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INVESTIGATING ENVIRONMENTAL DESTRUCTIVE FACTORS IN IRAN AND THE WORLD

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ABSTRACT

Much has been said about the rulings on environmental degradation in Iranian and Western jurisprudence and law, but less has been said about the instances of degradation. Identifying the instances as subjects of rulings helps the legislator to be able to legislate properly. In this regard, this paper tries to examine the degradation examples of the environment with the help of tables and figures. Some of these instances are mentioned in Iranian law and international documents, which are dealt with separately. Instances include population growth, over-exploitation of fisheries, and overproduction of greenhouse gases, which the United Nations Environment Programme (UNEP) and The Intergovernmental Panel on Climate Change (IPCC) have addressed with shocking statistics. Organic composition of Methyl tertiary-butyl ether (MTBE) in the field of drinking water pollution, deforestation, land warming factors and nuclear explosions are also instances.

Keywords: *Degradation factors, Environment, Iran, International.*

OBJECTIVE INSTANCES OF ENVIRONMENTAL DEGRADATION

1. Population growth

Population growth leads to the use of pristine natural resources and more deforestation, and livestock are diverted to habitats formerly inhabited by wild species. Population growth also leads to cultivate on hills and pristine lands, which causes erosion and over-exploitation of natural areas, and because such lands are not inherently suitable for cultivation, their soil erodes. Poverty also causes more people to turn to the environment for a living, which will lead to the expansion of farms and the more deforestation and overgrazing. The table below shows the relationship between population, environment and poverty.¹

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¹ Pearce, David; Warford, Jeremy. (1993). *World without end: economics, environment, and sustainable development*. Translated by Avaz Kouchaki et al. p. 216.

Table 1

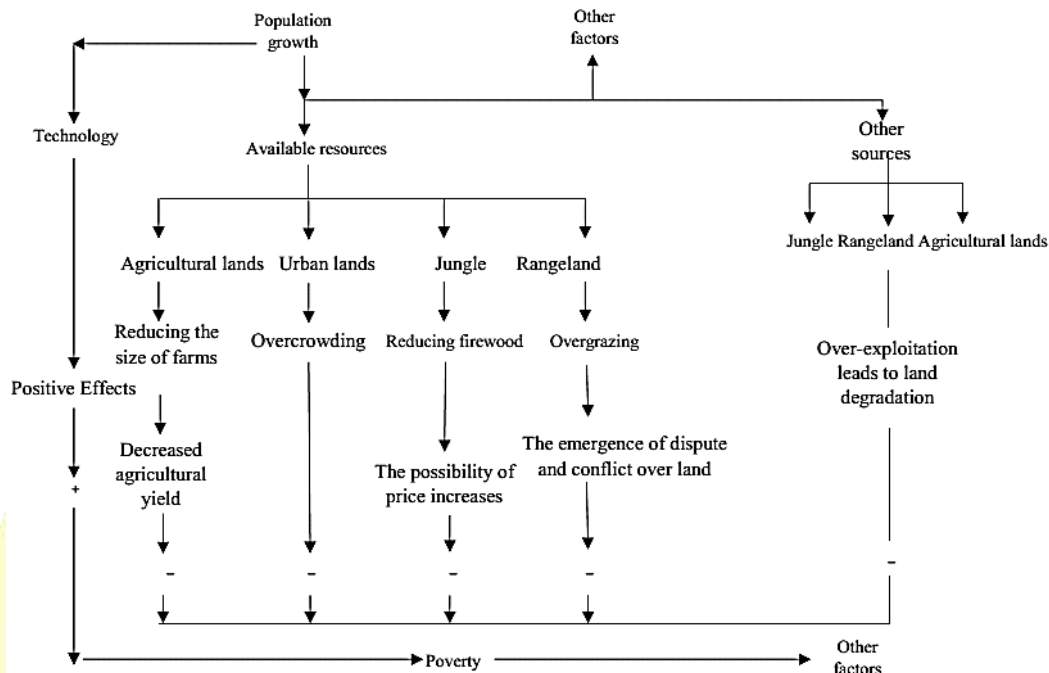


Table 1 - Relationship between population and environment and poverty

The world's population will reach more than eight billion by 2025. The peak of population growth in the early 1990s was 88 million people a year. The overall population growth of the world and its regional dispersion are presented in Table 2. Asia (excluding Japan) has the largest share of the world's population (56% of the world's population), with China (1,040 million) and India (765 million) making the most of it.²

Table 2: The trend of world population changes from 1900 to 2100 (in millions)

Region	1900	1950	1985	2000	2025	2100
Developing countries						
Africa	133	224	555	872	1617	2591
Asia	867	1292	2697	3419	440	4919
South America	70	165	405	546	779	1238
Total	1070	1681	3657	4837	6799	8747
Developed countries						

² Ibid. p. 217.

Europe, Japan, Oceania, Former Soviet Union	478	669	917	987	1062	1055
North America	82	166	264	297	345	382
Total	560	535	1181	1284	1407	1437
Sum total	1630	2516	4838	6121	8206	10185

As the population grows, so does the demand for non-renewable resources such as coal, oil and metallic minerals. Per capita consumption also increases as living standards improve.

Table 3 shows the relative share of population growth and the increase in per capita consumption demand for commercial energy (various forms of energy except firewood and other energy). The relative share is calculated by multiplying the per capita energy consumption in 1960 by the population in 1984. This calculation shows what the energy consumption will be if the per capita energy consumption remains unchanged as the population grows. This calculation shows what the energy consumption will be if the per capita energy consumption remains unchanged as the population grows. This change in total energy consumption is then expressed as a percentage of total actual energy production between 1960 and 1984. These data also show the per capita energy consumption in 1960 and 1984. For the

whole world, for example, if the per capita energy consumption of the world's population in 1984 was the same as in 1960, energy consumption would increase by 50 percent between 1960 and 1984. Thus; 46% increase in energy consumption is related to population growth and 4% is related to the increase in per capita consumption.

Improving living standards in Asia has led to growing energy consumption. The effect of this is evident in the per capita energy consumption of the countries of this continent. Thus, it is clear that population growth has an undeniable effect on non-renewable resources, such as oil. Rising incomes relative to population growth cause a relatively large increase in global energy consumption. Rising incomes in the United States and Europe have also had a significant impact on energy consumption growth.

The term "non-renewable" refers to stable storage of resources. It literally is fixed. Actual and recorded reserves of energy

and minerals are practically increasing over time; because the known and registered reserves are based on the possibility of commercial exploitation of these resources. Of course, these reserves are actually part of the total available resources. One way to determine the role of population growth in resource depletion is to estimate the total amount of resources based on geological structures and the probable amount of minerals. Thus, the total future population of the world at a given point in time can be estimated and then multiplied by the per capita consumption of resources and the result divided by the total amount of resource reserves. Thus, a very approximate

estimate of the number of years it takes for the resource to be depleted is obtained. But the results of these tests are misleading; because their calculations do not take into account the feedback and adaptation mechanisms that operate when resources are scarce. These mechanisms include developments in technology that reduce the amount of resource used per unit of economic activity and switch between resources. Price is one of the factors that lead to such a mechanism. With the scarcity of a resource and the expected increase in its price, the necessary incentive for conservation, replacement and technological evolution is provided in it.

Table 3: Population growth and energy consumption, by region 1960–1984

Region	Percent increase in consumption resulting from		Per capita consumption*	
	population	living standards	1960	1984
Africa	33	67	6	12
Asia	18	82	8	20
Europe	16	84	72	124
North America	51	49	-	-
Canada	-	-	162	286
United States	-	-	236	281
South America	37	63	16	28
World	46	54	38	55

- No information available.

* Billion joules per person

Source calculated based on data from the United Nations Environment Program (1987)

2. Over-exploitation of fisheries

Population growth is one of the effective factors in the over-exploitation of aquatics in the oceans, which is one of the common resources of all people in the world. Statistical data from 1962 and 1986 are not completely reliable; because some countries have reported less than the actual catch; but the procedures are clear. The rate of catch has increased significantly until around 1970. Irregular fishing is the result of demand resulting from population growth and rising incomes. Statistics for Norway and the United Kingdom show a decline in Atlantic herring fishing and a decline in the cod oil industry. The total catch of Atlantic cod fishing has decreased from 1.5 million tons in 1965 to about 600,000 tons in the 1980s. Haddock fishing has also decreased from 250,000 tons to about 50,000 tons.

There is a complex relationship between population change and shared ownership resources. According to it, shared resources refer to resources that belong to

the community and are managed jointly. The amount and rate of exploitation are regulated and determined in the traditional shared system of resources, and today many resources under shared ownership are managed effectively and in this way. In fact, in areas where the environment is highly fragile, shared management emerges in its most cohesive form; But the type and manner of communication is unclear. Other evidence suggests that the technologies needed to increase food production per hectare emerge to monitor and manage population growth within the capacity to maintain natural environments, or wherever the population grows.

Shared resource-based systems have declined for a number of reasons, including population growth. Other factors include migrant colonial farmers as destructive agents, appropriation of resources by governments, and various forms of pricing that are ecologically unsustainable and occur through subsidies for deforestation or irrigation.

Table 4: Amount of fish caught by major countries, 1962-1986 (In millions of tons of freshwater and ocean fish)

Region	1962	1972	1982	Average 1984-86
Canada	1/2	1/1	1/4	1/4
Chile	0/7	0/7	3/8	5/0
India	1/0	1/8	2/4	2/9
Indonesia	0/9	1/3	2/1	2/4
Japan	6/4	9/9	11/0	11/8
Norway	1/4	3/0	2/7	2/2
Peru	7/1	3/5	2/5	4/4

Republic of Korea	0/5	1/3	2/3	2/7
Former Soviet Union	3/8	8/2	9/9	10/8
Thailand	0/4	1/7	2/2	2/2
United Kingdom	1/0	1/1	0/9	0/9
United States	2/9	2/8	4/1	4/8
World	45.7	62/3	76/8	86/9

Source: United Nations Health Program (1990)

3. Greenhouse Gases

Greenhouse gases are one of the causes of environmental degradation.³ Concerns about global warming and climate change are not new. For almost a century, researchers have been concerned about global warming as a result of the overused of fossil fuels for energy to develop the Industrial Revolution. In this regard, a series of international conferences have been held since the 1980s to exchange ideas and align scientific and motivational theories with research activities, as well as to issue warnings and provide specific recommendations and executive plans. In 1988, UNEP and the World Meteorological Organization (WMO) established the IPCC to study science, identify climate change, and develop scientific policies to combat it.

UNEP has presented shocking reports in recent years based on its research programs and the results of its research on

the causes of global warming and the consequences of this phenomenon in various biological fields, which are more concerned about the disastrous effects of global warming on continental changes, agricultural changes, Human injuries, especially in Third World countries, and Being sceptical the human abilities against these changes.

According to UNEP, rising global warming is boosting agricultural power in some parts of the world and, conversely, severely damaging it in others. With each degree of global warming, changes may occur over a wide area of hundreds of kilometers. The effects of this increase, including increased floods, prolonged droughts, fires, and crop pests, may severely damage agriculture.

UNEP emphasizes that governments should try to moderate the critical and changing factors of continental conditions (prevent) as soon as they are confronted.

Increased rainfall in some areas along with warmer weather may reduce crop yields

Hamidreza and Alireza Pourkhabbaz. (2002). The ³ major environmental disturbances of the present century.

and lead to issues such as soil erosion and degradation, wetland formation and increased pollution, and designers should consider such possibilities.

In the tropics and subtropics, at a latitude of 35 degrees north and south, where most developing countries are located, profound continental changes are forecast. In such a way that the dry lands are drier; more severe land degradation; faster desertification; wet areas are getting wetter and tropical storms are getting worse.

Continued deforestation between 1990 and 2020 will cause the extinction of five to fifteen percent of the world's species, equivalent to the extinction of fifteen to fifty thousand species per year, or forty to 140 species per day.

According to all UNEP researchers, deforestation is a major cause of biodiversity imbalance, global warming and its catastrophic consequences (United Nations Environment Program 1989).

Global warming and climate change will seriously disrupt marine ecosystems and severely damage the habitats of fish, shrimp and bird species.

Combined with increasing storms, rising sea levels, water shortages and declining

agricultural yields, many people will be displaced from their native lands. Unless effective steps are taken to stop global warming and prepare for its devastating effects, millions of human refugees must be expected in 2100.

The results of a joint study by UNEP and the US Environmental Protection Agency show that rising water levels in the Nile Delta could displace 15 percent of the 90 million population around the delta.

In 1988, UNEP and the World Meteorological Organization (WMO) established the Intergovernmental Panel on Climate Change (IPCC) to scientifically study and identify climate change and to formulate and recommend scientific policies to combat it. Several hundred scientists from more than 35 countries are actively involved in the study.

The delegation said in a brief report that global temperatures have risen from three to five tenths of a degree Celsius in the last hundred years. Global per capita emissions of long-lived greenhouse gases into the atmosphere (in terms of carbon) are estimated at 1.45 tons per year, which is higher in developed countries than in developing countries. Western Europe, for example, emits 4.2 tons a year and the

United States 5.08 tons a year. And African citizens emit only 25 percent of their annual carbon emissions.

increase more rapidly. The chart below shows the amount of this increase until 2025 (in million tons).

Unless more precautionary measures are taken, greenhouse gas emissions will

Tons per year

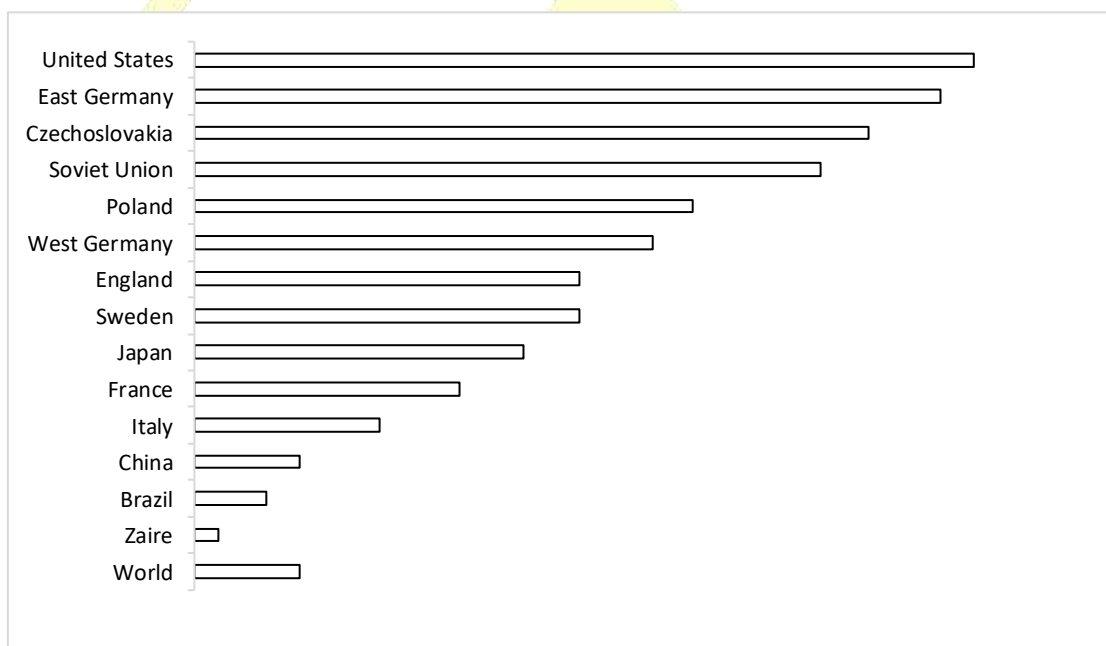


Table 5 - Per capita emissions of greenhouse gases in terms of carbon by different countries and the world

Source: (Carbon Dioxide Information Analysis Center. Oak Ridge National Laboratory, Swedish Environmental Research Institute. 1990)

4. Contamination of water resources with MTBE

Methyl tertiary-butyl ether (MTBE), is an organic substance that is widely used in lead-free gasoline in Iran and some countries today. At the beginning of the

selection and use of this material, its environmental benefits were considered; but now, after several years of its use in the world, it has become clear that this substance has the potential to have adverse effects on humans and cause severe soil pollution. The entry of this substance into

the soil causes water and soil pollution. This substance is very mobile and its movement in soil is subject to the laws of motion in water. Its half-life is high in water and it is poorly absorbed by soil particles, which causes MTBE to move to groundwater. Due to the widespread use of MTBE in Iran, before its use becomes a problem, better solutions and better alternatives must be determined.

5. Eradication of Forests

Undoubtedly, deforestation is one of the causes of environmental degradation. We examine this cause in two parts.

5.1 In the past, fourteen percent of the land was covered by forests. Seven countries now account for 60% of the world's forests, including Russia, China, the United States, Canada, Indonesia, Brazil, and the Congo. In recent decades, the world's forest regions have declined greatly in both area and quality, and now half of the world's forests have been lost. In addition, sixteen million hectares of forests are lost every year to provide timber and to turn them into large and small rangelands and farms. The following figures show the area of forests in different regions and the

amount of wood used for paper and cardboard in the world.⁴

B) In Iran

Today, ten percent of Iran's land is forest, while the current forests are one-twentieth of the forests created at the time of Christ (pbuh).⁵ For example, Seyyed Mohammad Lashgarnevis, who wrote his memoirs in 1277 AH, writes on page 94 of the book (three travelogues): "We passed through the forest of Koocheh Qom, whose road is full of hardships and snakes and moors everywhere, and the width of that forest is about two and a half parasang, and I do not know its length, and in the evening we reached the desert of Dash Robot." But today, these forests have all been destroyed and the reasons for this destruction can be considered as follows.

B- 1. Farmers

Instead of resorting to modern agricultural implements that quadruple their yields, Iranian farmers turned to deforestation.

B-2. Ranchers

Livestock is the largest source of income for Iranian nomads. Although the nomads

⁴ Brown Lester et al., *The State of the World 1998*, translated by Hamid Taravati et al.

⁵ Ali Bakhshaki, *Environmental Protection and Improvement of Iran*

provided their necessities with kilims, sacks, and carpet weaving, the cattle needed fodder, which had to increase every day due to need, and this also caused them to migrate in summer and winter quarters. Iranian nomads lived until the Mongol invasion, but then migrated under the influence of the dominant culture and to find safe places. Sometimes their summer and winter quarters distances reach three hundred kilometers, and unfortunately during this long journey, a large number of cattle die and the surviving cattle lose about four kilograms each. However, in this way, forests are destroyed and summer and winter quarters rangelands are formed, which is the primary source of livestock fodder.

B-3. Fuel Consumption

Forests have always been an important source of thermal energy production in Iran. By 1330, about ten million pieces of wood were converted into coal annually, while burning only ten percent of the wood was converted into coal and the rest was wasted. Forests were also divided among the people, and the owner could cut down the trees to make boards and market them; however, since 1342, with the nationalization of forests, this process was

monitored and oil and gas fuels gradually replaced fossil fuels.

When I was born, my father entrusted me with fifty trees for the future. Now, after half a century, I can leave only five of them to my future. Certainly, these five trees will not repair the oxygen they consume, nor will they be able to preserve their homeland. At the July 2001 conference in Bonn, the former German capital, the Japanese, Russians and Canadians were selling the value of their forests as oxygen producers and consumers of carbon, and we should not just be looking to sell our forest wood.

B- 4. Over-Exploitation of the Forest

According to historical evidence, there have been residential areas in Iran for 7,000 years ago, and it was one of the centers of human activity at that time when people cut down forest trees to build houses and provide supplies as well as fuel.

The Almighty created man from dust and placed his sustenance on earth. This is the reason why human beings enjoy various benefits from natural gifts. None of the laws are intended to block the use and exploitation of the environment, and of course what is forbidden is the over-use

and destruction of these gifts. For example, the permitted use of forests, rangelands and groves, in addition to the economic benefits for users, also creates a state of equilibrium in these rangelands, and what is prohibited by law is the unconventional use of forests and rangelands. For more information, follow the laws of protection of forests and rangelands in the country:

1. The Law on Protection and Exploitation of Forests and Rangelands, approved in 1967, pays attention to both protection and exploitation. This law indicates that any kind of exploitation is not prohibited.
2. According to Article 44 of the law, grazing in enclosed areas without a license is prohibited; therefore, grazing is allowed in places that do not cause significant damage to rangelands.
3. Articles 46, 47, 48 and 49 of the law prohibit lighting fires and setting up coal stoves in unlicensed forests.
4. According to Article 18 of the Implementing Regulations of the Law on Nationalization of Forests, approved in 1962, it is forbidden to

cut down forest trees without a special hammer; therefore, only in places where the authorities deem it appropriate, the exploiters will have the right to cut down the forest tree.

It should be noted that some consider environmental protection to be in conflict with economic development; while there is no conflict in the proper exploitation of nature and economic development.

CONCLUSION

Numerous factors are involved in the destruction of the environment in Iran and the world, which, according to reliable domestic and foreign statistics, have created a complicated situation. These factors include overpopulation, over-exploitation of fisheries, overproduction of greenhouse gases, pollution of drinking water, and eradication of forests.

Given that not all the inhabitants of the earth have more than one living planet, a practical balance must be struck between development and environmental protection, otherwise the living conditions of future generations will be further endangered.

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