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THE CRISIS OF CONSUMPTION OF NATURAL RESOURCES

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Abstract: The growth of population in many parts of the world is putting pressure on the limited natural resources in the whole planet. The growing population and the automation of transport is putting pressure on available petroleum reserves. Drinking water is becoming difficult to obtain naturally, though there is in reality no scarcity, but the availability for public consumption is very much restricted due to over exploitation of natural water sources for aerated and other drinks, consumption of which is ever increasing. With deforestation and cutting of trees in the forest, the availability of wood is becoming scarce and costly. With unplanned deforestation and supplementary planting of trees not happening there seems to be a serious impact on weather. Water table in many areas are going down by several meters and along with sand mining and exploitation by sand contractors in river beds and other business intermediaries, the scenario for potable water is bleak. Rain water flows in rivers are not getting conserved in local areas due to sand mining and hydraulic check dams and the water when available flows into the sea without getting captured in the soil. The purpose of this research paper is to focus attention of the planners and architects of future for action today to save the planet.

Keywords: Population increases putting pressure on natural resources, deforestation, sand mining, wastage of potable water, need for focusing on conservation

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Introduction

Globally, natural resources are becoming more strained each year as more people lay claim for the consumption and demand a higher standard of living. As countries search for more resources to exploit, an enormous toll is being taken on the planetary resources. Water resources are available in the form of rivers, lakes and aquifers which get replenished by rain. Because of overexploitation the water availability has almost polluted 80% of the aquifers and dams and check dams though originally created for irrigation has made the rivers run dry and rain water runs off to sea because of over exploitation through sand mining in river beds for construction purposes.



Figure 1. Young girl collecting water at an internally displaced persons camp in Wau, South Sudan. UN Photo/ Nektarios Markogiannis

Fossil fuels are also exploited and contribute to pollution; burning fossil fuels warms the planet and acidifies the oceans by releasing carbon and other greenhouse gas emissions into the environment. In spite of contributions to air pollution and oil spills on sea water etc. the exploitation of fossil fuel will continue, till alternate sources are identified. In Indonesia and Malaysia-the top two palm oil producing countries-palm oil cultivation is largely unregulated and is depleting tropical forests, which are important carbon sinks and habitats for endangered species. Due to deforestation the forest fires have become more frequent and more damaging.



Figure 2. Stack of cut lumber. Madagascar. Photo: Yosef Hadar / World Bank

Trees provide many essential roles-creating and regulating ecosystems, providing food, filtering water, absorbing carbon, protecting people from droughts and extreme weather, mitigating floods, and many more. Yet trees are destroyed around the world. In the last century, more than half of the world's rainforests have been cut down. Roughly 48 football fields worth of trees are lost each minute. And it's estimated that up to 15% of global greenhouse gas emissions comes from chopping down or otherwise destroying trees. Deforestation is driven by industries ranging from agriculture and livestock to real estate development and palm oil production. There are other destructions like top soil degradation by usage of artificial manmade chemical fertilizers. The latest development is the destruction due to deep sea water exploration for minerals and metals.

The topic of discussion through this research paper is whether the greed of man for exploiting natural resources will make life on this planet unsustainable.

Objectives and Methodology

Depleting natural resources are real and is causing concern all over the world, since the availability and conservation of what is available is not getting the attention that it deserves. As seen in the introduction, it is reducing at alarming rates, with no signs of even intentions by inhabitants of the planet being aware of the impending danger and the need to avoid a catastrophe. Water, Fossil fuels, Forest reserves, sand and land for cultivation are all dwindling at a faster rate than consumption. With this in view, the present research paper has been prepared. Following are the more specific Objectives selected for the purpose of the current research paper. Such Objectives are as given below:

1. An environmental review of facts leading to current situation
2. Review of concerns on a few specific resources that are critical for survival.
3. Review of some of the important causes leading to present situation
4. What remedial measures are being taken up by humans
5. Suggestions and Recommendation

There can be no two opinions about the serious nature of the concerns expressed through this research paper. A Questionnaire methodology and responses thereof was considered initially, but given up because of the qualitative nature of the concerns of which many inhabitants are blissfully unaware of. As part of the research paper a search was made for appropriate literature on the subject in published literature in print through publications and Scientific Journals. I am glad to say, that the search was rewarded by the availability of abundant literature and want to acknowledge the contribution of researchers and scientists who through their voice have expressed deep concerns on the above. The work of the author was reduced to collating and classifying the available information to facilitate data analysis. This has been done and the Findings and conclusions are given at the end of this paper. The author would request other researchers interested in the above subject to critically review the developments in the field and update the awareness of people and express the serious concerns. This seems to be the only way that the knowledge of what is happening can be communicated to a wider cross section of the people so that they in turn wake up those still in deep slumber!

Review of Literature

Natural resources refer to the things that exist freely in nature for human use and do not necessarily require the action of mankind for their generation or production. The key aspect of natural resources is that they determine the survival of humans and other life forms on earth. These resources include land, rocks, forests (vegetation), water (ocean, lakes, streams, seas, and rivers), fossil fuel, animals (fish, wild life, and domesticated animals), minerals, sunlight and air. Some examples of natural resources are: air which provides wind energy, Coal which act as an input for electricity, forests which provide paper, wood and various medicines, Water which is used for drinking and production of hydroelectric energy, sunlight that is used for drying clothes, photosynthesis and solar energy. They are known as Natural Resources because they provide for the basis of life on earth. It is from the natural resources that humans obtain and produce the components

and materials found within our environments. Every artificial product is made from the natural resources. The materials may be used as they occur naturally or may be transformed in other forms. However, most natural resources are prone to depletion and degradation which has brought about worldwide concerns for their sustainable usage and management.

The world is heading for an "ecological credit crunch" far worse than the current financial or economic crises because humans are over-using the natural resources of the planet, an international study warns. The Living Planet report calculates that humans are using 30% more resources than the Earth can replenish each year, which is leading to deforestation, degraded soils, polluted air and water, and dramatic declines in numbers of fish and other species. The problem is also getting worse as populations and consumption keep growing faster than technology can find new ways of expanding what can be produced from the natural world.

This is what exactly has been fore warned by our ancestral Rishis and learned Gurus in India thousands of years ago through Upanishads. One of the most quoted and rightfully acclaimed by many scholars is '*Isavaśya Upanishad*', which opens with the saying:

Īśāvāsyam idaṃ sarvaṃ yat kiñca jagatyāṃ jagat |
tena tyaktena bhūñjīthā mā ḡṛdhaḥ kasya sviddhanam ||

"All that is here (this universe and whatever is inside) belongs to the creator (Lord/Master or Iswara), Whatever is the portion allotted to you, consume that only, ever remembering that you do not have any ownership but only a permission the of the Lord to consume what you need. Do not aspire for any other person's wealth or possession." If only mankind had listened to these words of wisdom, the world would have been a better place to live and probably would not have faced the resource crunch as we see today.

Wikipedia defines Natural Resources as, *"Natural resources are resources that exist without the actions of humankind. This includes all valued characteristics such as magnetic, gravitational, and electrical properties and forces. On earth we include sunlight, atmosphere, water, land, air (includes all minerals) along with all vegetation and animal life that naturally subsists upon or within the heretofore identified characteristics and substances."*

Renewable and Non-Renewable Natural Resources

a. Renewable natural resources

Renewable resources are the ones that are consistently available regardless of their use. They can be fairly recovered or replaced after utilization. Examples include vegetation, water, and air. Animals can also be categorized as renewable resources because they can be reared and bred to reproduce offspring to substitute the older animals. As much as these resources are renewable, it may take tens to hundreds of years to replace them. The renewable raw materials that come from living things namely animals and trees are termed as organic renewable resources while those that come from non-living things such as sun, water and wind are termed as inorganic renewable resources.

b. Non-renewable natural resources

Non-renewable resources are the ones that cannot simply be substituted or recovered once they have been utilized or destroyed. Examples of such natural resources include fossil fuels and minerals. Minerals are categorized as non-renewable because, even though

they take shape naturally through the rock cycle, their formation periods take thousands of years. Some animals mostly the endangered species are similarly regarded as non-renewable because they are at the verge of extinction. It brings about the many reasons the endangered species have to be protected by all means. The non-renewable materials that come from living things such as fossil fuels are known as organic non-renewable resources while those that come from non-living things such as rocks and soil are referred to as inorganic non-renewable resources.

The Biotic natural resources are the ones that come from the ecosphere (organic and living materials). These include resources such as animals, forests (vegetation), and other materials obtainable from them. Fossil fuels such as petroleum, oil, and coal are also included in this grouping because they are generated from decayed organic matter. The abiotic natural resources are the ones that come from non-organic and non-living materials. Examples of abiotic natural resources are water, land, air and heavy metals like iron, copper, silver, gold, and so on. Stock natural resources are those that are present in the environment but the necessary expertise or technology to have them exploited. Hydrogen is an example of a stock natural resource.



Figure 3. Sunlight- a most natural resource

Threats to Natural Resources

As the human population keeps on growing, there is a lot of pressure on the utilization of almost all natural resources. This often causes over-exploitation of the natural resources. To worsen matters, exhaustible natural resources such as arable land, coral reefs, fresh water, fossil fuels, and a variety of vegetation in forests drop sharply due to over-exploitation to cater to the ever increasing needs of population. This creates competitive demands on the vital life-sustaining resources and contributes to an incredible decline in the quality of life. Over population, depletes the available natural resources like food, timber, fish, clothes, leather, natural water, gas and so on.

Intensive agriculture, road building and construction activities have made a toll of forest reserves. Run off of agricultural wastage, fertilizers and pesticides corrupt and decay fresh water environments and sources of fresh water. Over population has led to climate change generation of greenhouse gases, and several atmospheric threats to biodiversity and ultimately favorable surviving condition for human life. Majority of natural resources have been destroyed due to toxic emission, pesticides, and the pollution of the natural air has affected human and animal lives. Aquatic life has been threatened by pollutants in the form of factory discharges without treatment. Land use patterns like industrial construction, road and rail building, have affected natural parks and air spaces. 20th century life styles of humans have taken toll of several natural resources and made

several resources scarce and unaffordable. Six of the world's resources that are being overexploited in ways which are dangerous to both the planet and humanity.

Sand: is used to form beaches and places for recreation. It's used to make windowpanes, cell phone screens, and sunglasses. Concrete and asphalt both come from sand. And the industrial uses of sand-to fill holes, make molds, and create traction-are seemingly endless. It's the second-most exploited resource after water, and the world is running out of it. Facing a shortage of sand, many countries-from the US to the United Arab Emirates are dredging ocean bottoms for sand, nearly destroying aquatic ecosystems in the process. As The New Yorker reports, "Seafloor dredging creates the undersea equivalent of choking sandstorms, killing organisms, destroying coral reefs and other habitats, and altering patterns of water circulation."

Water: Lakes, aquifers, and underground sources of water are generally replenished through rain and the gradual filtering of water through natural ecosystems. All around the world, however, water sources are being overexploited and polluted, forcing people to dig and search for new sources of water, import water from elsewhere, or buy bottled water. More than half of the world's major aquifers are receding. In China, more than 80% of the country's rural water wells are polluted. Mexico City is literally sinking because it's located on top of aquifers that are being sucked dry to feed demand. Throughout the Middle East, severe droughts in recent years have created extreme water stress. Globally, one in 10 people do not have access to clean water and it's expected that more than half of the world's population will be living in areas of with highly stressed water sources.

Fossil fuels: Since the start of 2015, the world has harvested more than 99 billion barrels of oil, nearly 25 billion tons of coal, and more than 10.6 trillion cubic meters of natural gas, according to an interactive graphic by The Guardian. Fossil fuels supply the vast majority of the world's energy demands and will continue to do so for the foreseeable future. Burning fossil fuels also leads to air pollution, which kills an estimated 6.5 million people each year. Extracting oil can cause devastating spills in marine environments; extracting coal can destroy forests and other landscapes; and extracting natural gas can pollute waterways and cause earthquakes



**Figure 4. Woman herds donkeys to collect water in Tanzania.
Photo: Flickr/ USAID**

Palm oil: Because it's so cheap and versatile, palm oil is the most common vegetable oil in the world, used in everyday products like bread, chocolate, soap, lipstick, and

margarine. But it's also causing enormous ecological harm in the countries where it's harvested. Indonesia's forests are more carbon-rich than the Amazon rainforest, yet palm oil companies are rapidly eliminating them, according to the Union of Concerned Scientists. This includes draining and burning peat lands, which can hold up to 28 times as much carbon as forests.

Trees: In 2012, the US lost 804,000 hectares of forest, or 3,250 square miles, primarily through palm oil and other industries. This is threatening already endangered species such as orangutans and elephants. Forest fires, meanwhile, are becoming more severe in the country because of decapitated forests that in the past provided natural buffers through their thick and water-rich roots. In five months of 2015, forest fires in the country emitted more greenhouse gases than either Japan or Germany do in an entire year.

Soil: It can take more than a millennium to produce 1 centimeter of soil, yet humanity has degraded roughly a third of all the world's soil, according to the UN, and half of all topsoil has been lost in the past 150 years. The primary drivers of this loss include industrial pollution, erosion, bad agricultural practices, real estate development, salt-water contamination, and others. For example, farming a single crop (monoculture farming) on a piece of land with the help of pesticides-the primary mode of farming in the world-has caused widespread soil degradation throughout the world. Since 95% of the food that humans eat comes from soil, the continued degradation of soil poses an existential risk.



**Figure 5. Bamboo trees- victims of human over consumption
Deep sea mining**

Global Citizen Campaigns on the Global Goals, call for the sustainable use of natural resources. Buildings, infrastructure, mobile phones, batteries, and electric cars contain valuable metals such as copper, zinc, silver, and gold. With the seemingly insatiable demand for products enabled by these materials, new sources are needed, particularly as land-based reserves become scarce or are located in places that are too difficult, dangerous, or costly to access. Hydrothermal vent structures at the Mariner site in the South Pacific are deep-sea locations where minerals are often found. The presence of iron in sulfide structures tints these chimneys red. These metals exist, however, in mineral

deposits on rocky submarine mountains, on abyssal plains, at mid-oceanic ridges, and around underwater hydrothermal vents. For example, it has been suggested that nodules of manganese found in places such as the Clarion-Clipperton zone, an extensive area on the Pacific Ocean floor, could satisfy current demand for decades.



Figure 6. WHOI/National Deep Submergence Facility, CC BY-NC-SA 3.0 US

American Association for the Advancement of Science annual meeting that posed the question, “Should we mine the seafloor?” As scientists, they wanted to approach the question with objective, scientific evidence. The question is not without controversy. Although some people see the oceans as the last untapped resource on Earth, others see them as a precious natural asset to be protected. The scientists note that exploitation of the shallow seafloor already takes place, with the dredging of sand and gravel and extraction of tin, gold, and diamonds from shallow reserves. Technology also enables the oil and gas industry to operate on sea beds up to 3 kilometers below the surface.

The main thrust of discussion explores whether deep seafloor mining is economically feasible, technologically possible, environmentally appropriate, ecologically sustainable, and legally manageable. Because little is known about the quantity and quality of resources in existence, the resources may not even be worth exploiting. No one yet knows whether extraction from the ocean could be competitive with land-based mining. Technological uncertainties also abound. Although technologies to map and mine these resources have developed significantly, much further testing remains. And perhaps most important, not enough is known about the ecological implications of deep seafloor mining. Deep-sea environments aren’t well studied, and even less is known about the vulnerability or resilience of marine ecosystems to such interference.

However, with a lack of accurate scientific information and so many economic, technological, and environmental uncertainties, is it even possible to create effective environmental regulations? To this end, the researchers suggest that when exploration and testing contracts are granted, those executing the contracts not only survey potential resources and try new technologies but also use the opportunity to study ecosystem responses and provide valuable data to researchers. They also call for a trans-disciplinary approach, drawing on the expertise of researchers from across different fields in the physical and social sciences to inform such international agreements.

Data Analysis and Conclusion

Environmental degradation has been happening for a long time now ever since the society became avaricious consumers. Review of literature clearly brings out the critical earth situation due to faster depletion of natural resources. Many causes and reasons may be traced to the current state of affairs, which needs no repetition here. Renewable and non-renewable natural resources need a special mention here. Nonrenewable resources like petroleum resources are well understood. But the problem is complicated because it is the so called renewable resources which do not get renewed for example water resources.

Fast pace of industrialization and expanding human habitats in the form of new buildings and roads have put pressure on the available natural resources. While mindless exploitation of resources is taking place on the one hand, there is much less attention paid to the replenishment of spent resources. Specific concerns have been raised on some of the most common but vastly over exploited resources like land, air, water, flora and fauna in the form of forests and underground resources like petroleum, minerals and metals. The consequences of some of these actions are already seen like wide spread shortage of drinking water all over the world. Additionally, the aquifers are also not getting recharged due to mindless exploitation of water resources. Water table in many parts of the human habitats has been going down systematically. This is aggravated by greedy companies who sell potable water after exploiting the sources which naturally provide safe drinking water to the population.

Due to the over consumption of certain metals used for the manmade devices like mobile telephones and computers and chips, there is a quest for alternate materials and sources. Deep sea water exploration and drilling for new and scarce materials have also consequences not very favorable for human existence. First of all, it is not clear as to how much it is going to cost and secondly whether it will be worth the efforts. One of the urgent needs and a very critical cause of such decay is the lack of awareness among the people who consume resources beyond their requirement. This is akin to Obesity and over eating!

Sand mining and extraction of palm oils and degradation of forests need a special mention. These are happening all over the world mainly due to greed for wealth and prosperity on the one hand and lack of awareness of the consequences. Both can be tackled if there is political will among nations to cooperate and make this planet a better place to live. Globalization as a concept has been accepted by many developing countries without a level playing ground for many developing and under developed countries. The present need for global consensus is to sustain human existence in the planet.

The author would like to suggest more discussion in all the world forums and a consensus approach with the welfare of all.

Suggestions and Recommendation

The most obvious solution to the issue of overconsumption is to simply slow the rate at which materials are becoming depleted. Less consumption naturally has negative effects on economies - so instead, countries must look to curb consumption rates while allowing for new industries, such as renewable energy and recycling technologies, to flourish and deflect some of the economic burden. A fundamental shift in the global economy may be necessary in order to account for the current change that is taking place or that will need to take place. Movements and lifestyle choices related to stopping overconsumption include: anti-consumerism, green economics, frugality, downshifting, simple living,

minimalism, and thrifting. Recent grassroots movements have been coming up with creative ways to decrease the amount of goods we consume. The Free cycle Network is a network of people in one's community that are willing to trade goods for other goods or services. It is a new take on thrifting while still being beneficial to both parties. Other researchers and movements such as the Zeitgeist Movement suggest a new socioeconomic model which, through a structural increase of efficiency, collaboration and locality in production as well as effective sharing, increased modularity, sustainability and optimal design of products, are expected to reduce resource-consumption.

Natural resources are never the sole source of conflict, and they do not make conflict inevitable. But the presence of abundant primary commodities, especially in low-income countries, accelerates the risks of conflict and, if conflict does break out, tends to prolong it and makes it harder to resolve. When a conflict erupts, it not only sweeps away decades of painstaking development efforts but also creates costs and consequences-economic, social, political and regional-that lives on for decades. The outbreak of violent domestic conflict amounts to a spectacular failure of development-in essence, development in reverse. Even where countries initially manage to avoid violent conflict, large rents from natural resources can weaken state structures and make governments less accountable, often leading to the emergence of secessionist rebellions and all-out civil war.

Once again we need to revisit the opening statement of Isavasya Upanishad and appreciate the truth of the ancient teaching and live up to the words of wisdom. Among the many frustrations in development, perhaps none looms larger than the "resource curse." The worst development outcomes--measured in poverty, inequality, and deprivation--are often found in those countries with the greatest natural resource endowments. Rather than contributing to freedom, broadly shared growth, and social peace, rich deposits of oil and minerals have often brought tyranny, misery, and insecurity to these nations. That is why the real and lasting solution remains with the attitudes towards consumption of rare resources and sharing them.

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