

## **Conservation of Exhaustible Resources for the Welfare of Future Generations**

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### **Abstract**

*The purpose of this study is to highlight the gravity of depletion of exhaustible resources; especially in the Arab region and North Africa; and its impact on future generations and depriving them of a decent life. It also draws the attention of individuals, specialists and decision-makers to rational consumption and conservation of these resources. Many countries in the world enjoy various resources such as water, fossil fuels, minerals and other natural resources. These resources may deplete or they may become of low benefit with the incredible advances happening in the world. The reliance on these resources alone and ignoring their conservation are a great threats to future generations.*

**Key Words:** exhaustible resources, energy, fossil fuels, depletion, conservation, future generations

### **1. Introduction**

The vast sprawling universe; which range from desert environment, semi-desert, rich savannah, cold and glacial regions; wherein rivers run, oceans surround, seas intersperse and orbs spin around; is full of diversity of resources that differ quantitatively and qualitatively; is a gift from the almighty God. Some of these resources are discovered and exploited, some unexploited and others yet to be discovered. The human being took the advantage of the scientific and technical developments, invented and developed new means that helped him to exploit these resources to meet the human renewable, disparate and infinite needs. To live and enjoy the human needs to understand and know the past, present, and extrapolate the future. He learns lessons from the others' past, and guided by today's knowledge he will understand what the future holds from pleasant to distressing surprises. The human needs the work that needs science, knowledge, comprehension, application, practice and training to achieve the goals and purposes of today and future. Human resources are the most important elements of life and production as a whole.

The human uses and conserves the available resources in his environment and can develop new resources. Too many resources that differ quantitatively and qualitatively are available. These resources can be classified into renewable, exhaustible and innovative resources. Renewable resources are inexhaustible and the man controls their quality and quantity, examples include agricultural, animal products, renewable energies and industrial products. Exhaustible resources are those resources found in nature in limited quantities and are not more than crude that increases slightly over millions of years. The traditional examples of exhaustible resources are gold, diamond, platinum, silver, uranium, fossil fuels and other minerals. The underground water can be classified as an exhaustible resource in desert areas where neither rivers run nor rain falls. These exhaustible resources decrease and fade with time if extensively exploited. The innovative resources are those resources created by the human. They depend solely on exhaustible and renewable resources.

They depend on the quantity and quality of these resources, and affected by the amount of these resources. The more innovative resources the human develops; the exhaustible resources decrease. The economy of many countries depends on either exhaustible or renewable resources. Reliance on renewable resources such as solar, hydro and wind energies, agriculture and animal products; protects nations against the risk of disasters, collapse, and humiliation by others. Because these resources meet the basic human needs and are available in many countries. The absolute reliance on exhaustible resources leads to the decrease of these resources or even their exhaustion. Also these resources may be less needed or become useless in the future with the development of the world.

Unless the current generations pay attention to careful use of these resources, tighten their belts in consumption; and if this is not accompanied by the creation of new resources and the utilization of the renewable ones; their future generations will be deplorable, suffer humiliation or even face an inevitable doom. Unfortunately the agricultural and animal resources, on which all the human and animals depend, need water resources which is an exhaustible resource in the countries covered with deserts; where there is no rain or rivers. Balanced optimal exploitation of all resources ensures a dignified well-off life for today's and future generations. This article highlights the importance of the balanced, optimal use and conservation of the available resources for the present and future. It also draws the attention of decision-makers to the seriousness of the depletion of resources and depriving future generations of a decent life.

## **2. Human Resources**

The human is an essential resource for all aspect of life and is needed for all the activities related to his needs and the needs of others. The word others does not mean only humans but also it includes all the creatures on the surface of the earth and in the waters. The human produces, manufactures, develops, organizes, conserves, consumes, and distributes these resources equally to all members of the community and other living organisms. In order to build the community of sufficiency and justice we must pay attention to this resource, furnish it with knowledge to reconstruct this earth. Thus he can utilize the existing resources on earth surface, its interior and its surroundings (oceans, seas, atmosphere, and galaxies including stars and planets). To achieve these goals we should pay attention to the human being at all stages of his life starting with the family formation. The family must be selected in a scientific manner to ensure delivery of sound individuals free of all inherited diseases and impairments that disabled them (Christopher et al. 2003; Gleeson and Walsh 2000; Elsheikh and Alqurrashi 2013).

It is known that the disabled; to contribute in building and reconstruction of this earth; need extra special care and training (Elsheikh and Alqurrashi 2013; Elsheikh et al. in press). The human being must be given care in his mother's womb, at his birth, during his growth, maturity and his aging. Adequate health care must be provided to ensure his healthiness, protection from diseases, as well as providing all means of diseases diagnosis and treatment to ensure his recovery when he becomes ill. It is also of paramount importance to provide him with material and spiritual feeds to grow sound of physical and psychological diseases. Also different means of education must be provide for every individual from his childhood until his old age. So that he can benefit from all the old and modern means, tools and media. He must be qualified, trained constantly to keep pace with the technological and informational developments, to enjoy life and make it enjoyable for others. We must fight against illiteracy, poverty and diseases, by all means. Also conflicts and wars between people of all races must be stopped and defused with wisdom. The values of justice spread and injustice combated. All nations must enjoy freedom that guarantees their safety and the safety of their communities, without infringement or digestion of the rights of others. The young dignify the olds; the old have mercy on the young; the weak is helped to have his right from the strong and the strong is kept away from oppressing the weak; without violence. Doing this we can build today's healthy society which cannot ignore or forget the rights of the future generations in the existing resources.

## **3. Renewable Resources**

Renewable resources are many and exist since ancient times. Solar energy, wind energy and water energy resources are known to man for long decades and used in many aspects of life. They are very important resources and the human needs them for his sustenance and residence. There are also some biological resources on the surface of the earth, in rivers, seas and oceans. These include aquatic organisms, marine plants and the different types of organisms on the surface of the earth as well as the plants that scatter across the wide world. These resources are capable to regenerate, increase and decrease. Their rate of increment could be higher than their rate of decrement; if they are exploited optimally and conserved properly. The most important of these resources are the renewable energy, agricultural and animal resources. These resources can play a prominent role to rescue current and future generations; if managed in a scientific manner.

### **3. 1. Solar Energy:**

Solar energy is expected to play an important role at the end of the third century and the far future (Radulovic 2001; de Vire et al. 2007; Kannan et al. 2006).

Many countries of North African, Arabian Peninsula, the Indian subcontinent, Australia and North America enjoy wide lands and clear skies that will enable them to use the bright sun to generate solar energy. If this bright sunshine is employed in accurate scientific manner huge amounts of energy can be produced to meet the local energy needs and the surplus can be stored and/or exported. This potential energy is inexpensive and environmentally friendly because it reduces the pollution that results from the use of fossil fuels. Seeking to acquire this energy opens new research avenues which will help in the renaissance of nations. Among the most countries which can benefit from this energy and export it to the world, are the countries of the Arabian Peninsula and North Africa. The countries located in these areas must establish purposeful research institutions to capitalize the use of this tremendous resource. The most important step that should be undertaken by these countries is to have the new technologies that help to benefit of this resource; not only to possess equipment but also to possess the suitable scientific knowledge; the minor and major facets of solar energy technologies. Specialized scientific research centers must be established to train and rehabilitate staff to be able to invent, manufacture, operate and maintain solar energy equipment.

### **3.2. Wind Energy**

The wind energy plays a vital role in electricity generation and underground water lifting (Lysen 1982; Piggot 1998; Khennas et al. 2003). Many countries; especially those who have no fossil fuels; can use wind power to generate electricity for different purposes, and use wind turbines to lift underground water for irrigation and agriculture. The transfer and settlement of this technology needs knowledge which cannot be realized without the establishment of specialized research centers and training of workers.

### **3.3. Hydro Energy**

Waterfalls played a substantial role in the production of electrical energy all over the world. Many countries have established water dams that played a major role in energy production, promotion of industry, increment of the national incomes and have opened many job opportunities too. The expansion of the use of this resource will reduce the fossil fuel depletion caused by thermal power stations. It also helps in creating a clean environment for current and future generations.

### **3.4. Biofuels**

Some organic products of plants and animals can be used to produce biofuels. The most famous biofuels which are derived from sugars, starches and plant oils are ethanol and the biodiesels (Davidson 2008). These types of fuel consume food crops and water, so they compete for human and animal food. The current production methods of these fuels consume a lot of forests as well as food crops. Although they seem friendly to the environment, they lead to the extermination of forests (Fargione et al. 2008), food shortage and indirectly pollute the environment. Plants convert the solar energy into cellulosic compounds which contain a complex glucose; the main source of energy which can be released by certain enzymes (Turner et al. 2007). Many countries that have the capacity to produce these crops can establish research centers to conduct genome scale studies to make use of the enzymes produced by some primary organisms to generate biofuels from such plants and crop (Davidson 2008). The use of such energy minimizes reliance on energy produced from the traditional fossil fuels. Thus many countries that do not have the fossil fuels can produce their energy needs from this source. Also the countries that have large or fewer amounts of fossil fuels can benefit of this energy to conserve their fossil fuels reserves for future generations.

### **3. 5. Geothermal Energy**

Geothermal energy is the cleanest type of the energies used on this planet (Goosen et al. 2010; Bertani 2003). It is the heat generated by the lava, steams and the water in the interior of the ground. This heat comes out from the ground with water and steam in many countries of the world. This type of energy can be used to generate electricity, heat homes and in many other activities. This energy is environmentally friendly and is better than the energy produced from fossil and nuclear fuels. This energy represents one of the solutions to the problems of energy in the future as it helps in conservation of the other energy resources as well as the environment.

### **3. 6. Agriculture and Marine Resources**

Since the Stone Age and until our time agriculture; both animals and plants; and marine animals play an important role in the life of the human race.

However; over centuries and from time to time; famines and food shortages appear in some countries; despite the availability of water resources and agricultural lands. This is due to the misuse of agricultural resources optimally. Many African countries suffered devastating famines, because of drought and wars. Large numbers of their citizens have been displaced to neighboring countries leading to international crises. Consequently great burdens were thrown on the various united nation organizations. These countries could avoid these disasters with vertical and horizontal expansion in the agricultural fields without the help of international organizations. If the world does not cooperate to find solutions for these disasters, they will emerge again. A great risk is expected if the countries that do not have permanent water sources, used its sources of groundwater to cultivate the rest of their lands for self-sufficiency of agricultural products. The depletion of groundwater foreshadows the occurrence of future disasters. If these countries have other resources like seas and oceans, it is sapience not to deplete the groundwater resources.

#### **4. Exhaustible Resources**

The earth and its surroundings are full of tremendous fortunes that have been discovered and undiscovered. The discovered ones are presently exploited for many economic gains. Also the orbits that revolve around the earth, which all the countries of the world dream to access and possess (Ludwig 2011), are probably full of important resources and fortunes that the world needs for present and future.

##### **4.1. Exhaustible Resources on Earth**

The earth is rich of many resources such as gold, silver, diamonds, platinum, uranium, oil, coal, natural gas and others. But the most important risk facing the exploitation of these resources is depletion; sooner or later. If these resources are depleted, many countries of the world will be at crossroads. The doom and survival roads and they should choose to pursue either of them. The great challenge facing these countries; and threaten their future and their future generations; is to know how to use and conserve these resources; to ensure survival. These countries must strive to create renewable resources to benefit from locally and internationally; to achieve economic gains and access the other resources. The cornerstone of avoiding this dilemma is to acquire scientific knowledge and possession of modern technologies. And also it is very important to rationalize personal, private and government spending to maintain some amount of these resources for the present and the future. The future is not intended to the near future only, but also the far future. To ensure that the future generations enjoy the same amount of welfares as that we seek if not better.

##### **4. 2 Exhaustible Resources on Orbs**

The orbits that revolve around the earth like the moon, mars, Jupiter and others; perhaps they contain resources similar to those on earth; or they may vary in quantity and quality. But the pursuing of many countries to reach these resources may lead to conflicts and devastating wars that could destroy the whole universe. The greatest challenge that faces the people of the world is how they unite, combine and cooperate to access, discover and exploit these resources. The efforts of all the peoples of the world must be combined to develop different methods that help in reaching these orbits easily. Then the potential resources can be discovered, mined, and brought to the earth or utilized thereon, if we are able to create suitable environment to live on orbits. To achieve this goal the human race must avoid conflict for domination and hegemony over those resources. This potential conflict may lead to the outbreak of clashes and destructive wars that may destroy everything and everybody. If the nations of the world have agreed on conventions that ensure the rights of each other; instead of racing they can cooperate to reach these orbits, discover their resources and benefit of them. May countries can contribute money, some science and technology and others with manpower; to achieve this goal that has not been achieved yet; despite the amazing scientific progress that has occurred; and the ability of some countries to reach some orbits. Still accessing these orbits is the dream of many countries, thus they seek to own knowledge, science and technology to explore the space. Mutual love, forgiveness, harmony, cooperation and avoiding disputes and conflicts are the strongest and the best means with which the nations could achieve this goal. For a prosperous present and a bright future for the coming generations, until the God inherit the earth and heavens.

#### **5. Innovative Resources**

The human devised many industrial resources; which are used in the various life activities. Manufacturing of various means of transportation, electronics, household wares, construction tools, entertainment machines, plastic resources and others; represent additional resources that the human enjoys in all aspects of life.

These resources contribute significantly to the development of the economy and raising the standards of living and increment of knowledge.

Also there are some resources developed by the human for humanitarian purposes like nuclear energy which is used to generate electricity and for some other purposes. However, it represents a major threat to the environment and the current and future generations. The man might create other resources useful for all aspects of life, but we hope they would have no adverse effect on humans and the environment.

### ***6. Challenges Facing the World of Tomorrow***

Any human being of any race, color, religion or from any place does not like to live alone in this world. The most beautiful thing in this world is diversity, contrast, intellectual and ideological differences. Many of the wars and conflicts that arise in this world are caused by oppression and greed to take over the resources of other nations. If anyone wanted to prevail; he either prevails by force and injustice; justice and spirituality or generosity and tolerance. Sovereignty, which is built on injustice, oppression and the use of force will doom to extinction sooner or later. The truest testament to this are kingdoms and empires that prevailed then perished; due to injustice and infringement of others. Oppression leads to hatred and the formation of opposing forces that grow with time like fire that starts with spark and then destroy everything and everybody. The greatest challenges facing the world are the creation of an everlasting peace between nations and peoples, spreading love and harmonization; without the use of force and repression that currently the world resort to them to impose peace. The powerful tyrant and autocrat; no matter how long or short the time, will suffer weakness and the weak may find an opportunity to become a strong to retaliate for himself from his enemies. The wheels of injustice and grievance will revolve and grind our sons, grandchildren and the future generations; unless an everlasting peace is made. An everlasting peace that guarantees the rights of each resident of this world will pave the way for the exploitation of the various and disparate resources existing in this universe. This peace will help the mankind to realize welfare for all the inhabitants of the earth; without regard to color, race and religion. If this is achieved a secure and stable life for future generations will be guaranteed.

### ***7. Conclusions***

This world is gifted with enormous wealth and resources; which if conserved, exploited optimally and distributed equally; will be sufficient for current and future generations. Many of these resources will deplete if their consumption by individuals, private and public sectors is not reduced. The world needs peace to enjoy these resources in present and future.

The human being is the most important resource that we should take care of and nurture in all aspects of life. We must fight against disease and illiteracy by all means to ensure the creation of a human being who is capable of giving and understanding the value of other resources and especially the exhaustible ones. We must instill in him the values of altruism so he loves for others what he loves for himself; whatever the difference between them. He should remember that inevitably he will leave this universe so he must not forget the rights of his children and grandchildren in the existing resources.

Absolute dependence on exhaustible resources such as the fossil fuels threatens the future economy of many countries, displays them to collapse and threatens future generations, especially in the Arab region.

Reliance on renewable resources and creating new resources is the mainstay which guarantees the continuation of the economic equilibrium and secures a dignified and stable life for present and future generations.

The international community must collaborate to conserve all the resources and rationalize their consumption; especially exhaustible ones. The international community must use all media outlets to spread the culture of consumption rationalization among individuals, nation and countries.

The international community and the countries must disseminate and strengthen the culture of peace, tolerance, values of justice, equality of all individuals and nations, stay away from injustice, oppression and domineering. The good example, love, tolerance and benevolence must be the tools of persuasion that underpin the various policies.

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