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To Review Climate Change Effects on Basic Resources (A Case Study of These Effects on Zagros Forests)

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Abstract

Human civilization was accompanied with the pollution, destruction of natural resources and biodiversity. The era of industrialization begins with emissions of carbon dioxide and other gases into the atmosphere. As researchers believe average temperatures of earth has increased over 74 %. Global warming causes droughts, rising of sea water level , penetrating saline water into freshwater resources, melting of polar ice, increasing of desertification trend and tropical diseases outbreak. Loss of biodiversity, reduction in forest production, changing of the border of farmlands and forests on high-latitude and wasting of semi-persistent of forest species are other consequences of the global warming. The effects of this phenomenon can be clearly seen in Zagros forests. According to studies done,Zagros region warming has lead to prolonged droughts period in the region. Besides, dusty storms and their sediments on the leaves can result in trees' tension and therefore their physiologic weakness which at least cause trees being attacked by wood eater beetles. Using superseded energies such as sun , wind and water , protection of forests and forest plantation with species having high potential of carbon sequestration as well as standardizing the transportation vehicles for economizing energy are some effective strategies recommended for reducing the global warming effects.

Keywords: Global warming, carbon dioxide, biodiversity loss, deforestation

1. Introduction

The reduction of forest areas and their converting to deserts were the obvious impacts of human long settlement on the earth. This reduction was accelerated when men were living together and began to exploit the resources around him more and more. Nowadays, since this exploitation exceeds self- recovery of nature over the time, thus we witness more unbalanced situation than before. (Shamekhi, 2009). Continued environmental degradation resulted in more pollution and biodiversity loss On the other hand; public awareness leads to a movement for changing

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the current critical situation of natural resources and the issue of legislation and policy making to achieve more applied management regarding natural resources. Stockholm conference convened in June 5th1972 in Stockholm- the capital of Sweden – and attended by 1400 representatives from 113 countries offered new initiatives for protection of the environment. (Shamekhi, 2009). Twenty years later on June 5th 1992 and in Stockholm conference anniversary, a conference titled Environment and United Nations Development convened in Rio-de-Janeiro –Brasilia which addressed again the issue of environment protection. Simultaneously and immediately after the Rio Conference several international Conventions including the Convention of Climate Change were ratified. The convention was signed by majority of member countries participating in the conference, including Iran (Shamekhi 2009).

2. Methods and Procedures

The effects of climate change have been reviewed in this article, using library and documentary studies as well as descriptive method. Excel software was used for analyzing the statistics and preparing diagrams. For obtaining metrological dates in this research, height from sea level and meteorological data of all stations of western provinces were studied at first and then the station which its height was near the mean height of all stations and had most meteorological data was selected and analyzed.

2.1. Forest ecosystems and their impacts on global warming:

Warming will cause forests of northern hemisphere move ahead to north pole which this phenomenon will cause people resort to farming of premature species and breed their animals in lands which were forests before , so changing of border of agriculture and forest affects the conservation policies because of undesirable conditions of land. It is obviously that desirable situations of high latitudes can't neutralize the effects of malfunction of middle latitudes.(Koochaki, Sharifi , Zand

Year	Burned forests(ha)	The number of forest fires
1985	2233	75
1986	8426	79
1987	5407	10
1988	611	73
1989	407	116
1990	1133	16
1991	288	146
1992	3923	100
1993	33379	192
1994	6119	143
1995	1977	722

Table 1. Sever forest fires of IRAN

1998). The effects of global warming in lower latitudes in which temperature changes is less than the higher one , these effects occur in the form of the amount of humidity and its distribution. Changing of the place of natural growth of resistant forest species and loss of semi-resistant species are other impacts of global warming on forest ecosystems which result in abnormal growth of forest plants and reduction of production of primary and secondary forest products. Sea level rising will also result in degradation of mangrove.(Nezhat, Erfanifard 2009) . Meanwhile increasing of land temperature will lead early spring in the region and untimed melting of ices as well as drying of forest regions. Dried forest regions also increases contingency of forest fires. As it has been showed in table No. 1, the incidence of forest fires has been increased in Iran in 1985-1995.

2.2. Warming and increasing trend of desertification:

Another important and devastating effect of global warming is increasing of the desertification process. Although it is difficult to specify the accurate contribution of climate change in desertification , but undoubtedly its role in intensifying severity of desertification which taken place through deduction of vegetation cover and agricultural productions as well as soil degradation and underground waters falling makes difficult the accessibility of sustainable development. (Akbari, Nasseri and AshgarTousi, 2009).

3. A noticeable example of the effects of warming in Iran

Increasing of the temperature in late winter and early spring in Saudi Arabia Peninsula caused to increasing of the temperature of the air near the soil surface. This situation will result in turbulence and wind blowing in lower layer of atmosphere and therefore dust entrance in to it(Abbassi ,RafieiEmam and Roohipour 2008). Satellite images of Middle East reveal that Rub'Al Khali the vast sandy desert of the world is the origin of this phenomenon. Most violent sandstorms which originated from this desert pass the Persian Gulf and smash west provinces of the country. The risen dust covers the leaves of quarks sp. and its combination with humidity arisen from transpiration of the foliages makes them as a firm material which stick hardly to the surface of the leaves in such a way that even wind can't remove them. Besides the sand storm phenomenon ,rainfall reduction and droughts, conscious and unconscious man made degradation such as subsoil plough aiming at dry farming which cuts the roots and forfeit the existent insufficient moisture of the region as well as animal grazing which prevents oaks' regeneration are the main factors of the weakness of Zagros Forests. At present, Zagros Forests with 5500 antiquity and 5 million hectares area as the main source of the water of the country have been threatened by Wood Eater Beetles species (Azizkhani 2010). This is because drought tension results in the increasing of amino acid density of the plant and therefore pests uprising. As a general, water tensions have stunts the growth of the plant and therefore they are very sensitive to pests uprising. Moreover, the surface temperature of the plants under water tension usually is 2 ◦c to 4◦ c more than other plants and this itself leads to increasing of growth speed of the insects (Koochaki , Sharifi and Zand 1998). As mentioned before, flooding, water shortages, dusty storms, aging and persistency, lack of revitalization ,incomplete age pyramid are the elements of incidence of pests uprising and its intensification there to. (Azizkhani, 2010). In which, of course, climate change is the first chain of all mentioned factors of a cycle that man is the main reason himself.

Province	Temperature ˚C		Forests areas	
	Mean temp.till 80 decade	Mean temp. in 80 decade	Forest areas before 70 decade	Forest areas in 70 decade
Lorestan	16/8	17/18	880000	585537
Kohkilooyeh & Boyerahmad	15/12	15/56	992000	427044

Table 2. The increasing of mean temperature and reduction of forests areas in two western provinces of the country

4. Conclusion

- Today global warming is a world issues which its effects and a consequence affects all living creatures on the earth.
- The area of the world ' forests is estimated to be about 9 / 3 billion hectares of which over 94 million hectares have been degraded during 10 years , 90% of this destruction in tropical regions.Forests degradation in Iran had also similar situation.
- According to studies increasing of temperature in Lorestan and Kohkilooyeh and Boyerahmad provinces has caused the reduction in forest areas.
- As it has been shown in table No. 2 the incidence of forest fires have been also increased abnormally in the country like other regions of the world in recent years.

5. Some strategies for declining global warming:

1. Minimizing the fossil fuels usage and replacing of other energies such as solar energy, hydrogen, waves, wind and nuclear energy;
2. Forest plantation and preventing the degradation of remaining forests;
3. To put more taxes on fossil fuels;
4. To use public transportation, standardizing the vehicles for saving energy;
5. To use utensils with more efficient energy consumption;
6. To absorb carbon dioxide in power stations for producing energy which is an effective method for decreasing global warming if buried correctly and don't add pollution in to the environment.

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