentalists agreed

on the benefits of natural resources in relation to sustaining life. God was portrayed by theologian participants as an all knowing Savior who from the beginning created streams, rivers, oceans and also provides rain (Genesis 1:1-30). All participants from both groups maintained that rain is critical particularly because it fills up the rivers, oceans and dams which are very helpful for irrigation and other purposes (Yin et al., 2022). Human beings' benefits from water go beyond just irrigation purposes and the sustenance of human bodies, but also humans get food from rivers and oceans. Participants highlighted that fishermen are able to harvest fishes and other sea foods which are critical for the well-being of humanity. This finding aligns with Rashid et al. (2023)'s findings, which show that fishermen found a profession availed by oceans and are able to provide for their families. Sea food harvesting is a huge business which has created a lot of employment across the globe and contributes in the reduction of poverty (Alam & Yousuf, 2024). One participant also supported this by saying:

*"There is no doubt that water is important in our lives particularly because it has help a lot of people have food and establish businesses to provide for their families. There are fishermen who are harvest sea food and this is a huge business particularly for people living close to the oceans. These fishermen also contribute in the reduction of poverty because they employ a number of people particularly for the processing and packaging of sea food. Sea food is consumed across the globe and contributes to economic development one way or another" (E).*

Some participants further suggested that, sea shells are harvested and used particularly for making jewellery and in the processes creating various jobs and other opportunities for humanity. Salt is another important resource found in the oceans (Metwally et al., 2022). Sea water contains salt of which people are able to extract. Salt is used across the globe to bring taste to food. While water is available across the world environmentalist participants were concerned about ground-water reserves. Their concern was that, ground-water may be used up primarily because of drought and insufficient rain to restore it. Climate change has led to variations in rainfall patterns. More rapid, but unstable rainfall cycles have been observed, resulting in frequent floods and drought (Liu et al., 2017). If drought persists, then participants' concerns will be justified. Participants were also concerned about the increase in water pollution caused by humans through improper sewage management and waste disposal systems.

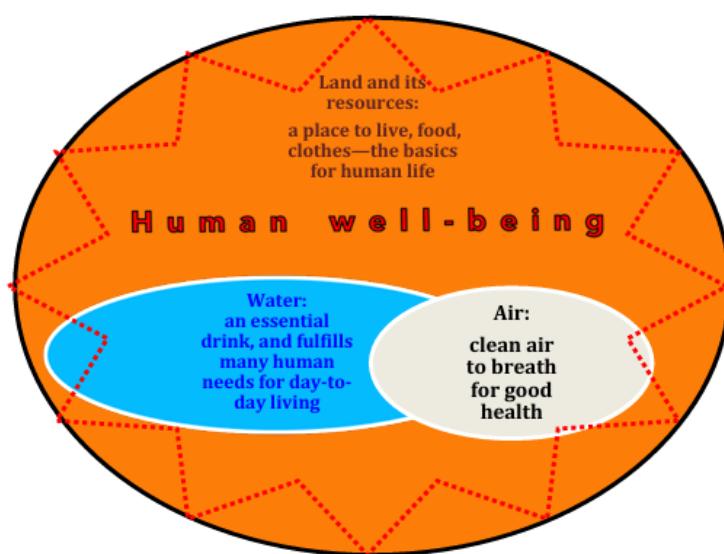


Fig. 1. Dependence of human well-being on natural resources  
(Sangha, 2020)

### 3.1.3 Land and its benefits (lithosphere)

Participants portrayed the land as a very important resource potentially above the rest. The land is a place where plants and animals including human beings reside (Rawat & Parihar, 2024). Participants averred that if there was no land, human being will not have a dwelling place. It was portrayed as a place where human structures are built and where agricultural production takes place enabling human beings and animals to have food (Rawat & Parihar, 2024). The land also contains water which also sustains life (Tichy et al., 2025). Some participants mentioned that the creator made all things and created a balance and interaction between certain natural resources (Genesis 1:1–30). Every natural resource exists because of the availability of another resource. One participant made an example of the interconnection of resources by making an example of how minerals can be found in the ground and also fishes living in the oceans and rivers are also found on the land. Interesting all participants saw that creation was beyond human understanding. One theologian participant said;

*"I think the creator is too perfect. The way all things are put into place strategically, shows that indeed there must be a supernatural being that can pull out such an exquisite creation. The availability of all natural resources exists in support from other resources. For us human beings, we exist because of the food found in the ground and water. Without all these resources we can hardly survive on this earth. Our ignorance of God's supremacy does not stop Him from being God" (T).*

There was a strong correlation between the creator God and the availability and sustenance of land resources and all the other resources. Human beings were portrayed as a product of land. Biblical records suggest that God made man from the soil and breadth His spirit unto the man (Genesis 2:7). Man was made to rule over all created order and be guardians of the environment including all natural resources (Genesis 1:26). In order to sustain humanity, God purposefully placed different natural resources and these resources have continued to be utilized for varying reasons (Genesis 1–2). While land was reckoned as very beneficial for sustenance of humanity, some participants noted that land can sometimes be a curse in that it creates serious disputes across nations. This finding is consistent with Vesco et al. (2020) findings. Their outcomes suggest that land is one of the main contributors to worldly conflicts and it requires different policy instruments to curb. Nations are fighting against each other for land and this has resulted in loss of many lives of innocent individuals. The fights are not just against country to country, but participants revealed that even within communities of people living in the same nation, land disputes are rife (Rawat & Parihar, 2024). There is a lot political upheaval across the world caused by the political locations of different nations. According to participants, some nations are despised because they live in locations which are less developed than others or are without the necessary resources that can aid in their swift development. This finding aligns with Salawu (2025) which states that land has always been used as indicator for structural inequalities and discrimination across communities and land is a dwelling place for humanity. It is also used as foundations and channels of power globally.

A number of participants also asserted that minerals including gold, silver, iron-ore, diamond and other precious stones are strongly contributing in the advancements of economies. These natural resources have the capability to create jobs and are also used for various purposes. Coal and crush stone are also very important natural resources which are used across the globe. Some participants revealed that coal is used for the generation of electricity, for heating purposes and also used in some machinery including trains and boats. This finding is consistent with Kanwal et al. (2022) who state that coal, gas and oils are all essential sources of heat light, and power used in the daily lives of humanity. Heat is used to bring warmth and to prepare food for human consumption and coal is also essential in running different machinery. Gold was portrayed a vital resource and is widely used in making money, jewellery, and other artifacts. Many mining companies have been

established to excavate different minerals and present a lot of benefits for humanity and states (Ausat et al., 2023). Additionally, participants asserted that oil is another important resources mostly used in different machinery including automobiles and tractors. It became evident that land and the other natural resources are essential for the well-being of humanity (Ahmad et al., 2023). Figure 2, paints a clear picture of the benefits of these resources to the well-being of humanity. While there were clear benefits observed, most participants were worried about the mining sites which are left opened and causing a threat to the lives of humanity and animals. Mining sites were also portrayed as dangerous in the sense that they can collapse causing loss of lives for the people employed in these sites.

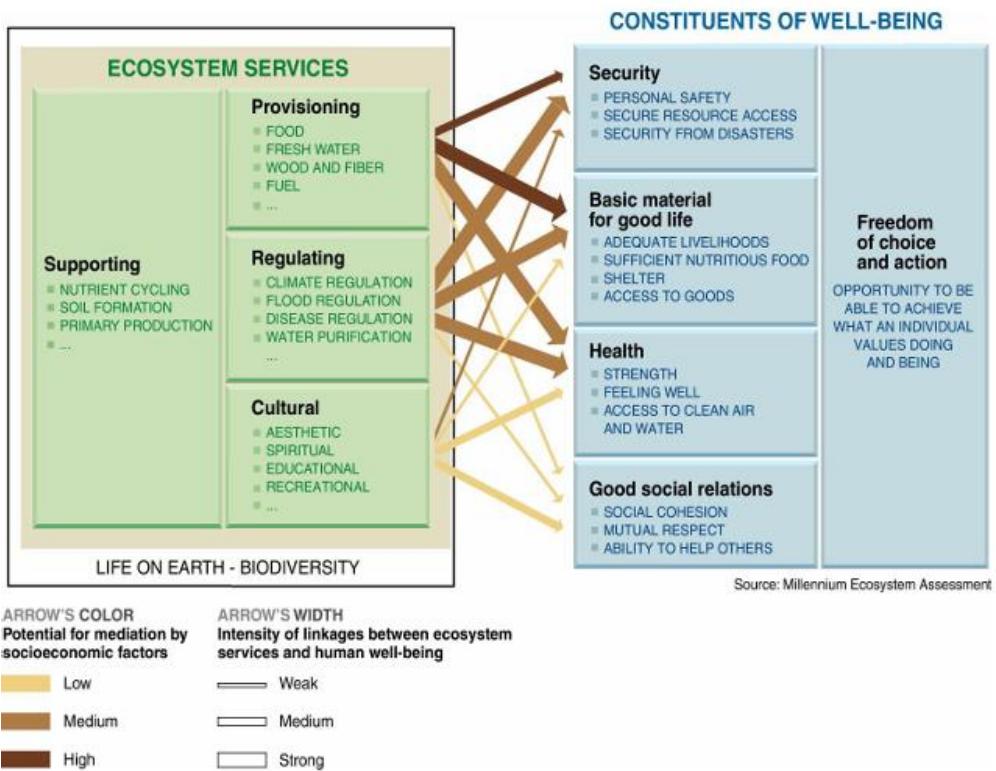


Fig. 2. Links between human well-being and ecosystem services  
(Sangha, 2020)

### 3.2 Economic development

Natural resources have greatly increased global economies. It was revealed that due to urbanization, cities and towns have been established which bring a lot of opportunities for humans. The establishment of cities gives rise to job opportunities for different individuals in varying ways (Andersen et al., 2018). Through such establishments, people are able to purchase food, clothing and other necessary goods essential for their sustenance. Natural resources were also perceived to enhance the establishment of small and medium enterprises (SMEs) and in the process reducing poverty. This finding aligns with Ausat et al. (2023) who state that natural resources contribute to the establishment of small and medium enterprises. These resources increase the value of items produced by SMEs (Borowski et al., 2022). Participants averred that roads and bridges leading to different business centers have been built and made travelling to different locations easy enhancing trade (Shah et al., 2022). Schools and University are widespread which contributing greatly in the academic space enabling different graduates to manage businesses and develop economies. Governments have been able to establish offices and linked with different states enhancing political ties (Ahmad et al., 2023). Economies also benefit from the generation of electricity which has become a necessity for various reasons and brings ease to life. This

finding is consistent with Wang et al. (2021)'s findings. Their study highlights the importance of natural resources in energy generation.

Few participants further noted that, through the establishment of cars, boats and airplanes, economies have benefitted immensely. It has made trading between different countries easy and also availed opportunities from investors from different countries (Corrado et al., 2023). Recreation centers have been established which include parks, sports grounds, theaters and casinos and these contribute to economic development. Upholding open space resources which include parks, sports grounds, conserved and protected lands contributes to the enhancement of quality of places and builds community character (Li et al., 2020). According to participants, life can be stressful sometimes for both the employed and unemployed. Therefore humans set apart time to distress and be involved in some fun activities. Recreational facilities were also depicted to encourage both children and adults to exercise and thus improving their health.

### 3.3 Natural resources and environmental protection

With the rise in human anthropogenic actions, participants revealed that there is a high threat in the sustainability of natural resources. Sustainability of natural resources relates to natural resource management, ensuring that their production potential does not diminish over a period of time (Mihajlović & Đorđević, 2022). Environmentalist participants asserted that sustainability of natural resources results in the stability of ecosystems and contributes to sustainable development, social and economic stability as demonstrated by the pillars in figure 3. The actions of man which include polluting the environment, deforestation and technological developments lead to environmental degradation and strongly contribute to climate change (Sangha, 2020). Mind shifts in resource exploitation, efficiency in processing natural resources, and the elimination of inappropriate human activities are necessary for the preservation of natural resources (Vesco et al., 2020). Participants called upon stringent policies and actions to control the actions of man in order to mitigate further ecological degradations. Policies are instrumental in ensuring the sustainability of natural resources. Moreover, participants highlighted that human beings have a tendency to compromise or exploit natural resources in an effort to grow modern economies.

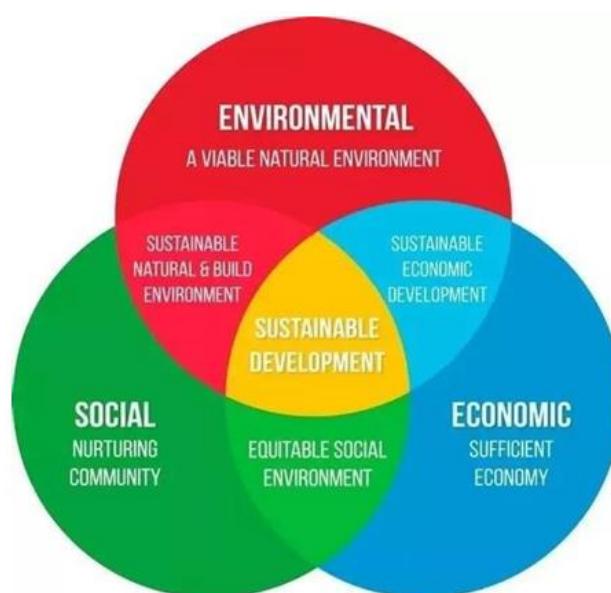


Fig. 3. Pillars of sustainable development  
(Mihajlović & Đorđević, 2022)

The exploitation of these resources has negative impact on the environment and human quality of life (Sangha, 2020). Findings of this study revealed that deforestation is a threat

to the natural environment and there is a need to use forest resources cautiously. If trees like timber, gum trees and others are overharvested without replacement, the ecological function of the forest is lost (He et al., 2019). According to participants, the mining sector also contributes to deforestation as they use trees for make profits. Deforestation and some unethical agricultural practices result in the creation of dongas and a lot of soil losses (Avakoudjo et al., 2020). Additionally participants asserted that while the building of dams was good to preserve water for irrigation purposes or usage in hydroelectric power, it also presents a threat of displacement for the people who had their homes closer to those locations.

There was a strong agreement on the importance of the preservation of the land resource. Land is a home for all and degradation of this essential resource negates the purpose of creation (Rawat & Parihar, 2024). Participants affirmed that land holds most of the natural resources needed for sustenance of all species. Land degradation forces populations to migrate based on the fact that there is no place to develop their structures and also reduce farming space and livestock farming. According to the World Health Organization (2020) land degradation has increased over the 21<sup>st</sup> century as a result of combined pressures of agricultural and livestock production, deforestation, urbanization and climate change which affects the land. Findings of this study demonstrated that humans neglect the preservation of water when its plenty and they shun practices like rain water harvesting. This finding aligns with Jones (2020) who posits that humanity has a tendency to judge things as they happen now and judge using faulty indecipherable mechanisms. In essence, no one knows when the next drought will be experienced. In support of this finding one participant said:

*"We might be receiving sufficient water now, but no one knows what will happen next year or even during the course of this current year as we are only approaching the middle of it. it is easy for water to be absorbed quickly if there is no rain to replenish it. We are letting water go into waste while we should be storing it for future consumption" (G, an environmentalist).*

In light of the above statement, water harvesting, storage and preservation is important for the sustainability of societies. Participants proposed the preservation of water not only through rain water harvesting, but also through closing water taps when water in not in use and also through recycling it. Water from sewage systems can be purified and be reused. The pollution of water through the disposal of waste into streams and oceans together with pollution of water by industrial engineering companies was portrayed as a threat to both water sustainability and also to the sustainability of hydro-animals. The exploitation of these resources was portrayed as a contributor to human vulnerability. The finite supply of input resources must be used to regulate how much people may consume resources without endangering ecosystem (Can et al., 2021; Miao et al., 2023). States are encouraged to implement green technology effective to promote green economic evolution. This will contribute in the reduction of carbon dioxide (CO<sub>2</sub>) emissions (Khan et al., 2022). Environmental and natural resources regulation requires reforms in environmental taxes and expenditures (Nwani & Adams, 2021). Benefits from resources utilization should be used to strengthen the capacity of economies, such as skills development, creation of employment and establish long term sustainability goals (Ahmad et al., 2023).

#### 4. Conclusions

This study examined the importance of natural resources for the well-being of humanity using descriptive exploratory approach. The findings revealed that natural resources are very important in the day to day lives of human beings. They are very instrumental in sustaining life, improve humans' well-being, inform cultures, and identities. Natural resources emanate from a God and were freely given to be utilized by human beings. This establishes the coherence of natural resources to humans and creation. These

resources benefit humans as raw or processed. Human beings were entrusted to be guardians of these resources and consequently, they are responsible for conserving them. The results also showed that there are many benefits associated with natural resources including economic, social and spiritual. Additionally, the results indicate utilization, green innovation and economic globalization positively and show their significant impact on the human well-being. Benefits such as the creation of jobs and SMEs were portrayed as good instruments for poverty alleviation. Limited access to resources, land degradation, resource exploitation and climate change emerged as the prime challenges.

The results suggest that conservation of these resources is important. The conservation of natural resources can be achieved through adequate enforcement of existing policies and crafting new ones to fill the environmental protection gap. Two main classes of natural resources were identified and these were renewable and non-renewable resources. The findings further identify three sub-categories of natural resource which are related to land, water and the atmosphere. All these resources found in these categories have varying benefits which are important in the sustainability of life and enhance the well-being of humans. While the utilisation of natural resources have a positive impact on the well-being and sustainability of humanity, the results present some concerns about the resource curse which leads to conflicts, corruption and failure to develop other sectors of the economy. The findings ascertained that humans have a crucial responsibility to conserve natural resources as they are stewards of the environment and they have God given reasoning attributes. The findings validated the interconnection between creation, humanity and natural resources. This study is limited in that it used a low number of participants. These Participants were only environmentalist and theologians. A broader understanding on the subject could be enhanced by incorporating participants from other fields and increase the number of participants. The study recommends further comparative research across regions. The studies could also explore the role of education and religion in fostering sustainable practices. The study further recommends the continued usage of spatial data to enhance environmental management and detect risks.

### **Acknowledgement**

The author would like to thank all the participants who partook in this study making it a reality.

### **Author Contribution**

The author contributed fully to the writing of this article.

### **Funding**

This research received no external funding.

### **Ethical Review Board Statement**

Not available.

### **Informed Consent Statement**

All participants were asked to sign a consent form in order to be eligible to participate in this research.

### **Data Availability Statement**

Not available.

### **Conflicts of Interest**

The author declares no conflict of interest associated with this study.

## Open Access

©2025. The author(s). This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third-party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit: <http://creativecommons.org/licenses/by/4.0/>

## References

Adigun, J. (2025). Christian stewardship to God-given natural resources for sustainability: A biblical perspective (Genesis 1:26–30 and Psalm 24:1) and Sustainable Development Goal (SDG #14 & #15). *British Journal of Multidisciplinary and Advanced Studies*, 6(3), 1–12. <https://doi.org/10.37745/bjmas.2022.04891>

Agujiobi, N., Okoli, B., Nwokocha, V., & Ibenwa, C. (2022). Climate change as an act of “God” or “Man”: An eschatological account. *Journal of African Studies*, 23(2). <https://doi.org/10.53836/ijia/2022/23/2/009>

Ahakwa, I., & Tackie, A. (2024). Natural resources as a double-edged sword towards ecological quality: Can environmental regulations and green human capital rectify the adverse impacts? *Journal of Cleaner Production*, 547, 142436. <https://doi.org/10.1016/j.jclepro.2024.142436>

Ahmad, M., Ahmed, Z., Yang, X., & Can, M. (2023). Natural resources depletion, financial risk, and human well-being: What is the role of green innovation and economic globalization? *Social Indicators Research*, 167, 269–288. <https://doi.org/10.1007/s11205-023-03106-9>

Ahmed, S. (2025). Sample size for saturation in qualitative research: Debates, definitions, and strategies. *Journal of Medicine, Surgery, and Public Health*, 5. <https://doi.org/10.1016/j.gmedi.2024.100171>

Alam, M. S., & Yousuf, A. (2024). Fishermen's community livelihood and socio-economic constraints in coastal areas: An exploratory analysis. *Environmental challenges*, 14, 100810. <https://doi.org/10.1016/j.envc.2023.100810>

Ali, M. A., & Kamraju, M. (2023). *Natural resources and society: Understanding the complex relationship between humans and the environment*. Springer. <https://doi.org/10.1007/978-3-031-46720-2>

Ali, S., Murshed, S. M., & Papyrakis, E. (2020). Happiness and the resource curse. *Journal of Happiness Studies*, 21(2), 437–464. <https://doi.org/10.1007/s10902-019-00080-3>

Aman, J., Abbas, J., Shi, G., Ain, N. U., & Gu, L. (2022). RETRACTED: Community Wellbeing Under China-Pakistan Economic Corridor: Role of Social, Economic, Cultural, and Educational Factors in Improving Residents' Quality of Life. *Frontiers in Psychology*, 12, 816592. <https://doi.org/10.3389/fpsyg.2021.816592>

Amirova, N., Sargin, L., & Khasanova, A. (2020). Natural resource potential as a factor in the formation of the region's natural-economic system. *E3S Web of Conferences*, 174, 02011. <https://doi.org/10.1051/e3sconf/202017402011>

Andersen, P., Johnson, M., & Lee, S. (2018). Urbanization and employment: Socioeconomic impacts of city growth. *Journal of Urban Studies*, 55(4), 678–692. <https://doi.org/10.1177/0042098018758742>

Askary, S., & Hosseinnejad, S. (2023). The role of environmental impact assessments in sustainable investment. *Environmental Policy and Governance*, 33(2), 101–115. <https://doi.org/10.1002/eet.2023.33.2.101>

Ausat, A. M., Velmurugan, R., Mazil, M., Mazher, A., & Okombo, A. (2023). Utilisation of natural resources as a source of inspiration and innovation in SME development.

*Apollo: Journal of Tourism and Business*, 1(3), 122–132. <https://doi.org/10.58905/apollo.v1i3.103>

Avakoudjo, J., Kouelo, F. A., Kindomihou, V. M., Akpo Nikpe, P. I., Azontonde, A. H., Sinsin, B. A., Akplo, T. M., & Agonvinon, S. (2020). Water erosion in the Donga soils in sub-humid zone in West Africa. *Journal of Environmental Protection*, 11, 1073–1088. <https://doi.org/10.4236/jep.2020.1112068>

Boettcher, M. (2022). A leap of green faith: The religious discourse of socio-ecological care as an earth system governmentality. *Journal of Environmental Policy and Planning*, 24(1), 81–93. <https://doi.org/10.1080/1523908X.2021.1956310>

Boiral, O., Cayer, M., & Baron, C. (2018). Environmental management and organizational practices: Linking humans and the natural environment. *Journal of Cleaner Production*, 182, 34–45. <https://doi.org/10.1016/j.jclepro.2018.01.123>

Booth, A. L., & Kessler, W. (2021). Understanding linkages of people, natural resources and ecosystem health. In *Natural resource management* (pp. 231–248). Routledge.

Borowski, F., Patuk, I., & Bandala, E. R. (2022). Innovative industrial use of bamboo as key 'green' material. *Sustainability*, 14(4), 1955. <https://doi.org/10.3390/su14041955>

Braun, V., & Clarke, V. (2023). Toward good practice in thematic analysis: Avoiding common problems and being (com)ing a knowing researcher. *International journal of transgender health*, 24(1), 1-6. <https://doi.org/10.1080/26895269.2022.2129597>

Byjus. (2025). *Composition of air and its importance in the environment*. Byjus Learning. <https://byjus.com/science/composition-of-air>

Can, A., Yildiz, B., & Demir, O. (2021). Sustainable resource management and human consumption limits. *Journal of Environmental Management*, 290, 112598. <https://doi.org/10.1016/j.jenvman.2021.112598>

Corrado, L., Cropper, M., & Rao, A. (2023). Space exploration and economic growth: New issues and horizons. *Proceedings of the National Academy of Sciences*, 120(43), e2221341120. <https://doi.org/10.1073/pnas.2221341120>

Edet, T., & Verra, J. (2025). Multinational companies and environmental degradation in Akwa Ibom State. *Social Science and Humanities Journal*, 9(3). <https://doi.org/10.18535/sshj.v9i03.1711>

Figueres, C., & Rivett-Carnac, T. (2020). *The future we choose: Surviving the climate crisis*. Knopf.

Fusco, G., Campobasso, F., Laureti, L., Frittelli, M., Valente, D., & Petrosillo, I. (2023). The environmental impact of agriculture: An instrument to support public policy. *Ecological Indicators*, 153, 109961. <https://doi.org/10.1016/j.ecolind.2023.109961>

He, X., Liang, J., Zeng, G., Yuan, Y., & Li, X. (2019). The effects of interaction between climate change and land-use/cover change on biodiversity-related ecosystem services. *Global Challenges*, 3(9), 1800095. <https://doi.org/10.1002/gch2.201800095>

Hearn, A., Huber, F., Koehrsen, J., & Buzzi, A. (2023). The perceived potential of religion in mitigating climate change and how this is being realized in Germany and Switzerland. *Journal of Environmental Studies and Sciences*, 14, 342–357. <https://doi.org/10.1007/s13412-023-00884-z>

Iqbal, S., Wang, Y., Shaikh, P. A., Maqbool, A., & Hayat, K. (2022). Exploring the asymmetric effects of renewable energy production, natural resources, and economic progress on CO<sub>2</sub> emissions: fresh evidence from Pakistan. *Environmental Science and Pollution Research*, 29(5), 7067–7078. <https://doi.org/10.1007/s11356-021-16138-w>

Jenkins, W., Berry, E., & Kreider, L. B. (2018). Religion and climate change. *Annual review of environment and resources*, 43(1), 85–108. <https://doi.org/10.1146/annurev-environ-102017-025855>

Jones, A. (2020). Human judgment and cognitive biases in decision-making. *Journal of Behavioral Studies*, 12(3), 145–160. <https://doi.org/10.1234/jbs.2020.12.3.145>

Kanwal, S., Mehran, M. T., Hassan, M., Anwar, M., Naqvi, S. R., & Khoja, H. (2022). An integrated future approach for the energy security of Pakistan: Replacement of fossil fuels with syngas for better environment and socio-economic development. *Renewable and Sustainable Energy Reviews*, 156, 111978. <https://doi.org/10.1016/j.rser.2021.111978>

Kgatle, S. (2025). Theology and science as a Pentecostal hermeneutical approach to the Genesis creation narrative. *Verbum et Ecclesia*, 46(1), a3497. <https://doi.org/10.4102/ve.v46i1.3497>

Khan, Z., Hossain, M. R., Badeeb, R. A., & Zhang, C. (2022). Aggregate and disaggregate impact of natural resources on economic performance: Role of green growth and human capital. *Resources Policy*, 103, 103103. <https://doi.org/10.1016/j.resourpol.2022.103103>

Khumalo, M. (2025). Technology and the church: A theological and interpretive approach from the Christian perspective. *International Journal of Sociology of Religion*, 3(1), 623-634. <https://doi.org/10.70687/f60de704>

Kuang, Y., Zhou, H., & Yin, L. (2024). Assessment of the impact of land use on biodiversity based on multiple scenarios—A case study of Southwest China. *Diversity*, 16, 630. <https://doi.org/10.3390/d16100630>

Li, H., Zhao, Y., & Zheng, F. (2020). The framework of an agricultural land-use decision support system based on ecological environmental constraints. *Science of the Total Environment*, 717, 137149. <https://doi.org/10.1016/j.scitotenv.2020.137149>

Liu, L., Xu, Y., Wang, H., & Zhang, X. (2017). Changes in precipitation extremes over the Yangtze River Basin in China during 1960–2013. *Journal of Hydrology*, 550, 214–225. <https://doi.org/10.1016/j.jhydrol.2017.04.021>

Liu, S., Xiao, W., Li, L., Ye, Y., & Song, X. (2020). Urban land use efficiency and improvement potential in China: A stochastic frontier analysis. *Land Use Policy*, 99, 105046. <https://doi.org/10.1016/j.landusepol.2020.105046>

Lowe, B. S., Jacobson, S. K., Israel, G. D., & Peterson, A. L. (2023). Association of religious end time beliefs with attitudes toward climate change and biodiversity loss. *Sustainability*, 15, 9071. <https://doi.org/10.3390/su15119071>

Mehra, S., Singh, M., & Sharma, G. (2021). Impact of construction material on environment. In *Environmental Impacts of Construction Materials* (pp. 215–226). Springer. [https://doi.org/10.1007/978-3-030-76073-1\\_22](https://doi.org/10.1007/978-3-030-76073-1_22)

Metwally, H., Salman, S. A., & El-Shamy, A. (2022). A review on extraction processes of salts from different lakes and their environmental impact in industry. *Letters in Applied Nanobioscience*, 14, 4016–4039. <https://doi.org/10.33263/lianbs114.40164039>

Miao, N., Sharif, A., Ozturk, I., & Razzaq, A. (2023). How do the exploitation of natural resources and fiscal policy affect green growth? Moderating role of ecological governance in G7 countries. *Resources Policy*, 85, 103911. <https://doi.org/10.1016/j.resourpol.2023.103911>

Mihajlović, S. R., & Đorđević, N. G. (2022). Sustainable development and natural resources exploitation—Brief review. *Underground Mining Engineering*, 62(40), 45–51. <https://doi.org/10.5937/podrad2240045M>

Mugambiwa, F., & Rapholo, F. (2024). The impact of climate change on agricultural productivity and economic stability in rural Zimbabwe. *Indonesian Journal of Social and Environmental Issues*, 5(3), 255–264. <https://doi.org/10.47540/ijsei.v5i3.1635>

Naveen, P., Maheswar, R., & Trojovský, P. (2024). GeoNLU: Bridging the gap between natural language and spatial data infrastructures. *Alexandria Engineering Journal*, 87, 126–147. <https://doi.org/10.1016/j.aej.2023.12.027>

Neuert, C., Meitinger, K., Behr, D., & Schonlau, M. (2021). The use of open-ended questions in surveys. *Methods, data, analyses: a journal for quantitative methods and survey methodology (mda)*, 15(1), 3-6. <https://doi.org/10.12758/mda.2021.01>

Newbold, T., Adams, G. L., Albaladejo, G., Boakes, E. H., Braga Ferreira, G., Chapman, A. S., Etard, A., Gibb, R., Millard, J., Outhwaite, L. C., & Williams, J. (2019). Climate and land-use change homogenise terrestrial biodiversity, with consequences for ecosystem

functioning and human well-being. *Emerging Topics in Life Science*, 3(2), 207–219. <https://doi.org/10.1042/ETLS20180135>

Nkonki-Mandleni, B., Khumalo, M. L., & Omotayo, A. O. (2018). Social Protection: A Panacea to Alleviating Poverty in the Republic of South Africa. *Acta Universitatis Danubius: Œconomica*, 14(7), 737–748. <https://www.ceeol.com/search/article-detail?id=787618>

Noumba, I., Noula, A. G., & Nguea, S. M. (2022). Do globalization and resource rents matter for human well-being? Evidence from African countries. *International Economics*, 170, 49–65. <https://doi.org/10.1016/j.inteco.2022.02.004>

Nwani, C., & Adams, S. (2021). Environmental cost of natural resource rents based on production and consumption inventories of carbon emissions: Assessing the role of institutional quality. *Resources Policy*, 74, 102282. <https://doi.org/10.1016/j.resourpol.2021.102282>

Nyahunda, L., & Tirivangasi, H. M. (2021). Harnessing of social capital as a determinant for climate change adaptation in Mazungunye communal lands in Bikita, Zimbabwe. *Scientifica*, 2021(1), 8416410. <https://doi.org/10.1155/2021/8416410>

Odugbesan, J. A., & Rjoub, H. (2020). Relationship among economic growth, energy consumption, CO<sub>2</sub> emission, and urbanisation: Evidence from MINT countries. *SAGE Open*, 10(2), 2158244020914648. <https://doi.org/10.1177/2158244020914648>

Pandey, A., Brauer, M., Cropper, M. L., Balakrishnan, K., Mathur, P., Dey, S., ... & Dandona, L. (2021). Health and economic impact of air pollution in the states of India: the Global Burden of Disease Study 2019. *The Lancet Planetary Health*, 5(1), e25–e38. [https://doi.org/10.1016/S2542-5196\(20\)30298-9](https://doi.org/10.1016/S2542-5196(20)30298-9)

Pérez, C., & Claveria, O. (2020). Natural resources and human development: Evidence from mineral-dependent African countries using exploratory graphical analysis. *Resources Policy*, 65, 101535. <https://doi.org/10.1016/j.resourpol.2019.101535>

Permatasari, I., Hutabarat, P., & Adelina, E. (2024). Exploring student satisfaction in learning with podcast applications: A qualitative study based on open-ended questions. *Jurnal Vokasi Indonesia*, 12(2), Article 1. <https://doi.org/10.7454/jvi.v12i2.1225>

Peša, I., & Ross, C. (2021). Extractive industries and the environment: Production, pollution, and protest in global history. *The Extractive Industries and Society*, 8(4), 100933. <https://doi.org/10.1016/j.exis.2021.100933>

Porta, E. L., & Wolf, A. T. (2021). Intrinsic and spiritual dimensions of water at the local scale, and the disconnect with international institutions. *Sustainability*, 13, 8948. <https://doi.org/10.3390/su13168948>

Purwanto, E., & Kristiawan, S. (2025). Ethical and theological responses to climate change. *Jurnal Luxnos*, 11(1), 82–98. <https://doi.org/10.47304/b3e4wf07>

Putra, D., Santoso, A., & Widodo, R. (2025). Qualitative approaches in social science research: Understanding complex phenomena. *Journal of Social Research Methods*, 18(1), 45–59. <https://doi.org/10.1234/jsrm.2025.18.1.45>

Rabie, M. (2023). Theology and the concept of creation: Beyond the beginning. *Journal of Religious Studies*, 15(1), 12–25. <https://doi.org/10.1234/jrs.2023.15.1.12>

Rashid, M. M., Jamir Singh, P. S., & Azman, A. (2023). Promoting fishing profession and general well-being: A call for labour policy. *Cogent Social Sciences*, 9(1), 2194729. <https://doi.org/10.1080/23311886.2023.2194729>

Rawat, M., & Parihar, D. (2024). Land use change and its impact on terrestrial biodiversity of surrounding areas of Jim Corbett National Park. *Current World Environment Journal*, 19(2), 964–977. <https://doi.org/10.12944/CWE.19.2.35>

Renner, S. S. (2023). A time tree for the evolution of insect, vertebrate, wind, and water pollination in the angiosperms. *New Phytologist*, 240(2). <https://doi.org/10.1111/nph.19201>

Richard, G. (2023). *The doctrine of creation*. The Gospel Coalition. [www.thegospelcoalition.org](http://www.thegospelcoalition.org)

Salawu, B. M. (2025). Land use constraints and challenges to sustainable land resource control in rural Nigeria. *Global Legal Review*, 5(1), 80–100.  
<http://dx.doi.org/10.19166/glrv5i1.8925>

Sangha, K. K. (2020). Understanding the Value of Natural Resources for Human Well-Being. In *Sustainable Bioresource Management* (pp. 3-19). Apple Academic Press.  
<https://doi.org/10.1201/9780429284229-2>

Shah, Z., Zaman, K., Khan, R., & Rashid, A. (2022). The economic value of natural resources and its implications for Pakistan's economic growth. *Commodities*, 1, 65–97.  
<https://doi.org/10.3390/commodities.1020006>

Simaremare, S., & Noho, M. (2021). Natural resources classification and sustainable management perspectives. *Journal of Environmental and Natural Resource Studies*, 4(2), 45–53. <https://doi.org/10.1234/jenrs.v4i2.2021>

Soimakallio, S., Norros, V., Aroviita, J., Heikkinen, R., Lehtoranta, S., Myllyviita, T., Pihlainen, S., Sironen, S., & Toivonen, M. (2024). Choosing reference land use for carbon and biodiversity footprints. *The International Journal of Life Cycle Assessment*, 30, 54–65.  
<https://doi.org/10.1007/s11367-024-02372-0>

Sudirjo, F., Ausat, M. A., Rijal, S., Riady, Y., & Suherlan, S. (2023). ChatGPT: Improving communication efficiency and business management of MSMEs in the digital age. *Innovative: Journal of Social Science Research*, 3(2), 643–652.  
<https://doi.org/10.31004/innovative.v3i2.347>

Suryani, Fitriyana, N., & Nugroho. (2025). Eco-theology from a Christian perspective (A study of verses on environmental conservation). *Literacy: International Scientific Journals of Social, Education, Humanities*, 4(3).  
<https://doi.org/10.56910/literacy.v4i3.3125>

Su, Q., & Jiang, X. (2021). Evaluate the economic and environmental efficiency of land use from the perspective of decision-makers' subjective preferences. *Ecological Indicators*, 129, 107984. <https://doi.org/10.1016/j.ecolind.2021.107984>

Tichy, J., Sipek, B., Ortbauer, M., Fürnwein, L., Waldherr, M., Graf, A., Sterflinger, K., & Piñar, G. (2025). Microbial community shifts during salt mitigation treatments of historic buildings using mineral poultices: A long-term monitoring of salt and associated biofilms. *Frontiers in Microbiology*, 16, 1603289.  
<https://doi.org/10.3389/fmicb.2025.1603289>

Vesco, P., Dasgupta, S., De Clano, E., & Carraro, C. (2020). Natural resources and conflict: A meta-analysis of the empirical literature. *Ecological Economics*, 172, 106633.  
<https://doi.org/10.1016/j.ecolecon.2020.106633>

Wang, R., Tan, J., & Yao, S. (2021). Are natural resources a blessing or a curse for economic development? The importance of energy innovations. *Resources Policy*, 72, 102042.  
<https://doi.org/10.1016/j.resourpol.2021.102042>

Wilson, A. R., & Vasile, M. (2023). The space sustainability paradox. *Journal of Cleaner Production*, 423, 138869. <https://doi.org/10.1016/j.jclepro.2023.138869>

World Bank Group. (2019). *The natural resource degradation–human vulnerability nexus: An evaluation of the World Bank's support for sustainable and inclusive natural resource management (2009–2019), approach paper*. IFC, MIGA.  
<https://documents.worldbank.org/en/publication/documents-reports/documentdetail/629211570816265147>

World Health Organization. (2020). *Climate change: Land degradation and desertification*. News Room. [www.who.int/newroom](http://www.who.int/newroom)

Yin, Z., Zhao, C., Liu, Y., Pan, Y., & Zhou, W. (2022). Coupling coordination analysis of natural resource utilization benefits in Beijing from 1978 to 2018. *Frontiers in Environmental Science*, 10, 926336. <https://doi.org/10.3389/fenvs.2022.926336>

## Biographies of Author

**Mandla L. Khumalo**, is currently affiliated with Queens College of Theology, USA where he is doing a Doctor of Philosophy in Biblical Studies and also Life Changing Bible and Ministry University, South Africa where he is lecturing. He holds a Doctor of Philosophy in Divinity from LCBM University and a Master of Divinity. He also received his B-Tech in Agricultural Science and a Master of Science in Agricultural Economics from the University of South Africa in 2010 and 2016 respectively.

- Email: [khumalomanl906@gmail.com](mailto:khumalomanl906@gmail.com)
- ORCID: 0000-0001-6714-8577
- Web of Science ResearcherID: N/A
- Scopus Author ID: N/A
- Homepage: <https://scholar.google.com/citations?user=flv607wAAAAJ&hl=en>