**Introduction:**

Natural Resource Management (NRM) alludes to the feasible use of significant normal assets, for example, land, water, air, minerals, woodlands and wild greenery. Together, these assets give the environment benefit that give better quality to human life. Characteristic asset the executives, manages to deal with the manner by which individuals and common scenes interface. It unites land use arranging, whether the executives, bio-decent variety protection, and the future

manageability of enterprises like horticulture, mining, the travel industry and ranger services . We need to manage our natural resources because of these reasons: The resources of the earth are limited. As the human population is increasing rapidly, the demand for resources increases day by day.

Thus, proper management of these resources can ensure that they last for the generations to come Normal assets, both renewable and non-renewable, and environment

administrations are an aspect of the genuine abundance of countries. They are the characteristic capital out of which different types of capital are made. They contribute towards income, salary, and neediness decrease Humans depend on natural resources for sources of energy and raw materials to make products. Food is another natural resource that can be consumed in its natural state or processed into some other product (think wheat into our into bread). Resources can be put into categories as renewable and non renewable.

A resource is any natural or artificial substance or energy which can be used for the benefits of mankind. Natural resources are those which exist in the environment naturally, that is, they are not created by humans. They are soil, water, sunlight, the wind, plants, coal etc Natural resources are classified further into exhaustible and inexhaustible resources. Exhaustible resources are those which are limited and will be exhausted with continuous usage, for example, coal, natural gas etc. whereas inexhaustible resources are those which cannot be depleted by human consumption, for example, wind power and water power etc Need for Conservation of Natural Resources.

**Need for Conservation of Natural Resources:**

As the population of the world is increasing at an alarming rate, the consumption of natural resources is also increasing. Hence, these resources should be conserved to maintain ecological balance and save them for future generations. The proper management of a resource to prevent its destruction or exploitation is called conservation.

* To support life by supporting ecological balance
* To ensure that the future generations will be able to access the resources
* To preserve the biodiversity
* To make sure human race survive

**NATURAL RESOURCES:**

Natural resources are naturally occurring resources found either below above on the surface of  
the earth. water in the air or anywhere around the environment. They are materials or  
substances occurring in nature which can be exploited for economic gain. Natural resources  
include raw materials such as fuels, minerals and metals, soil, water, air, sunlight land biomass  
and ecosystems. Natural resources also include living(biotic) and nonliving things(abiotic). It  
also includes vegetation, human beings, animals and birds with other microorganisms.

**NATURAL RESOURCES MANAGEMENT:**

Natural resource management deals with managing the way in which people and natural  
landscapes interact. Natural resources management also focuses on how management affects the quality of life for both present and future generations. It brings together land use planning, water management, biodiversity conservation and the future sustainability of industries like  
Agriculture, Mining, Tourism, Fisheries and Forestry. It recognizes that people and their  
livelihoods rely on the health and productivity of the landscape.

**IMPORTANCE OF NATURAL RESOURCES:**

Natural resources are very important for the development of any country. All the living things  
are dependent on natural resources directly or indirectly. Without the natural resources, living  
things cannot survive. There are different types of natural resources from which living things are  
getting benefit from such as timber and wood from the forest resources, irrigation and  
drinking water, from water resources and, minerals for industrial development.

Other resources  
like solar energy, wind energy, tidal energy play a very important role in our daily life. Fossil  
fuels such as natural gas, coal, petroleum are sources which are used in daily life. Nature  
also helps to maintain environmental balance and biodiversity. A lot of resources for the  
production of medicine are derived from natural resources such as plants, herbs and shrubs.

**Origin of Natural Resources:**

On the basis of origin, natural resources can be divided into two basic types:

Biotic –Biotic resources are obtained from the biosphere (living and organic material), such as  
forests, animals and the materials that can be obtained from them. The rainforest is an example  
of undisturbed natural resource.

The nutrient cycle between organism form food chains and biodiversity of species Waterfalls provide spring water for humans, animals and plants for survival and also habitat for marine organisms. The water current can be used to generate electricity and turbines for hydroelectric generation. Fossil fuels such as coal and petroleum are also included in this category, because they are formed from decayed organic matter.

Abiotic resources are those that come from non-living, non-organic material. Examples of abiotic resources include land, freshwater, air, rare earth metals and heavy metals including ores such as gold, Iron, Copper and Silver.

**Types of Natural Resources:**

o Potential resources- These are those resources that may be used in the future for

example, petroleum in sedimentary rocks that until drilled out and put to use remains a  
potential resource.  
o Actual resources- These are resources that have been surveyed, quantified and are  
currently used for development purposes such as wood processing, which depends on  
technology and cost.  
o Reserve resources- This include part of an actual resource that can be developed  
profitably in the future.  
o Stock resources- These are resources that have been surveyed, but cannot be used due to lack of knowledge or technology on how to use them. For example, hydrogen and oxygen have adequate potentials for use in energy generation, but technology is yet to evolve the methods for using them at full capacity . Natural resources can be broadly categorized as either renewable or non-renewable.  
o Renewable resources can be replenished naturally Meaning, they have the capacity for recovery after use. Some of these resources are sunlight, air, wind , oxygen,  
wildlife and water which are continuously available and their quantities are not noticeably affected by human consumption.

The use of these resources for energy  
generation food production and meeting all kinds of societal demands is encouraged  
because of their renewability.

However though many renewable resources do not have  
such a rapid recovery rate, these resources are susceptible to depletion by overuse Resources from a human use perspective are classified as renewable as long as the rate of replacement/ recovery exceeds that of the rate of consumption.

They replenish easily compared to Non-renewable resources . Non renewable resources are resources that are finite(exhaustible) .Meaning they are resources that cannot be renewed or recovered after use .It takes geological years for these kinds of resources to be regained after use. Non renewable resources either form slowly or do not naturally form in the environment.

Minerals are the most common resource included in this category. Resources are non-renewable when their rate of consumption exceeds the rate of replenishment or recovery . A good example of this are fossil fuels because their rate of formation is extremely.

Some elements deplete in amount without human interference and these are mostly radioactive elements such as Uranium, which naturally decay into heavy metals; of these, the metallic minerals can be recycled by recycling them, but coal and petroleum cannot be recycle .This is because one they are completely used, they take millions of years to replenish .In terms of availability, natural resources can be either inexhaustible.

Exhaustive natural resources are limited in supply and can be exhausted or diminished by human activities overtime. Examples of these exhaustive natural resources include coal, natural gas petroleum.  
Inexhaustive natural resources are those resources which are present in unlimited quantity and cannot be completely used up by human activities. Examples are water, air, sunlight.(Merge the discussion of inexhaustible with renewable and non-renewable resources).This is to avoid repetition .Water Resources are also natural resources that are potentially useful.

All living things whether plants or animals require water because water resources are potentially useful .Exhausted. Examples: air, water,sunlight . All living things require water to grow, reproduce and nurture. About 97% of the water on the Earth is salt-water and only three percent is fresh water, slightly over two- thirds of this frozen in glaciers and polar ice caps.

**Sunlight as a Natural Resource:**

Sun is the star at the center of the solar system. It is a renewable resource, meaning it can be  
replaced once again and again. The sun provides heat, energy, light and vitamin D. Without the  
sun, the earth would be cold and a dark universe.

The sun which is our local star is the source of life on earth. the sun dies, so would the earth, hence sun is very important in our everyday life . Sun’s energy is also important for photosynthesis . Animals also need light to grow, move about and to locate their food. Sunlight can be converted into energy called solar energy.

**Components of Environmental Resources:**

On earth, environmental natural resources include sunlight, atmosphere, water, land, minerals  
vegetations, crops and animal life that naturally subsists upon or within the heretofore  
identified characteristics and substances. These components can be grouped broadly into two  
classes: ABIOTIC and BIOTIC Components.  
Abiotic components consist of the non-living component of the environment which includes  
biosphere, lithosphere and atmosphere while biotic components consist of

**Biosphere:**

The biosphere of the natural environment is a diverse ray of living organisms (life form) and  
having varieties of plant species and diverse species of animals. The biosphere is the global  
ecological system integrating all living beings and their relationships, including their interaction with the elements of the lithosphere, geosphere, hydrosphere and atmosphere.

The biosphere is postulated to have evolved, beginning with a process of biopoiesis (life created naturally from non living matter such as simple organic compound) or biogenesis (life created from living matter) at least some 3.5 billion years ago.

All known life forms share fundamental molecular mechanisms and based on these observations, theories or the origin of life attempt to find a mechanism explaining the formation of a primordial single cell organism from which all life originate.

**Lithosphere:**

Lithosphere is the rigid outer part of the earth, consisting of the crust and upper mantle. The  
lithosphere comprises a number of plates. Earth’s lithosphere is also the rigid Outermost shell of a terrestrial type, planet or natural satellite that is defined by its rigid mechanical properties. On earth, it is composed of the crust and the portion of the upper mantle.

It has been generated largely by igneous processes in which magma (molten rock) cooks and solidifies to form solid rock. Beneath the lithosphere lies the mantle which is heated by decay of radioactive events. The mantle, although solid in nature is in a state of convection.

This convection processes causes the lithospheric plates to move, though slowly .The resulting process is known as plate tectonics. Volcanoes result primarily from the melting of subducted crust material or of rising mantle at mid-ocean ridges and mantle plumes.

**Hydrosphere:**

The hydrosphere is the water body of the earth’s natural environment and has the following  
components/divisions.  
The Ocean is a major body of saline water. Approximately 71%, of the earth’s  
surface is covered by ocean, a continuous body of water that is customarily divided into  
several smaller seas. More than half of this area is over 3,000 meters deep. Average  
oceanic salinity is around 35 parts per thousand (ppt) and all sea water has salinity  
content.

The hydrosphere also consists of rivers and streams where a river is usually a  
freshwater natural course flowing toward an ocean, a lake, a sea or another river (Edit this  
sentence). A stream is a flowing body of water with a current confined within a bed and  
stream banks. Streams play an important role in connecting fragmented habitats and thus  
conserving biodiversity.

**Atmosphere:**

The atmosphere is the thin layer of gases that envelopes the earth and held in place  
by the force of gravity of the planet. The atmosphere retains heat during the night, thereby  
reducing daily temperature extremes.

The atmosphere of the earth protects life on earth by creating pressure allowing for liquid water to exist on the earth’s surface absorbing ultraviolet solar radiation warming the earth through heat retention (green house effect) and reducing temperature extremes between day and night (the diurnal temperature variation).

By volume, dry air contains 78.09% Nitrogen, 20.9% oxygen, 0.93% argon, 0.04% carbon(iv???)oxide and small amount of other gases . Air also contains a variable amount of water vapour on average around 1% at sea level and 0.4% over the entire atmosphere. Air composition, temperature and atmospheric pressure vary with altitude and air suitable for use in photosynthesis by terrestrial plants and breathing of terrestrial animals is found only in earth’s troposphere and in artificial atmosphere.

**Importance of Environmental Resources:**

Identify and itemize environmental resources and discuss their importance and if possible of  
each of them  
Sea grasses have been identified to be a key environmental resource because of their critical  
importance in providing habitat for large numbers of fish and shell fish species; their sensitivity  
to water quality degradation, their roles in nutrient cycling and improving the stability of bottom  
sediments.

Environmental resource is any material service or information from the environment  
that is valuable to societywhy this here when you have mentioned it in your definition?. Clean  
land, air and water are environmental resources. Natural resources are very important for the  
development of our country. All living things are dependent on natural resources directly or  
indirectly. Without the natural resources, living things cannot survive.  
There are different types of natural resources from which living things are getting benefits such  
as timber, wood from the forest resources, irrigation- water, drinking water from water resources, minerals for industry development. Other resources like solar energy, wind energy, tidal energy play a very important role in our daily life.

Fossil fuels such as natural gas, coal, petroleum are the resources which are used in daily life. Natural resources are also important so that environment will be in balance. If we continuously misuse or overuse the natural resources like water, fuel, minerals, soils, they can affect the environment and all living things. All the things we need in our daily life such as food, water, air, fuel, come from natural resources. Natural resources provide every daily needs to human like shelter, food, clothing . Land resources are important because human beings live there. Land resources support natural vegetation, wildlife, transport. Our basic needs like food, cloth, shelter are obtained from land.  
About 43% of the land is used for Agriculture. Our daily needs like grains, cereal, pulses are  
obtained from agriculture. From mineral resources, rocks are used to build houses, bridge and other structure.

A very important building material is concrete which is made from cement and cement is made from sedimentary rock known as limestone, glass and other ceramics are from rocks by treating them with heat. Rocks have been used as tools and weapons from very long time. Petroleum is used in many ways like it is used as fuel, for motorcars. Is also distilled into liquefied petroleum gas (LPG) which is commonly used for cooking food.

**FACTORS AFFECTING ENVIRONMENTAL/ NATURAL RESOURCES:**

The following factors affect environmental/ natural resources:  
• Greenhouse effect: is when sunlight rays are trapped within the atmosphere. Ultraviolet  
(UV) rays enter the atmosphere and bounce through the water and land then bounce back  
up to the atmosphere until it gets trapped, which creates heat Green house gases or CO2 emission are the most commonly known of all climate changing factors.

These are the chemicals that are spewed out into the atmosphere when fossil fuels like oil and gas are burnt. These chemicals are trapped in the atmosphere just like solar rays from the sun and get absorbed into all living life on earth which leads to diseases in humans and animals.  
On earth, there are several processes such as earthquakes, volcanoes and landslides,  
floods that affect the existence of living things. Volcanoes alone emit more CO2 into the  
environment than many human activities.  
Itemize the each of the other factors just as done for green house effect Other factors that  
affect environment/ natural resources are over-exploitation of resources, destruction of  
ecosystem, to air and water pollution problems. Deforestation , indiscriminate bush  
burning, land mass clearing for agriculture or for urban development and mining  
activities can also lead to soil erosion; flooding and water pollution.

Furthermore gaseous emission and discharge of effluents from manufacturing industries can cause serious pollution of air and water. Severe soil degradation in the form of soil erosion can  
reduce the fertility status of rich land thereby causing poor agricultural yield while water  
pollution can negatively affect fish production in the ecosystem.  
• Discharge of chemicals or using chemicals to kill fishes will change the color and  
chemical composition of the aquatic life thereby making it inhabitable for many aquatic  
organisms.

**STAGES OF NATURAL RESOURCE DEVELOMENT:**

Natural Resources management is concerned with the use and conservation of natural resources, the protection of habitats and the control of hazards. Its area of operation is applied ecology having interaction with biology, ecology, forest sciences, geology, zoology, botany, climatology and other disciplines.  
Resources can be viewed in terms of materials example land, raw materials, human  
wisdom and knowledge and attributes of labour. A resource is therefore employed to meet certain purposes or objectives. The essence of labour is because it is needed by somebody, the attribute of land is because it can be used for certain purposes and someone is willing to access it or take advantages of its identity, topography accessibility and aesthetic values.  
The values attached to natural resources depend on their usage; for example the context of agricultural land, in land water fisheries, mineral resources are influenced by social, economic and cultural and technological backgrounds.  
Natural resources can be biological resources and mineral or non biological resources.  
The biological resources include fishes, wildlife, livestock, forests and those are called  
renewable because they are apable of regrowth or regeneration.  
Mineral resources for example; copper, tin, gold, petroleum are non-renewable resources because they cannot regrow or are not capable of regeneration except after long geological periods.  
Both types of resources are exhaustible though biological resources are capable of replacing themselves as steady flow of them is utilized. Mineral resources are fixed which can diminish over time.  
Renewable Natural Resources under these stages:

* Renewable natural resources undergo regeneration which means they have the  
  abilities to regrow, regenerate, hence can be inexhaustible. They have the ability of self-regenerating and have perpetual production potentials and this does not affect the consumption of any other resource. Biotic/ biological are liable to be destructible, due to misuse and over exploitation leading to extinction or depletion.
* Renewable resources also exhibit multiplicity of species interaction and dependence. The  
  diversity and complex natures of species are key attributes of biological resources. They make  
  their management difficult due to variations in the quality and uses of different species.
* Grow rate: They also exhibit naturally determined growth rate. The rate of growth of biological resources is naturally determined by pre-determined biological processes. Due to growth is naturally determined; time is a major factor on the management of biological resources for this requires a minimum waiting period for the production of any desired product, with the implication for cost and return.

**SUSTENANCE OF NATURAL RESOURCES:**

The essence of the sustenance of natural resources includes:  
• Reduction of dependence upon synthetic chemicals and other unnatural substances.  
• Reduction of dependence upon fossil fuels, underground metals and minerals.  
• Reduced encroachment upon natural resources.  
• Meet human needs fairly and efficiently .Sustenance of natural resources can be enhanced also through:  
• Reduction and clean up of pollution  
• Conversion of non- recyclable minerals into energy through direct combustion or after  
conversion into secondary fuels.  
• Reduction of societal consumption of non- renewable fuels.  
• Development of alternative, green, low carbon or renewable energy sources.  
• Conservation and sustainable use of scarce resources such as water, land and air.  
• protection of representative or unique ecosystems; preservation of endangered species  
extinction.  
• Establishment of nature and biosphere resumes under various types of protection and the protection of biodiversity and ecosystem upon which all human and other life on earth  
depends.

**FACTORS AFFECTING NATURAL RESOURCES DEVELOPMENT:**

Natural resources are of crucial importance for social and economic life. In this aspect, the diversity of nature not only offers man a vast power of choice for his needs and desires, it also enhances the role of nature as a source of solutions for future needs and challenges of main kind .These days, due to human pressure on natural resources and development, is greater than before in terms of magnitude and efficiency in disrupting natural and natural resources(Recast the  
sentence).

Thee factors that affect natural resources development include:

• Intensive agriculture which is replacing traditional farming. This, in combination with the subsidies of individual farming has had enormous effect on landscapes and continues to be threats to natural resources.  
• Extensive tourism also affects coasts and mountains. The policies pursued in the transport industry, transport and energy sectors have a direct and damaging impact on the costs , major rivers (dam construction and associated canal building) and road networks.  
• The strong focus of forestry management on economic targets primarily causes the  
decline in biodiversity, soil erosion and other degraded effects.  
Furthermore, natural resources are also affected by:  
• Human intervention, such as construction of buildings, motorways or railways which  
result in the fragmentation of habitats which strongly limits the possibility for contact or  
migration among them. In extreme cases, even the smallest, narrowest connections  
between habitats are broken off. Such isolation is catastrophic for life in the habitat  
fragments.  
• Loss of species of fauna and flora:

The biodiversity is affected by different species numbers and the loss of habitats in many regions. Approximately 30% of the vertebrates and 20% of heterplants are threatened .Threats are linked to loss of habitats due to destruction, modification and fragmentation of ecosystem as well as hunting and general disturbance.  
• Reduction and fragmentation of habitats and landscapes in expansion of human activities into the natural environment, manifested by urbanization, recreation, industrialization and agriculture .This results in increasing uniformity in landscapes and consequential reduction disappearance, fragmentation or isolation of habitats and landscapes. The consequences are decreased species diversity, due to reduced habitable surface area which corresponds to a reduced species carrying capacity.  
• The reduction of the habitats also affects the genetic diversity of the species living there. Smaller habitats can only accommodate smaller populations as a result; there is an impoverished gene pool. The reduction of genetic resources of a species diminishes its flexibility and evolutionary adaptability to changing situations. This has negative impacts on its survival.