Research Paper

Volume : 4 | Issue : 12 | December 2015 • ISSN No 2277 - 8179

The Impact of Population Growth on the Depletion of Earth's Natural Resources

Social Science

KEYWORDS : Natural resources, depletion, population, growth rate, fossil resources, water, government policy, sustainable environment, energy-efficient technologies

Bader Abdo Hakami Faculty of Earth Sciences, King Abdulaziz University, Jeddah, Saudi Arabia

ABSTRACT

Continually increasing population rates are presenting destructive impacts on the existence of natural resources. This study mainly aims at investigating the impacts of population growth on the depletion of earth's natural resources. It is estimated from the analysis of the current trends that rising demands of fossil resources may result in their complete depletion. Natural resources are found to be one of the greatest features, which foster the life of human beings. Therefore, increase in population eventually increases the need of natural resources, which may eventually result in the slight or complete depletion of natural resources. The study has incorporated the profound analysis of the impacts of population growth on the integrity of natural resources. In this regard, the researcher has conducted a survey questionnaire with 110 students who are learning natural sciences in King Abdulaziz University, Jeddah, Saudi Arabia. The findings of the survey have been encapsulated in the research.

INTRODUCTION

This study aims to present a comparative study on the impacts of population growth on the depletion of earth's natural resources. It is established from the analysis of research, which has been conducted by Harris and Roach (2013) that continually increasing population has posed various issues and challenges to earth's natural resources. Recent report, presented by Bajpai Bhasker, and Saraya (2012), shows that more than seven billion people share the natural resources of earth. According to the U.S. Census Bureau's reports, the global population is expected to be increased to approximately eight billion, by the year 2025. In this regard, Barnett and Morse (2013) have affirmed that the continually increasing rates of population growth have enhanced the threat of depleting natural resources. In accordance with the views and perception of Probst, Monfardini, Frideres, Demetri, Schnabel, Kauffmann, and Clarke (2013), the depletion of natural resources is found to be one of the most crucial issues faced by the global population due to population growth. It is due to the fact that each and every person has a number of non-vital needs (entertainment, employment, and education) and vital needs (clothing, drinking, and food), all of which needs consumption of earth's resources. The research conducted by Fatemi (2013) documented that increasing exploration and utilization of these natural resources is resulting in the depletion of earth's natural resources. It was affirmed by Arizpe, Costanza, and Lutz (2014) that growing global population is playing a major role in enhancing pressure on natural resources, which is rising with the increasing population.

It is assumed by Barbier (2013) that global demands for energy, water, and food will be doubled by 2025, which is undoubtedly an alarming situation for the existence of natural resources. In such circumstances, supply chain resilience and optimization may assist in handling this rising issue. According to Barrow (2014), manufacturing and production sector may play a vital role in controlling the continually increasing depletion of earth's natural resources. In this account, manufacturing sector can adopt alternative ways of production, in order to ensure the integrity of natural resources.

According to Arizpe et al. (2014), the population of the world is continually increasing for the past four decades. Proceeding mentioned tables may considerably help in representing the broad trends, which have been occurred in the growth of world population. Below provides quantum of population growth, which is related with divergent phases of development of human civilization, which has been recognized by their principle mode of production.

It is established from aforementioned table that the overall growth in the population arte has been increased with the increasing advancements in production and manufacturing sectors. It is due to the fact that high quality means of production and manufacturing has resulted in the development of new methods of production. In this regard, it is asserted by Bajpai et al. (2012) that the presented phases of production development also recognizes the capability of the society to fight and overcome natural disasters, diseases, as well as other death causing factors; hence resulted in the increased rates of population growth. Proceeding mentioned figure may present the graphical representation of the increase in human population, in different stages of human civilization.

Time Period	Human Population (millions)	Average Growth Rate/1,000 (% in brackets)	Doubling Time
1. Pre-agricultural era: hunters and gatherers (35,000–10,000 BC)	6	0.08 per 1,000 (0.008 %)	8,000 to 9,000 years
2. Spread of agricultural societies (10,000 BC–0)	252	0.37 per 1,000 (~ 0.037 %)	1,854 years
3. Further development of predominantly rural societies (0–1750 AD)	771	0.64 per 1,000 (~ 0.064 %)	1,083 years
4. The industrial revolution (1750–1950)	2,520	6 per 1,000 (0.6 %)	116 years
5. 1950–2000	6,235	18.1 per 1,000 (1.81 %)	38 years

Table 1: Historical Stages of Population Growth (Barnett & Morse, 2013)

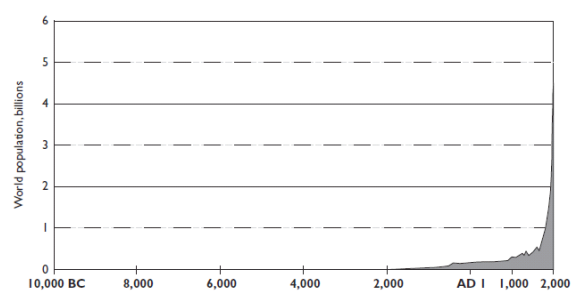

Figure 1: Estimated Population Trends from 10,000 BC to 2,000 AD. (Harris & Roach, 2013)

Above mentioned table.1 and figure.1 presents the illustration of population growth rate trend, which scrutinizes that how the population is persistently increasing with the passage of time. It is established by Harris and Roach (2013) that the rising rate of population growth is playing a massive role in diminishing natural resources from earth. In this account, it was avowed by Barrow (2014) that massive growth of population can be considered as one of the serious concerns, which are distressing natural resources, throughout the world. It is documented in the study of Fatemi (2013) that natural resources are one of the most prominent factors, which have enabled the human beings to survive on earth. Thereby, it is considered as one of the greatest responsibilities of the geologists to ensure the integrity and sustainability of environment by safeguarding the natural resources. It is analyzed that one of the most prominent obstructions and hurdles that are posed as a severe danger to environment, is in-

creasing global population. In order to support this approach, it was contended by Barbier (2013) that frequently growing rates of population is becoming the core reason behind the depletion of natural resources from earth.

Some of the most prominent natural resources consumed by fossil resources. According to Kasperson and Kasperson (2013), fossil resources can be considered as one of the undeniable resources, which support the life of human beings. Some of the most prominent fossil resources include petroleum, natural gas, and coal. According to Barnett and Morse (2013), fossil resources can be characterized as the elements that are digging out for the use of human beings. On the contrary, Arizpe et al. (2014) has claimed that fossil resources can also be termed as the constituents, which possess functional value for society. These resources can be characterized by different qualities, including stocks, flows, and funds. Moreover, these can also be categorized as abiotic resources and biotic resources. It was established that abiotic resources can be understood as the products, which are acquired from past chemical/physical processes or biological processes. These may include wood, land, coal, water, crude oil, and iron core (Goudie & Viles, 2013). On the other hand, biotic resources can be understood as the resources, which are in living conditions. These resources include wildlife, plants, and trees.

However, stocks can be regarded as the resources, which are limited; hence their extraction or mining of these resources may lead towards depletion. It is assessed that funds can be depleted, but these resources have a regeneration rate, which is high enough. This pattern fosters the recovery of resources, i.e. funds. In contrast, flow resources cannot be exhausted or diminished, however, their accessibility per unit time is found to be limited; hence their extraction is marked by competition (for instance, wind energy). According to Bajpai et al. (2012), abiotic resources can be characterized as stocks, including natural gas, coal, and petroleum.

Petroleum can be referred as the deposits of oily and greasy materials, which are found in the top most layer of the earth's crust. It is assessed that petroleum consists of different hydrocarbon chains; hence it has heterogeneous chemical structure. Recent research, which was presented by Kasperson and Kasperson (2013), has revealed the fact that 92 percent of the global production of petroleum is utilized for the purpose of generating energy. Below mentioned table 2 may assist in understanding the consumption of petroleum in different areas.

Product	Lubricant	Asphalt	Heavy fuel oil	Jet fuel	Diesel and other fuels	Gasoline	Other products
Refinery Yield	1%	3%	4%	9%	26%	46%	11%

Table 2: Consumption of Petroleum in Different Industries (Barbier, 2013)

Coal is other most important natural resource, which is being used by human beings. Study, conducted by Leigh and Olters (2006) has revealed the fact that coal is principally utilized as a solid fuel, in order to produce heat and electricity through combustion. Such activities are perfumed, in order to fulfill the requirements of non-industrial and industrial applications. Below mentioned table 3 may help in recognizing the fact that more than ninety percent of coal is utilized for the generation of electricity.

Function	Electricity generation	Steel manufacturing	Cement Plants	Other industry	Heating	Other uses
Percentage	68%	7%	4%	8%	3%	10%

Table 3: Global Use of Coal (Leigh & Olters, 2006)

Above mentioned table 3 has clearly elaborated the worldwide utilization of coal. It is established from analysis of the given table that 68 percent of the coal is used for the purpose of electricity generation. On the other hand, manufacturing of steel consumes approximately 7 percent of coal. 4 percent, 8 percent, 3 percent, and 10 percent of the coal is consumed in cement plants, other industries, heating, and other commercial industries, respectively. It was declared by Barrow (2014) that higher rates of coal consumption are playing a major role in the depletion of this natural resource and it is expected that coal will be depleted from the earth surface between 2020 and 2030. Apart from coal and petroleum, natural gas is another most important natural resource, which supports the existence of human beings. Natural gas occurs in secretive reservoirs of porous rocks, isolated or physically mixed with petroleum. It is documented in the research of Arizpe et al. (2014) that natural gas is developed naturally, over millions and trillions of years from the molecules of hydrogen and carbon of ancient organic matter, which is trapped in geological formations. It is analyzed that natural gas is primarily composed of methane, but also pentanes, butane, propane, ethane, as well as heavier hydrocarbons (Mudakkar, 2013). Table 4, which is provided in the below manuscript, shows the global utilization patterns of natural gas.

Function	Electricity generation	Industrial	Commercial	Chemicals	Transport
Percentage	45%	33%	16%	5%	1%

Table 4: Global Consumption of Natural Gas (Barbier, 2013)

It is recognized that natural gas is widely used as a heating and cooking fuel in domestic settings. According to Fatemi (2013), in most of the developed countries, natural gas is being supplied to considerably large buildings and homes, through pipes, where it is utilized for several purposes. Some of the most prominent uses of natural gas, in such settings, include central heating, cooling/heating, and natural gas powered ovens. Barnett and Morse (2013) has stated that natural gas is also utilized for the generation of electricity. In addition to this, various other industries are also found to be dependent on natural gas, including manufacturing of fertilizers, paint, plastic, steel, glass, and fabrics. Besides that, natural gas also supports the operations of transportation sector. It was estimated by Bajpai et al. (2012) that natural gas is expected to be depleted between 2010 and 2020. In accordance with the views of Cronin and Pandya (2009) approximately 94 percent of the natural gas is consumed for the purpose of producing energy. These trends are also illustrated in the below mentioned table 5.

It is quite evident from preceding sections that use of natural resources is continually increasing with the passage of time. It is due to the fact that natural resources foster the existence of human beings in various ways. According to Goudie and Viles (2013), increasing population is one of the greatest threats for the sustainability of natural resources as well as the entire environment.

Function	Electricity generation	Industrial	Commercial	Chemicals	Transport
Percentage	45%	33%	16%	5%	1%

Table 5: Annual Natural Gas Consumption (Cronin & Pandya, 2009)

It is established by Barbier (2013) that the worldwide utilization of fossil resources is increasing with considerably fast pace. In order to support this approach, Moldan, Janouskovs, and Hak, (2012) has affirmed that the overall utilization of fossil resources has been increased 12-fold over the past hundred years, in order to fulfill the demand of the changing world. In this account, it was estimated by Kasperson and Kasperson (2013) that global production of petroleum is expected to be increased by 31 percent between 2013 and 2030. Similarly, the production of natural gas and coal is expected to be increased by 52 percent and 50 percent, respectively. These stats show that natural resources are on the biggest threat of being depleted from earth. According to Bajpai et al. (2012), depletion of natural resources, especially fossil resources, may lead the entire world towards severe consequences. It is due to the fact that depletion of natural resources may create different uncertainties, in terms of human survival. Therefore, it is considered as one of the greatest responsibilities of the geologists and concerned authoritative entities to ensure the sustainability and integrity of earth (Steer, 2013). This can be easily attained by protecting the natural resources, especially coal, petroleum, and natural gas, from being depleted.

Besides fossil resources, water is also found to be depleted from the surface of the world. Recent report, presented by Barrow (2014) has established an idea that only 2.5 percent of the world's total water is fresh and drinkable. In this account, Goudie and Viles (2013) have asserted that 70 percent of that 2.5 percent is frozen, which is quite severe concerns for the sustainability and survival of human beings.

Depletion of water resources is found to be more devastating issue, as compared to the depletion of oil. It is due to the fact that water is one of those natural resources, which foster life of human beings, plants, and other species. Barrow (2014) has conducted a study, according to which 70 percent and 20 percent of fresh water is consumed in agriculture and industrial sector and only 10 percent is being utilized by human beings. One of the biggest factors behind limited availability of fresh water for human beings include rising temperature, increased developments in infrastructure and roads, increased agriculture activities and irrigation, and rising rates of population growth.

According to Barnett and Morse (2013), rising rates of population growth is playing a significant role in the depletion of earth's natural resources. Therefore, valuable and effective measures are inevitably required, in order to limit the growth of population. In addition to this, adequate measures are also needed to be taken by the transportation sector and production industries to minimize their dependency on natural resources. In this regard, alternative resources of energy can also be adopted, in order to meet the demands of the world.

MATERIALS AND METHODS

Profound analysis of the research, which was conducted by Arizpe et al. (2014) that the impacts of overpopulation are considerably severe. One of the most serious consequences of overpopulation or increasing rates of population growth includes the depletion of natural resources. It is recognized from the assessment of study, which was carried out by Barbier (2013) that only limited amount of water, coal, natural gas, etc. can be produced by earth, which is falling short of the present requirements of the world. Leigh and Olters (2006) have presented an approach, according to which, most of the environmental damages are caused by the growing population of the earth. It was declared by Arizpe et al. (2014), that increased use of natural gas, oil, and coal is playing a major role in affecting the integrity of the environment. Rise and development in manufacturing industries and vehicles have devastatingly influenced the air quality. On the other hand, it has also been estimated that increasing population has given considerable boost to the human activities; hence resulted in emissions of green house gases and global warming. After analyzing all of these vulnerable aspects of population growth, it can be asserted that ministry of health and other concerned authorities are responsible to control the rapidly increasing rates of population.

In order to control increasing population rates, it is essential for the concerned authorities to take appropriate and adequate measures. These initiatives may include organizing awareness programs, about the consequences of overpopulation. In addition to this, concerned authoritative entities can also encourage family planning and efficient birth control programs, in order to control the issue of population growth. In this account, Bajpai et al. (2012) has stated that global population is increasing with considerably fast pace; hence it is crucial to enhance the awareness and understanding of people about family planning, and regarding the consequences of overpopulation, in terms of natural resource depletion. Cronin and Pandya (2009) have contended that formulation and implementation of adequate policies may also assist in lowering or reducing the growth of population. According to Barbier (2013), after analyzing potential vulnerabilities of population growth, different countries of the world have identified and devised quantitative targets in their strategies. One of the major objectives behind these activities is to minimize the rate of population growth. Some of the most prominent countries include Indonesia, India, Ghana, Turkey, Philippines, and the Islamic Republic of Iran. Increased rates of population growth can also be controlled by ensuring women's reproductive rights; hence enabling them to take their pregnancy decisions by themselves.

It has been established that such practices may play an inevitable and indispensable role in limiting the rates of population growth; hence reducing the depletion of natural resources. Therefore, it can be affirmed that minimization of population growth may play an incredible role in conserving rapidly depleting natural resources as well as environmental sustainability (Barrow, 2014). Apart from this, different initiatives can also be taken in technological perspectives. In this account, the development of energy efficient and environment friendly technologies may also result in managing increasing demands of natural resources. Such initiatives may help in reducing harmful emissions and dependencies on natural resources (coal, natural gas, petroleum, trees, etc.). Recycling of industry's waste may also play a significant role in reducing the need of extracting fossil resources (Arizpe et al. 2014). Most importantly, renewable resources of energy (specifically air and solar energy) may commendably solve the issue of natural resource depletion; hence result in more sustainable, pollution free, and integrated environment of the world.

This research study has utilized primary quantitative method, in order to acquire first hand information about the given topic of research. In this regard, a close-ended survey questionnaire was conducted to the 110 students, learning natural science in King Abdulaziz University, Jeddah, Saudi Arabia. The questionnaire was based on five point Likert scale, along with the options of strongly agree, agree, neutral, disagree, and strongly disagreed. Acquired responses of target population have played an inevitable role in establishing more coherent and credible results. It is significant to notice that the gathered data was analyzed by the help of SPSS (Statistical Package for Social Science) software.

RESULTS AND DISCUSSION

The study has established different results about the impacts of population growth on the depletion of earth's natural resources. In this regard, a survey was conducted to the students of natural sciences, in order to accumulate reliable and pertinent information. When students were asked about the importance of natural

resources, in today's fast paced environment, 22.7 percent of the students were strongly agreed with the statement. On the other hand, 52.7 percent were agreed with the statement. 12.7 percent of the students gave neutral response and only 10.9 percent were disagreed and 0.9 percent of the students were strongly disagreed with the statement. Thereby, it can be stated that natural resources are one of the key drivers of current fast paced world. The results are also elaborated in below mentioned table.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	25	22.7	22.7	22.7
	Agree	58	52.7	52.7	75.5
	Neutral	14	12.7	12.7	88.2
	Disagreed	12	10.9	10.9	99.1
	Strongly Disagreed	1	.9	.9	100.0
	Total	110	100.0	100.0	

Table 6: Natural resources (coal, petroleum, fossil fuels, etc.) are the key drivers of today's fast paced world

When the students were asked about the vulnerabilities of the industrial revolution, in terms of natural resources' depletion, 24.5 percent of the students showed that they strongly agreed with the statement. On the other hand, 34.5 percent of the students did not agree to the statement.However, 28.2 percent of the students gave neutral responses and 10.9 percent were disagreed and 1.8 percent was strongly disagreed with the statement. This shows that industrial revolution has played a major role in increasing threats to the natural resources. Below mentioned table may also help in understanding the responses of the students.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	27	24.5	24.5	24.5
	Agree	38	34.5	34.5	59.1
	Neutral	31	28.2	28.2	87.3
	Disagreed	12	10.9	10.9	98.2
	Strongly Disagreed	2	1.8	1.8	100.0
	Total	110	100.0	100.0	

Table 7: Industrial revolution has increased threats to the sustainability of natural resources and overall environment of the world

When the students were asked about the dependency of manufacturing and transportation sector on natural students, 24.5 percent of the students were strongly agreed with the statement. However, 40.9 percent of the students were agreed and 20.9 percent of the students gave neutral responses and 13.6 percent said that they are disagreed with the statement. Therefore, it can be established that transportation and manufacturing sectors have higher dependences on natural resources.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	27	24.5	24.5	24.5
	Agree	45	40.9	40.9	65.5
	Neutral	23	20.9	20.9	86.4
	Disagreed	15	13.6	13.6	100.0
	Total	110	100.0	100.0	

Table 8: Manufacturing and transportation sector mainly depends on natural resources, as a fuel

It has been analyzed that increasing rates of population growth has increased the manufacturing and transpiration activities. When this question was asked by the students, 20.9 percent of the students were strongly agreed with the statement. However, 41.8 percent of the students were agreed and 22.7 percent gave neutral response. However, 11.8 percent were disagreed with the statement and 2.7 percent were strongly disagreed with the statement. Thereby, it can be claimed that population growth has eventually increased the manufacturing and transportation activities; hence resulted in increased use of natural resources, as a fuel.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	23	20.9	20.9	20.9
	Agree	46	41.8	41.8	62.7
	Neutral	25	22.7	22.7	85.5
	Disagreed	13	11.8	11.8	97.3
	Strongly Disagreed	3	2.7	2.7	100.0
	Total	110	100.0	100.0	

Table 9: Continually rising rates of population growth has increased the manufacturing and transportation activities

Natural resources, including fossil fuels have considerable contribution in the subsistence of human life. When the students were asked about this fact, 22.7 percent of the students responded that they are strongly agreed with the statement. 29.1 percent of the students said that they are agreed, whereas, 40.9 percent gave neutral response, 6.4 percent said that they are disagreed with the statement and 0.9 percent were strongly disagreed; hence, it can be established that natural resources plays a key role in the existence and survival of human beings.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	25	22.7	22.7	22.7
	Agree	32	29.1	29.1	51.8
	Neutral	45	40.9	40.9	92.7
	Disagreed	7	6.4	6.4	99.1
	Strongly Disagreed	1	.9	.9	100.0
	Total	110	100.0	100.0	

Table 10: Fossil fuels and other natural resources contribute in the overall well-being of human beings

It has been assessed that growing population has increased the use of natural resources. When this question was asked by the students, 24.5 percent were strongly agreed and 37.3 percent were agreed with the statement. 19.1 percent gave neutral responses. However, 17.3 percent were disagreed and 1.8 percent was strongly disagreed with the statement. These responses revealed that rising rates of population are impacting the usage of natural resources.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	27	24.5	24.5	24.5
	Agree	41	37.3	37.3	61.8
	Neutral	21	19.1	19.1	80.9
	Disagreed	19	17.3	17.3	98.2
	Strongly Disagreed	2	1.8	1.8	100.0
	Total	110	100.0	100.0	

Table 11: Rapidly increasing rates of population growth have increased the use of natural resources

Volume : 4 | Issue : 12 | December 2015 • ISSN No 2277 - 8179

When the students were asked about higher dependencies on natural resources and their depletion, 18.2 percent of the students said that they are strongly agreed with the statement. However, 39.1 percent of the students were agreed. 26.4 percent has neutrally responded to the question and 12.7 percent were disagreed with the statement and 3.6 were strongly disagreed with the statement. This shows that increased utilization of natural resources may contribute in their depletion.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	20	18.2	18.2	18.2
	Agree	43	39.1	39.1	57.3
	Neutral	29	26.4	26.4	83.6
	Disagreed	14	12.7	12.7	96.4
	Strongly Disagreed	4	3.6	3.6	100.0
	Total	110	100.0	100.0	

Table 12: Increased dependency on natural resources will lead them towards their depletion

When the students were asked about the relevance and effectiveness of family planning programs and awareness campaigns, in order to control increasing rates of population growth, 20.9 percent of the students acknowledged its importance. They showed that they are strongly agreed with the statement. However, 42.7 percent of the students were agreed and 25.5 percent gave neutral response. Only 10.0 percent of the students were disagreed and 0.9 were strongly disagreed with the statement. Therefore, it can be established that such awareness programs and campaigns must be organized by the government entities, in order to control birth rate.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	23	20.9	20.9	20.9
	Agree	47	42.7	42.7	63.6
	Neutral	28	25.5	25.5	89.1
	Disagreed	11	10.0	10.0	99.1
	Strongly Disagreed	1	.9	.9	100.0
	Total	110	100.0	100.0	

Table 13: Family planning programs and awareness campaigns may assist in controlling the increasing rates of population growth

Well-structured and effective governmental policies and strategies may help in controlling and managing the issue of population growth. When this approach was asked by the students, 17.3 percent of the students showed that they are strongly agreed with the statement. 41.8 percent of the students were agreed and 27.3 percent of the students gave neutral response. However, only 10.9 percent were disagreed and 2.7 percent were disagreed with the statement. This shows that government must take adequate initiatives, in order to control this rising issue.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	19	17.3	17.3	17.3
	Agree	46	41.8	41.8	59.1
	Neutral	30	27.3	27.3	86.4
	Disagreed	12	10.9	10.9	97.3
	Strongly Disagreed	3	2.7	2.7	100.0
	Total	110	100.0	100.0	

Table 14: Well-structured and effective governmental policies and strategies may control the issue of population

growthof energy efficient alternative, like renewable resources, may assist in conserving and ensuring the sustainability of the environment. When it was asked by the students, 27.3 percent of the students were strongly agreed with the statement and 38.2 percent were agreed. However, 17.3 percent of the students showed neutral response. 16.4 percent of the students said that they are disagreed with the statement and 0.9 percent was strongly disagreed. This shows that renewable energy resources must be deployed, in order to control depletion of natural resources.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	30	27.3	27.3	27.3
	Agree	42	38.2	38.2	65.5
	Neutral	19	17.3	17.3	82.7
	Disagreed	18	16.4	16.4	99.1
	Strongly Disagreed	1	.9	.9	100.0
	Total	110	100.0	100.0	

Table 15: Energy efficient alternatives (renewable resources) may help in conserving the sustainability of environment and rapidly depleting natural resources

CONCLUSION

The study has profoundly investigated and examined the impacts of Population growth on the depletion of earth's natural resources. After conducting this research, it has been established that medical advancements and industrial revolution has played a major role in increasing the growth of population; hence increased the use of natural resources. The increased utilization of natural resources has posed a risk of complete exhaustion of these resources. This issue can be easily controlled by the adoption of adequate birth control strategies and utilization of energy efficient technologies. The research has comprehensively discussed these initiatives and strategies, while exploring the trends of population growth and its impact on the sustainability of natural resources.

REFERENCE

Arizpe, L., Costanza, R., & Lutz, W. (2014). Population and natural resource use. In Migration, Women and Social Development, Springer International Publishing, p. 174. retrieved from http://link.springer.com/chapter/10.1007/978-3-319-06572-4_12 Bajpai, V., Bhasker, S., & Saraya, A. (2012). Of the relationship between population and development: Need to stop vilifying the people. Journal of Health Management, pp. 329-340. retrieved from http://jhm.sagepub.com/content/14/3/329.short Barbier, E. B. (2013). Economics, natural-resource scarcity and development: Conventional and alternative views. Routledge, p. 34. retrieved from https://books.google.com/books?hl=en&lr=&id=mE2FxTsO_tcC&oi=fnd&pg=PP1&dq=global+resource+depletion+is+population+the+problem&ots=aGj2XsBLdh&sig=nb8bYVpOEK7yp_5Y0_z9_fdhqQs#v=onepage&q=global%20resource%20depletion%20is%20population%20the%20problem&f=false Barnett, H. J., & Morse, C. (2013). Scarcity and growth: The economics of natural resource availability. Routledge, p. 4. retrieved from https://books.google.com/books?hl=en&lr=&id=gf-NAQAAQBAJ&oi=fnd&pg=PP1&dq=natural+resource+depletion+and+population+growth+&ots=8GI0Al6CNe&sig=s6oawKhbEXsGqXviwp-Kul3fPpk#v=onepage&q=natural%20resource%20depletion%20and%20population%20growth&f=false Barrow, C. J. (2014). Developing the environment: Problems & management. Routledge, p. 21. retrieved from https://books.google.com/books?hl=en&lr=&id=c2KPBAAAQBAJ&oi=fnd&pg=PP1&dq=global+resource+depletion+is+population+the+problem&ots=6sScyPmmGJ&sig=3vQaxi42A0dCwLSD-x8QDHb7DYg#v=onepage&q&f=false Cronin, R. and Pandya, A., (2009). Exploiting natural resources: Growth, instability, and conflict in the Middle East and Asia, The Henry L. Stimson Center, p. 12. retrieved from http://www.stimson.org/images/uploads/research-pdfs/Exploiting_Natural_Resources-Chapter_5_Cronin.pdf Fatemi, F. (2013). A Novel methodology for the assessment of the direct and indirect impacts associated with the depletion of fossil resources in life cycle assessment (Doctoral dissertation). Available from Ecole Polytechnique de Montreal, p. 30. retrieved from http://publications.polymtl.ca/1220/ Goudie, A. S., & Viles, H. A. (2013). The earth transformed: an introduction to human impacts on the environment. John Wiley & Sons, p. 5. retrieved from https://books.google.com/books?hl=en&lr=&id=RS8QgOcd1yAC&oi=fnd&pg=PA12&dq=The+Impact+of+Population+Growth+on+the+Depletion+of+Earth%E2%80%99s+Natural+Resources&ots=nR4DUiCnTm&sig=Zr2qora5ylBlrM9jT283ll3Uhos#v=onepage&q&f=false Harris, J. M., & Roach, B. (2013). Environmental and natural resource economics: A contemporary approach. ME Sharpe, p. 2. retrieved from https://books.google.com/books?hl=en&lr=&id=GUolAAAAQBAJ&oi=fnd&pg=PP1&dq=global+resource+depletion+is+population+the+problem&ots=lW2etdhiQI&sig=upUlzXhK5Z6K34XTnyslPZBkMCk#v=onepage&q=global%20resource%20depletion%20is%20population%20the%20problem&f=false Kasperson, J. X., & Kasperson, R. E. (2013). Global environmental risk. Routledge, p. 23. retrieved from https://books.google.com/books?hl=en&lr=&id=8EL3pad3m60C&oi=fnd&pg=PR1&dq=The+environmental+dimensions+of+population&ots=zFdjD0tRxr&sig=HTLw8btPJCWOw-0Zo10YkMYTkxk#v=onepage&q&f=false Leigh, D. and Olters, P.J., (2006). Natural-resource depletion, habit formation, and sustainable fiscal policy: Lessons from Gabon, International Monetary Fund, p. 10. retrieved from https://www.imf.org/external/pubs/ft/wp/2006/wp06193.pdf Moldan, B., Janouskovs, S., & Hak, T. (2012). How to understand and measure environmental sustainability: Indicators and targets. Ecological Indicators, 17, p.p. 4-13. retrieved from http://www.sciencedirect.com/science/article/pii/S1470160X11001282 Mudakkar, S. R., Zaman, K., Khan, M. M., & Ahmad, M. (2013). Energy for economic growth, industrialization, environment and natural resources: Living with just enough. Renewable and Sustainable Energy Reviews, 25, pp. 580-595. retrieved from http://www.sciencedirect.com/science/article/pii/S1364032113003274 Probst, L., Monfardini, E., Frideres, L. Demetri, D., Schnabel, L. Kauffmann, A., & Clarke, S., (2013). Advanced manufacturing, European Union, p. 3. retrieved from http://ec.europa.eu/enterprise/policies/innovation/policy/business-innovation-observatory/files/case-studies/01-amt-environmentally-friendly-technologies-and-energy-efficiency_en.pdf Steer, A., (2013). Resource depletion, climate change, and economic growth, global citizen foundation, p. 4. retrieved from http://www.gcf.ch/wp-content/uploads/2013/06/GCF_Steer-working-paper-5_6.20.13.pdf