



Environmental strategies to tackle global warming planet

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Abstract

One of the technological progress and construction development is environmental problems which become more increasingly human faces. The most pervasive environmental issue is the global warming that will be the major treats in the human life. Global warming or in other words natural or man-caused increase on the average temperature of the atmosphere near the Earth's surface due to the greenhous effect has the potential effect on global climate change, melting ice in the Arctic and Antarctic, rising sea levels, prolonged droughts, resource depletion and water supplies, creating storms, flash floods, changes extreme weather, forest fires, dust increased and air pollution, adverse effect on tourism and other industries. This research method is description study that has written by using the library studies and numerous articles and that aim to investigate of the different estimates of potential greenhouse gases that contribute to global warming and strategies for reducing global warming in order to achieve the goals of environmentally sustainable development will be discussed.

Keywords: environmental problems, global warming, greenhouse effect, global climate change, sustainable development



Introduction

The global warming is regarded as natural or human-caused increase in the average temperature of the atmosphere near the Earth's surface. Research shows that increase in the temperature of the Earth directly depends on the greenhouse gas emissions resulting from human activities (Ardekani, 1386). Man is the biggest factor in producing greenhouse gases mostly by burning fossil fuels in motor vehicles, factories and livestock. Earth's atmosphere consists of various gases. A group of gases help to retain heat of the earth's surface because their performance in the Earth's atmosphere is similar to a greenhouse which traps the sun's rays to provide the heat for the growth of plants. These gases are necessary for our survival on the planet. Without greenhouse gases no layer of atmosphere will exist to trap solar radiation making the Earth so cold and uninhabitable. In Table 1 Common greenhouse gas, basic resources of production and related activities and the global warming potential of each gas have been separately shown (Shiasi, Rezvani, & Rastaghi, 1391). The greenhouse gases with their standard density are essential for life on Earth, but their higher levels will cause global climate change. The upper limit of CO₂ in the atmosphere was 300 ppm, but now this amount has reached 388 ppm and studies show that this amount is annually increased by 2 ppm. Unfortunately, the persistence of CO₂ in the atmosphere today is very high and this means that if you reduce CO₂ production at once it will take several years to reduce the harmful effects of increased CO₂ on global climate. Contrary to CO₂, CH₄ has shorter lifetime in the atmosphere. Lifetime of CH₄, is calculated 12 years, so by stopping its production, the gas will quickly disappear from the Earth's atmosphere (Taghizadeh, Ali, Kargar, & Nikzad, 1392). Studies show that global warming has potential damaging effects such as global climate change, the melting of the Arctic and Antarctic glaciers, rising sea levels, long-term droughts, resource depletion and water supplies, breaking storms and sudden floods, dramatic climate change, forests fires, increase of dust and air pollution, adverse effect on tourism and other industries (Mir Sanjari & Tamizi, 1390), So by increasing concerns about the harmful effects of this phenomenon, it is essential to have a proper understanding of the greenhouse gas emissions from human activities with an environmental perspective.

Table 1: Common greenhouse gases, and global warming potentials (Shiasi, Rezvani, & Rastaghi, 1391)

Primary Sources of Production	GWP	GHG _s	Name of Greenhouse Gas
Burning fossil fuels (transportation, industry and energy production)	1	CO ₂	Carbone Dioxide
Burial landfills, coal mining, agriculture, animal waste, sewage	23	CH ₄	Methane
Chemical fertilizers, vehicles, sewage treatment, Burning waste materials	310	N ₂ O	Nitrogen Oxide
Industrial chemicals used as an alternative to the factors causing loss of stratospheric ozone	140-11700	HFC _s	Hydrofluorocarbons
Aluminum smelting industry, semiconductor industry, electric power transmission industry	9200-6500	PFC _s	Perfluorocarbon
Aluminum smelting industry, semiconductor factories, electric power transmission industry	23900	SF ₆	Carbon Hexafluoride



1. Reasons of global warming

1.1. External forces

External forces refer to the external processes of climate systems (not just necessarily external to the Earth) which affect the weather. Climate reacts to several types of external forces such as radiation forces due to the changes in atmospheric composition (mainly density and concentration of greenhouse gases), changes in solar radiation, volcanic eruptions and changes in the Earth's orbit around the sun. These cycles have been gradually changed during ten thousand years ago and therefore the hypothesis that they caused the observed temperature changes over the past century has not yet been proved (Wikipedia, 2010).

2.1. Greenhouse gases

Greenhouse effect is the process in which atmospheric gases absorb and emit infrared radiation which leads to warming the Earth's surface and its lower atmosphere. It was discovered by Joseph Fourier in 1824 and quantitatively studied by Svante Arrhenius for the first time in 1896.

Greenhouse gases increases the temperature around 33° C (59° F). The main greenhouse gases include water vapor which causes 36-70 % of the greenhouse effect, carbon dioxide causes 9-26 percent of the warming, methane 9.4 percent and ozone 7-3 percent. Since the industrial revolution human activities led to an increase in emission of carbon dioxide, methane, troposphere ozone, CFC and nitrogen oxides. The density of CO₂ and CH₄ has increased in the following order 36 and 48 percent since 1750. These values were maximums over the last 650 thousand years. This credible information about 650 thousand years ago has been extracted from the combination of air trapped in the ice. Geological records have shown that the present amount of CO₂ has been the highest amount in the past 20 million years. About 3/4 percent of increase in CO₂ has been occurred by burning fossil fuels by man during the past 20 years. Most of this excess is the result of land use changes, especially deforestation. CO₂ gas density by burning fossil fuels and changes in land use are increasing. The Committee of Climate Change special report on emission scenarios states that the scope of CO₂ emission will be in the range of 541 ppm to 970 ppm by year 2100 (Wikipedia, 2010).

3.1. Volatility and changes in solar radiation

Changes in solar radiation led to climate change in the past, but solar power for the past decade showed minor significance in global warming. Greenhouse gases and sunlight in different ways affect the temperature. With the increased activity of the sun, the stratosphere warms up while greenhouse gases cool it down. Satellite measurements showed that the temperature in the stratosphere is being cooled down since 1979. One hypothesis suggested by Henrik Svensmark asserts that magnetic activity of the sun has led to perversion of cosmic rays that may trigger the production of contractive nuclear clouds and thereby influencing climate (Wikipedia, 2010).

4.1. Positive and negative feedback

Greenhouse warming is a very complicated phenomenon. The effect of this heating causes the positive and negative feedback rings that may neutralize or rise up any temperature increase (Botkin & translated by Vahhab Zadeh, 1387). Positive feedback exacerbates the initial quantity while negative feedback reduces it. Feedback is important in the study of global warming because it is possible that these increases or decreases may be the result of a series of special processes. An important positive feedback in global warming is the increase of water vapor in the atmosphere leading to further heating. The negative feedback is important in a way that according to Stefan Boltzmann law by increasing the temperature of the earth's surface and its atmosphere, the amount of heat radiation from the Earth into space increases. Misunderstanding the feedbacks issue is the main factor of doubts and concerns about global warming (Wikipedia, 2010).



2. Adverse effects of global warming

1.2. The adverse effects of global warming in Iran

Climate change can be discussed in various aspects such as floods, drought, spread of diseases such as malaria and finally the impact on agriculture and the national economy. Consequences of climate change in the country can be summarized as indicated below (Abdoli, 1380) (Dean, 1992) (EPA, 1998) (Fankhauser, 2013):

- Climate change will threaten the quality of water resources and water quality especially surface waters will be worsened reducing the recoverable amount of clean water.
- It will lead to changing patterns of rainfall, abnormalities in intensity, duration and amount of rainfall in different regions.
- Destruction of vegetation and forests, as well as desertification will be intensified.
- Alters the ratio of runoff and the change of penetration and increases sediment fertility of drainage catchments.
- It will change the ratio of evaporation to penetration and will change underground waters level as well as changing the amount of runoff in different areas.
- It will change snow reserves causing early snow melting and loss of snow storage that plays a significant role in supplying water for reservoir dams.
- It will possibly change the water level of the Persian Gulf and the Caspian Lake.
- Since the country is located in the arid region the amount of agricultural products will be decreased and this phenomenon will result in unemployment, migration to the cities and related consequences.
- Change of temporal and spatial distribution of snow and rain will change the regime of discharge in different areas.

2.2. The adverse effects of global warming

It is predicted that global warming brings about the following adverse effects (Titus, 1990):

1.2.2. Global sea level rise

- Submergence of wetlands and lowland
- Erosion of coastline
- Intensifying coastal floods
- increasing salinity of marshes and aquifers and other harms to water quality
- Change in place of sediments deposition in rivers
- Changes in tidal range and increase of waves height
- Reduction in the amount of light reaching the bottom of seas and rivers

2.2.2. Climate changes

- Changes in the amount and pattern of precipitation
- Changes in the frequency and severity of climatic events

3.2.2. Desertification in the tropics

4.2.2. Vulnerability of ecosystems

5.2.2. Extinction of plant and animal species

6.2.2. Change in the amount of agricultural products

7.2.2. Retreat of glaciers

8.2.2. Reduction in level (surface) of the poles and plates of Glaciers



3.2. Economic costs of global warming

The economic impacts of global warming are very obvious. Advancement of sea water toward ports facilities, reduced water quality, increase of floods and etc. impose severe economic losses. For example, increase of the temperature and lack of water will result in replacement of water cooling systems with gas ones. Given that the gas systems consume more electricity, the need for investment to construct more power plants will increase. As a result having more power plants will increase the amount of greenhouse gases, and this will end in global warming.

3. Strategies to tackle global warming

1.3. New energies role in reducing greenhouse gases

World's high dependence and increasing need for energy resources as a key factor for development and economic activities on the one hand, and limited oil resources and fossil fuels on the other hand, have challenged the world with a complex problem of energy supply, as well as the possible issue of climate change and its relationship with fossil fuels and greenhouse gases has given it a global dimension. Although fossil fuels are still the major supplier of energy in the world, but sooner or later man must seek to use new and renewable energies. Renewable energies such as solar, wind, geothermal, tidal energy, biological fuels and nuclear energy are naturally produced. These energies have benefits such as renewability, high energy generation capacity, lack of environmental pollution and help to supply the energy needed (Nasiri, 1376). But instead of the benefits of this type of energies, there are major problems, such as high investment costs, and spatial and temporal constraints (Sadeghi, 1376). Table 1 shows the level of impact of a variety of energy sources on the environment. This table shows that fossil fuels negative impact on the environment and climate change are more severe than that of the alternative energies.

Table1. compares the influence of energy sources on the environment (Nasiri, 1376)

Climate Change	Air Pollution	Wild Life	Energy Sources
Very High	Very High	Very High	Coal
High	Moderate to high	Very High	Oil
Low to Moderate	Low to High	Low to High	Natural gas
Low	Low to Moderate	Low to High	Biological fuels
Low	Close to Zero	Close to Zero	Wind
Low	Close to Zero	Close to Zero	Sun
Low	Close to Zero	Close to Zero	Geothermal
Low	Close to Zero	High	Nuclear Energy

2.3. Use of conservation agriculture

Today the increase in agricultural activities as one of the factors affecting greenhouse gas emissions has intensified climate change and global warming phenomena. The use of chemical fertilizers and fossil fuels in agricultural operations are two main sources of CH₄, NO₂ and CO₂ greenhouse gas emissions. By changing tillage management system to conservation tillage technology, the consumption of diesel and fertilizer could be saved and effective steps be taken in reducing global warming. Carbon emissions in form of greenhouse gases or consumption of these gases by soil in recent years have drawn focal attention of ecologists and their specific management to reduce the growing pollution of greenhouse gases. Management practices such as crop species selection, land preparation operations and adding chemical fertilizers are the key factors influencing greenhouse phenomenon. Meanwhile the management of crop residues by applying the principles of conservation agriculture could be effective in various aspects of sustainability, environmental, agricultural and economic. So the use of conservation agriculture is a key step for making sustainable agriculture system productivity and profitability compatible with environmental protection (Abbona, 2007). One



of conservation agriculture systems is no-tillage farming that is, according to the Conservation Tillage Information Center of America, a tillage system in which by keeping at least 30 percent of the soil surface by the residues, soil and water resources consumption, energy saving and labor and production costs are optimized (Godwin, 1990). In addition, the abovementioned system can improve the soil structure, increase carbon combination in agricultural soils and finally reduces the emission of greenhouse gas carbon dioxide (Snyder, 2009). Several studies have been done on the impact of tillage and vegetation on greenhouse gas emissions which their results indicate that conservation tillage by creating vegetation creates a kind of physical protection to the soil, finally resulting in preservation and improvement of carbon content and lower emission of carbon dioxide respectively. Also, as mentioned before, energy consumption and nitrogen fertilizers are the most important agricultural activities that contribute to greenhouse gas emissions. Conservation agriculture by reducing the number of machining operations at the stage of land provision, the level of energy consumption in agricultural products is significantly reduced. In addition, by utilizing tillage and residue procedure, physical and chemical properties of soil are improved and chemical fertilizers consumption is remarkably reduced (Gholami, 2013).

3.3. Afforestation to reduce global warming

After fossil fuels, deforestation is the second leading cause of the buildup of excessive carbon dioxide in the atmosphere. Usually, all carbon entering the atmosphere is produced by deforestation in the tropics. Temperate Forests are so effective in increase of carbon dioxide because the growth rate and the number of trees cut are approximately the same. Deforestation by burning the trees increases carbon dioxide in two forms:

Destroying them on the one hand, on its own means removing the most important sources of carbon dioxide absorption and on the other hand burning them significantly increases the amount of carbon dioxide. Tree planting alleviates the danger of global warming. Trees absorb carbon dioxide during photosynthesis and hold it for a long time. It also improves the aesthetic aspect of urban areas and results in more timber supply which is a renewable source as well (Seyyed Al Husseini, Nakhaei, & Mohammad Salahshoori & Mahmood Dashti, 1394).

4.3. Waste management to reduce global warming

Although waste holds only 4 % share of greenhouse gas emissions worldwide, but controlling this small section will have a significant impact. This part does not taken into account the energy used to reproduce the stuff from those once we disposed. Producing new products from raw materials requires a lot of energy. In fact, greenhouse gas emissions through waste should be integrated with manufacturing section and then it would be revealed that this issue has allocated 21 % of total greenhouse gas production (Roseland, 1992). The amount of methane produced in disposal sites is a very serious environmental challenge. This gas can be produced by composting recyclable waste. In order to reduce greenhouse gases it is necessary to focus on reducing waste production and considering this sector regardless of reduction in waste production will be useless.

Measures taken in waste management to reduce global warming include:

- Production monitoring (including production, use and post-use)
- Use of recycling techniques
- Optimization of wastewater treatment process
- Retrieval and conversion of biogas into electricity
- Use of biogas as fuel
- Collection of the waste in towns and villages and their timely transfer to disposal sites



5.3. International activities taken to tackle global warming

Climate change is a worldwide phenomenon happening around the globe. Therefore all the inhabitants of this planet must act to prevent this disaster. Thus, a coordinator of international organizations should be formed to deal with this matter. The United Nations decided to deal with this issue by creating a commission solving the existing problems, and by holding annual conferences¹ took measures to prevent the progression of this phenomenon. In 1980s, scientific evidence showed that greenhouse gas emissions resulting from human activities threaten the global climate, so public opinion felt the need for periodic international conferences and treaties to resolve this issue. First, in 1988 the United Nations General Assembly adopted the Intergovernmental Panel on Climate Change² joint with the World Meteorological Organization and United Nations Environment Program to assess scientific findings in the field of changes in the same year. After that a series of international conferences held by governments to reflect public opinion. In 1990 the General Assembly of the United Nations formed Intergovernmental Negotiating Committee³ to compile the United Nations Framework Convention on Climate Change⁴. Negotiating Committee prepared the draft of convention which was approved on 9 May 1992 at UN headquarters in New York. This convention prepared for the Earth Summit, in Rio de Janeiro in June 1992, was signed in a meeting by the heads of state and senior officials from 154 countries and became enforceable since 21 March 1994. By mid-1999, more than 175 UN members ratified or accepted it. Iran in 1996 after the approval of the Cabinet and the Islamic Consultative Assembly became a member of the Convention (Website of Iran's Climate Change Office).

The most important measures taken in this area in the past:

At the third Conference of the Parties in 1997 held in Kyoto, Japan the first global treaty to reduce greenhouse gas emissions under the title of **Kyoto Protocol** was adopted in which only the rich countries were obliged to reduce their greenhouse emissions by 2008 up to 5 % below their emission levels in 1990. The protocol entered into force in 2005 after ratification of Russia (ADOPTION OF THE PARIS AGREEMENT). In the seventh conference of member in 2001 in Morocco, negotiators with regard to previous negotiations related to climate change, took comprehensive decisions under the title of Treaty of Morocco. The treaty stipulates the methods of measuring emissions, reduction and detection of the amount of carbon dioxide absorbed by wells that must be taken into account in the Kyoto Protocol commitments, as well as the mechanisms of collaboration on the project and the emission trading system, and the laws to ensure adherence to obligations. The treaty also established a special fund for climate change to provide capital for less developed countries and to help developing countries to achieve clean energy technologies limiting greenhouse gas emission. Thirteenth conference of the members was held in 2007 in Bali, Indonesia. This conference focused on the concepts of long-term collaborations. These negotiations resulted in establishment of long-term collaborations committee, whose agenda was focused on five dimensions, including: shared vision, further steps to reduce emissions, further measures for adapting to climate change, financial mechanisms and technology transfer. Fifteenth conference of the members was held in 2009 in Copenhagen, Denmark. This conference was the first attempt to substitute a new treaty with the Kyoto Protocol that ended in failure because of disagreements between rich and poor countries on their duties. At the end of the meeting, the only agreed document was the Copenhagen Accord which is not a legally-binding treaty in which the rate of emission reduction is not clearly stated, but included the decrease in temperature below two degrees Celsius and financial support of \$ 30 billion for the annual period of 2010 to 2012.

¹ COP: Conference Of the Parties

² IPCC

³ INC

⁴ UNFCCC



In the seventeenth Conference in 2011 in South Africa the following important decisions were taken:

1. The second period extension of the Kyoto Protocol commitment period (the committee is required to regulate a legally binding regime by 2015 to oblige all countries to reduce emissions.)
2. Green Climate Fund (the fund will operate under the supervision of the conference. In addition, according to the Copenhagen Accord it is supposed to provide up to 100 billion dollars annually by 2020.)
3. Committee and technology network (technology transfer to reduce greenhouse gas emission and also to adapt to climate change conditions) (ADOPTION OF THE PARIS AGREEMENT).

On December 12, 2015 in Paris, a historic agreement was reached by 195 countries to fight climate change and remove obstacles to take action against climate change as well as investment in low-carbon, strong, flexible and sustainable economy. For the first time Paris Agreement persuaded all countries to agree on a co-work based on their historical responsibilities. According to what determined in Paris in the Intended Nationally Determined Contributions⁵ Iran is committed to reduce greenhouse gas emission up to 4% by 2030 compared to its present trend, and by total lifting of sanctions and international collaborations it will reach to 12% (Website of Iran Environmental Protection Organization.).

In the twenty-first Conference of the Parties in Paris⁶ the enforcement of countries' obligations is encouraging and facilitating. If a country does not fulfill its obligations it will be internationally criticized. International investment in developing countries is allowed if only the projects involved not being increasing greenhouse gas emissions. This agreement is significant because other environmental conferences regarding climate change in the past few years have not been successful. This agreement was signed on 22 April 2016 and after 2020 will come into effect. This agreement like the Kyoto Protocol, to be finally approved, must be at least signed by 55 countries who are the producer of at least 55 % of carbon emissions, and the countries signing the agreement are obliged to reduce greenhouse gas emissions after 2020 (UNFCCC.int/kyoto-protocol).

The important parts of the agreement are as follows:

- According to the agreement, the rate of increase of global warming should remain below 2 degrees Celsius by 2100 and there will be a huge effort to limit it up to 1.5 degrees.
- Developed countries should be pioneer in reducing greenhouse gas emissions to a certain amount and the developing countries have also been asked to reduce emissions intensity. Less developed countries and island nations have been required to plan and implement strategies to lower emission of greenhouse gases.
- Member States should report their INDCs on climate change declaring their emission share by 2030. In accordance with the target, by 2030, carbon emission should not surpass 40 billion tons. Before the conference 146 countries have sent their reports including 86 % of CO₂ emission share (4 times as much as the Kyoto Protocol) stating that they are currently incapable of making an estimation of keeping the increase in Earth's temperature below 2 degrees Celsius but are able to reduce the rate of this increase compared to the last two decades.
- From 2020 on developed countries will help developing countries \$ 100 billion a year to meet the target set for reducing greenhouse gases and adapting to new climate conditions. Currently Green

⁵ INDCs

⁶ COP21



Climate Fund has about \$ 10 billion to be used in climate change projects for the period of 2015 - 2018 and a significant portion of this fund is used in countries that are most vulnerable.

- One of the conditions of this financial aid is to help greenhouse gas reduction tackling climate change hazards.
- Under this agreement a mechanism is set up to manage greenhouse gases reduction supporting sustainable development. This mechanism which is going to be set up in 2016 facilitates countries' contributions through public and private sectors in reducing greenhouse gas emission so that global emissions be reduced (UNFCCC.int/kyoto-protocol).

The main sources of greenhouse gas emission and common strategies to control them are shown in Figure 1:

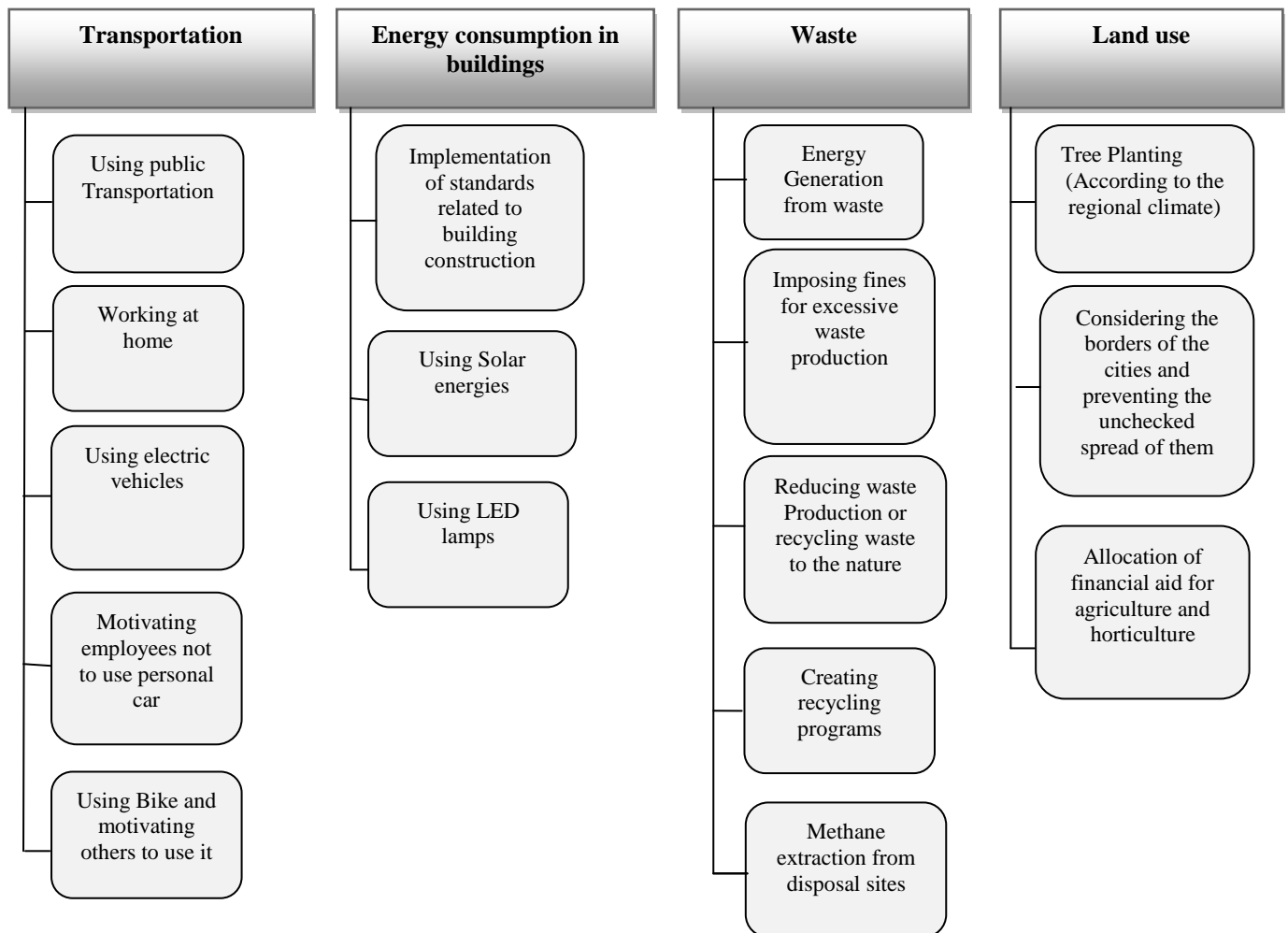


Fig1. The main sources of greenhouse gas emissions and common strategies to control them



6.3. New ideas to tackle global warming

1.6.3. Injecting sulfur into the lower atmosphere layers

Another necessary action to reduce global warming is pumping sulfur dioxide in specific layers of the atmosphere. It is exactly the same process that occurs over the volcanic mountains to form a wide barrier against the sun. When sulfur dioxide gas reaches the stratosphere, a series of chemical reactions happen merely reflecting solar radiation into deep space. In fact, these fine particles react with each other to strengthen and become reflective objects such as mirrors reflecting sunlight into deep space. Concurrent with the release of sulfur dioxide gas in the atmosphere some chemical interactions happen among which molecules such as OH, O₂ and H₂O are the most important factors. Steam particles that are very fine droplets increase the amount of sulphate particles in the atmosphere

(sulfur dioxide will form suspended sulfuric acid droplets) and these particles can reflect a significant percentage of the sun's rays back to space. Scientists have put forth three interesting ideas for artificial direction of this gas to the layers of the atmosphere. The first idea is to use it in a high-altitude aircraft fuel so that significant volumes of gas to be released in the upper atmosphere layers. The second idea is the use of lightweight balloons which can raise the gas as high as possible. The third idea is using missiles that their bodies are charged with this gas and can reach the middle layers of atmosphere much faster than a plane and even the aforementioned balloons (Fleming, 2005) (Houghton, 1995). Disadvantages of the mentioned plan are that the sulfur dioxide in the earth will cause darkening of the planet and intensify respiratory and cardiovascular diseases. It also plays a significant role in formation of acid rains (Botkin & Translated by Vahhab Zadeh, 1381).

2.6.3. Transparency of clouds over the oceans

Another idea to deal with this phenomenon is transparency of clouds over the oceans which seems very practical by spreading sea salts in them. Sea water naturally contains a lot of salt crystals that could create a crystal network together and divert a considerable amount of sunlight to a path except for the Earth. It seems that this idea is one of the most practical methods for quick cooling of the Earth. In this technique sea water is sprayed with a significant intensity to the upper layers of the air around the Earth. During this process a considerable volume of water evaporates and the salt crystals appear. These crystals become floating in the air at a height of over 3 kilometers that are capable of making clouds around them glowing. This glow acts like a hidden mirror in the lowest layers of the air above the earth and as a shield against strong sun's rays. But establishing such a system in the air surrounding the earth has its own complexity. Scientists have suggested special type of ships to implement this idea. These unmanned ships are guided and controlled using satellite system. They sail in free waters shooting salt water upwards with certain intensity with the help of vertical rotating systems. When these ships move, their special turbines start turning supplying the electricity required for activation of the rotational systems (Houghton, 1995).

3.6.3. Tiny reflective panels in space

Another idea to deal with this phenomenon is using radiant panels in space to reflect sunlight deep into the earth. Scientists believe that these panels can be placed next to each other in a planned arrangement to act as a powerful shield against different harmful solar radiations. The panels have different capabilities. The most important is the ability to act as a filter to reflect a series of solar radiation back to space. The idea proposed by scientists is utilization of discus launchers operated by Smart Positioning System shot into space. These panels that may be selected in millions each time are placed in cylinders capable of being shot into space by weapons equipped with powerful electromagnetic coil core. When these discuses are deployed in space form a very vast surface in a large network. But these networks may be trapped in Earth's gravity. In order to solve this problem scientists have thought of a simple solution to put the network in a place between the Earth and the Sun that based on the calculations the interaction of the Sun's and Earth's gravities is almost zero at



this point and It can be hoped that this system will remain fixed in its place. When these panels reach the desired point in space around the Earth, they are guided, by mirrors acting like sails in the solar wind, to their permanent positions finally forming a large network. These tiny discuses In fact, are similar to filters that prevent the passage of solar radiation towards the Earth. Scientists predict that over the next 30 years this project will be gradually completed and finally these panels form a great shield against the sun's rays (Fleming, 2005)



Conclusion

Global warming, Climate change and its consequences on human life and its development process in societies is one of the most challenging issues in international community that drawn the attention of many scientific and political gatherings worldwide during the last two decades. Intergovernmental Committee on Climate Change⁷ says climate change around the world is very likely caused by human factors. The committee has concluded that most of the temperature rise in the mid-twentieth century is due to human activities such as burning fossil fuels, deforestation, land use change, removing vegetation and agriculture that all are the source of greenhouse gases emission. The American National Academy of Sciences also introduced human activities as the major cause of greenhouse gas emission phenomenon. The main causes of this issue are population growth and technological progress and consequently increase of community demand for energy savers which showed more than 4 percent growth in the last century. Continued global warming causes the rise of sea levels and changes in the amount and the pattern of precipitation leading to desertification in the tropics. It is expected that the rate of warming in the Arctic is at the highest level on which the constant withdrawal of glaciers and permafrost layer thawing are dependent. Other possible effects include changes in the frequency and severity of climatic events, species extinction and changes in the amount of agricultural products. So the evidence suggests that since global warming has been resulted from human activities, it is necessary to take preventive measures in order to reduce greenhouse gas emission.

⁷ IPCC



References

- Ardekani, Mohammad Reza, Human Ecology, Chapter 7, Tehran University Press, Tehran, 1386, pp 305-308
- Shiasi, Fatemeh; Mohammad Rezvani & Roohollah Rastaghi, 1391, Role of Waste Management in Greenhouse Gases Emission, First National Conference on Environmental Protection and Planning, Hamedan, Azad Islamic University of Hamedan, Ham Andishan e Mohite Ziste Farda.
- Taghizadeh, Diva, Seyyed Ali; Katan Kargar; Mahmood Zoghi & Vahid Vahid Nikzad, 1392, New Energies and Their Impact In Global Warming Reduction, 3rd Conference on Environmental Planning and Management, Tehran, Tehran University
- Mir Sanjari, Mir Mehrdad & Parisa Zoroofchi Tamizi, 1390, Study of Global Warming Impact and Its Environmental Consequences, 5th Professional Conference of Environmental Engineering, Tehran, Tehran University, Faculty of Environment.
- Wikipedia,(2010), http://en.wikipedia.org/Global_warming., the free encyclopedia.
- Botkin, Daniel & Keller,Edward; Translated by Vahhab Zadeh, Abdul Hussein, Environmental Science, Jahade Daneshgahi Publication, Mashad, 1387, pp 439-455.
- Abdoli, Mohammad Ali, 1380, A General Attitude Toward Global Warming and Its Impacts In National Scale, 3rd National Conference on Energy, The National Committee of Energy of Islamic Republic of Iran, Deputy Minister of Electricity and Energy.
- Dean, A., & Hoeller, P. (1992) .Costs of reducing CO2 emissions.
- EPA, (1998), http://www.epa.gov/Global_warming/impact/agriculture/index.html.
- Fankhauser, S. (2013). Valuing climate change: the economics of the greenhouse.Routledge.
- Titus, J. G. (1990). Greenhouse effect, sea level rise and land use. Land Use Policy, 7(2), 138-153.
12. Nasiri, Javad (1376). Ministry of Energy's Policy of Use of Wind Energy Development in Iran, Use of New Energies Seminar.
- Sadeghi, Mehdi (1376). Solar Power Plants Development and Role of Pricing, Use of New Energies Seminar.
- Abbona, E. A., Sarandón, S. J., Marasas, M. E., &Astier, M. (2007). Ecological sustainability evaluation of traditional management in different vineyard systems in Berisso, Argentina. Agriculture, Ecosystems & Environment, 119(3), 335-345.
- Godwin, R. J. (1990). Agricultural engineering in development: tillage for crop production in areas of low rainfall.
- Snyder, C. S., Bruulsema, T. W., Jensen, T. L., &Fixen, P. E. (2009). Review of greenhouse gas emissions from crop production systems and fertilizer management effects. Agriculture, Ecosystems & Environment,133(3), 247-266.
- Gholami, A., Asgari, H. R., &Zeinali, E. (2013). Effects of short-term soil management practices on soil carbon and nitrogen sequestration and some physical and chemical characteristics as well as soil aggregate stability in KhorasanRazavi Province, Iran. International Journal of Agriculture and Crop Sciences, 5(21), 2622.
- Seyyed Al Hussein, Seyyed Mosslem; Mahdieh Nakhaei; Mohammad Salahshoori & Mahmood Dashti, 1394, Global Warming Impacts on Human Environment, National Conference on Metropolitan Management with an Environmental Approach, Tehran, Farayand Sazeh Abnieh Nasb Inc.
- Roseland, M. (1992). Toward sustainable communities. National Round Table on the Environment and the Economy, Ottawa.
- Website of Iran's Climate Change Office <http://climate-change.ir/>
- ADOPTION OF THE PARIS AGREEMENT. Draft decision -/CP.21.(2015). United Nations Framework Convention on Climate Change.Conference of the Parties Twenty-first session.
- Website of Iran Environmental Protection Organization <http://www.doe.ir/>
<http://unfccc.int/kyoto-protocol/items/2830.php>
- Fleming, J. R. (2005). Historical perspectives on climate change. Oxford University Press.
- Houghton, J., &Firor, J. (1995). Global warming: The complete briefing.Nature, 373(6509), 30-30.
- Botkin, Daniel & Keller,Edward; Translated by Vahhab Zadeh, Abdul Hussein, Environmental Science, Jahade Daneshgahi Publication, Mashad, 1387, Chapter 21.

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