

“Effects on Environmental Pollution & Life and its Remedies”

Prof. Varun Mishra, Dr. P. N. Nemade, Dr. Shrikant Kallurkar

Abstract— Environment pollution is a wide-reaching problem and it is likely to influence the health of human populations is great. This paper provides the insight view about the affects of environment pollution in the perspective of air pollution, water and land/ soil waste pollution on human by diseases and problems, animals and trees/ plants. Study finds that these kinds of pollutions are not only seriously affecting the human by diseases and problems but also the animals and trees/ plants. According to author, still time left in the hands of global institutions, governments and local bodies to use the advance resources to balance the environment for living and initiates the breathed intellectuals to live friendly with environment. As effective reply to contamination is largely base on human appraisal of the problem from every age group and Contamination control program evolves as a nationwide fixed cost-sharing effort relying upon voluntary participation.

Index Terms— Environmental issues; Crisis Greenhouse effect;

I. INTRODUCTION

The significance of environmental factors to the health and well-being of human populations' is increasingly apparent (Rosen stock 2003; World Health Organization [WHO], 2010b). Environment pollution is a worldwide problem and its potential to influence the health of human populations is great (Freidan et al, 2007; Progressive Insurance, 2005.). Pollution reaches its most serious proportions in the densely settled urban-industrial centers of the more developed countries (Kromm, 1973). In poor countries of the world more than 80% polluted water have been used for irrigation with only seventy to eighty percent food and living security in industrial urban and semi urban areas. Industry, clustered in urban and semi-urban areas surrounded by densely populated, low-income localities, continues to pollute the environment with impunity (Government of Pakistan, 2009). Over the last three decades there has been increasing global concern over the public health impacts attributed to environmental pollution (Kimani, 2007), Human exposure to pollution is believed to be more intense now than at any other time in human existence (Schell et al, 2006). Pollution can be made by human activity and by natural forces as well (Fereidoun et al, 2007; The Encyclopedia of the Atmospheric Environment, n.d). Selfish private enterprise and their lack of awareness of public well-being and social costs (Carter, 1985) and natural disasters e.g. volcanic ash from Iceland (World Health Organization [WHO], 2010a) are the one of the main reason of pollution. British Airways (1993) expresses their concern about environment in their general goal 'to be a good neighbor, concerned for the community and the environment. This implies that, businesses now adopted this responsibility

as part of their overall business strategy; which should match their broader business goals (Pearce, 1991). At present, the adoption of environmental auditing in any economic sector is voluntary but future legislation could well make it mandatory. There is no doubt that excessive levels of pollution are causing a lot of damage to human & animal health, plants & trees including tropical rainforests, as well as the wider environment.(Tropical Rainforest Animals, 2008). According to Freidan et at (2007), Tehran is one of victim cities in terms of environmental pollution. Gautam et al (2009) nominated Indian cities, among the most polluted cities in the world. Carter (1985) found pollution in formally known Czechoslovakia (now Czech Republic and Slovakia) a serious issue which ultimately affects soils and vegetation. As Debar eleven postulates that environmental pollution and degradation are serious problems in Eastern and Central Europe. Kan (2009) originated the fact about China that, it has environmental problems, including outdoor and indoor air pollution, water shortages and pollution, desertification, and soil pollution, have become more pronounced and are subjecting Chinese residents to significant health risks.

Environmental pollution is tangled with the unsustainable anthropogenic activities, resulting in substantial public health problems. McGeehin et al, (2004) reported that U.S. population from infectious diseases to diseases such as cancer, birth defects, and asthma, many of which may be associated with environmental exposures. There is virtually no check on some 8,000 industrial units in USA that are contributing to high rates of pollution. Environmental health problems are not simply a conglomerate of concerns about Radiological health, water and wastewater treatment, air pollution control, solid waste disposal, occupational health, etc.

II. METHODOLOGY

The risks inherent in gathering and interpreting observed evidence made it essential to design a methodology that allowed access to a diverse range of sources, so that data could be verified before being accepted as evidence. The methodology made different types of data. Relevant data collected from printed materials, internet, books, journals, articles and thesis etc.

Objectives

- To discuss the global environmental major issues
- To formulate the Problems faced by global warming and climatic changes
- To discuss the effects of global warming in India
- To discuss the climate change modeling and prediction

Global change scenarios

A brief summary of the status of global climate change predictions provides a context for subsequent discussions. We rely primarily on the work of the Intergovernmental Panel on Climate Change (78), and on MacCracken et al. (106), who combine discussions of model-based predictions and pale climate records. This is a rapidly developing field. Although the detailed predictions derived from general circulation models are uncertain and subject to revision, there can be little doubt in a qualitative sense that the increased and still-increasing concentrations of radioactively active gases in the atmosphere will result in significant climate change of some sort. Under the IPCC "Business as Usual" scenario (i.e. no substantial changes in present trends in greenhouse gas emissions), global mean temperatures are predicted to increase during the next century by about 0.3°C per decade (range: 0.2- 0.5°). The net increase will amount to about 10 by 2030 and 30 by 2100. Land surfaces will warm faster than oceans, and high northern latitudes will warm more and faster than the global mean, especially in winter. Present confidence in regional climate change predictions is low. In the oceanic tropics, the area of most interest to this review, the predictive ability of the general circulation models is highly questionable; both between-model agreement and calibration against present conditions are poor. Some models predict tropical sea-surface temperature increases of 1-3°C, but there is widespread debate about possible feedback mechanisms that might either stabilize values in the vicinity of 30-31°C (73, 123), or produce positive temperature feedbacks over the warmest part of the ocean (54). Although pale climatic conditions are not generally considered reliable predictors of future climate patterns, it may be relevant that during the Eemian warm period (125,000 BP) most northern hemisphere land areas were significantly warmer than at present, but tropical regions were not detectably warmer (106, 127). Also under the IPCC Business-as-Usual Scenario, global sea level rise is predicted to average about 6 cm/decade over the next century (range: 3-10 cm/decade); this value compares with recently observed values of 1-2 cm/decade, and with maximum sustained rates of sea level rise during the Holocene transgression in excess of 20 cm/decade (7, 51). Changes in the frequency and intensity of extreme events are probably more ecologically significant than moderate changes in the mean values of environmental factors. In addition to a probable increase in high-temperature events, two possible changes relevant to local coral reef environments are worthy. One is a shift in precipitation patterns so that more of the total precipitation falls during heavy storms; the other is a possible change in the frequency, magnitude, or geographic distribution of major tropical storms.

1.1 Air Pollution

The air we breathe is an essential ingredient for our wellbeing and a healthy life. Unfortunately polluted air is common throughout the world (EPA, 2009) especially in developed countries from 1960s. Polluted air contains one, or more, hazardous substance, pollutant, or contaminant that creates a hazard to general health (Health and Energy, 2007). The main pollutants found in the air we breathe include, particulate matter, PAHs, lead, ground-level ozone, heavy metals, sulphur dioxide, benzene, carbon monoxide and nitrogen dioxide (European Public Health Alliance, 2009). Air pollution in cities causes a shorter lifespan for city dwellers (Progressive Insurance, 2005). Holland et al, (1979) illustrated that British scientists concluded that particulate

and related air pollution at high levels pose hazards to human health.



Fig: Air pollution at high level

According to rapid growth in urban population, increasing industrialization, and rising demands for energy and motor vehicles are the worsening air pollution levels. He added other factors, such as poor environmental regulation, less efficient technology of production, congested roads, and age and poor maintenance of vehicles, also add to the problem. He further added that air pollution is caused of ill health and death by natural and man-made sources, major man-made sources of ambient air pollution include tobacco smoke, combustion of solid fuels for cooking, heating, home cleaning agents, insecticides industries, automobiles, power generation, poor environmental regulation, less efficient technology of production, congested roads, and age and poor maintenance of vehicles. The natural sources include incinerators and waste disposals, forest and agricultural fires (European Public Health Alliance, 2009).

1.2 Water pollution

The water we drink is essential ingredients for our wellbeing and a healthy life. Unfortunately polluted water and air are common throughout the world (European Public Health Alliance, 2009). The WHO states that one sixth of the world's population; approximately 1.1 billion people do not have access to safe water and 2.4 billion lack basic sanitation (European Public Health Alliance, 2009). Polluted water consists of Industrial discharged effluents, sewage water, and rain water pollution and polluted by agriculture or households cause damage to human health or the environment. This water pollution affects the health and quality of soils and vegetation (Carter, 1985). Some water pollution effects are recognized immediately, whereas others don't show up for months or years. Estimation indicates that more than fifty countries of the world with an area of twenty million hectares area are treated with polluted or partially treated polluted water including parts of all continents and this poor quality water causes health hazard and death of human being, aquatic life and also disturbs the production of different crops. In fact, the effects of water pollution are said to be the leading cause of death for humans across the globe, moreover, water pollution affects our oceans, lakes, rivers, and drinking water, making it a widespread and global concern.



Fig: water pollution

A drinking water contained a fluoride content ranging from 5.26 to 26.32 milligrams per liter and this is too high as compared to the World Health Organization's standard of 0.6 to 1.7 milligram per liter. According to present scenario due to industrialization and increased population, the drains of Pakistan carry the industrial and municipal effluents that are ultimately carried that polluted water to the canals and rivers. The untreated industrial and municipal wastes have created multiple environmental hazards for mankind, irrigation, drinking and sustenance of aquatic life. The drainage water contains heavy metals in addition to biological contaminations. This water pollution infected our food in addition to groundwater contamination when used to irrigate crops.

1.3 Land/ Solid waste Pollution

Solid waste pollution is when the environment is filled with no biodegradable and non-compostable biodegradable wastes that are capable of emitting greenhouse gases, toxic fumes, and particulate matters as they accumulate in open landfills.



Fig: Land/ Solid waste Pollution

These wastes are also capable of leaching organic or chemical compositions to contaminate the ground where such wastes lay in accumulation. Solid wastes carelessly thrown in streets, highways, and alleyways can cause pollution when they are carried off by rainwater run-offs or by flood water to the main streams, as these contaminating residues will reach larger bodies of water.

III. EFFECTS OF DYING ENVIRONMENT ON HUMAN, ANIMALS AND PLANTS

Environment dying is global perilous point which catastrophically the human, animals and plants. Air pollution results are Cancer, neurobehavioral disorders, cardiovascular problems, reduced energy levels, premature death, asthma, irritation of eyes, nose, mouth and throat (Colls, 2002), and reduced lung functioning, respiratory symptoms, respiratory disease, disruption of endocrine and reproductive and immune systems. London Fog episode of 1952, where a sharp increase in particulate matter air pollution led to increased mortality among infants and older adults (Woodruff et al, 2006). High air pollution levels have been linked to infant mortality. (Fereidoun et al, 2007). Air pollutants can also indirectly affect human health through acid rain, by polluting drinking water and entering the food chain, and through global warming and associated climate change and sea level rise. (Mishra, 2003). Associations between particulate air pollution and respiratory disease are reported in Meuse Valley, Belgium, in December 1930 (Firkat, 1931), an episode in Donora, Pennsylvania, in 1948 (Ciocco & Thompson, 1961) and the most notable occurring in December 1952 (Logan, 1953).

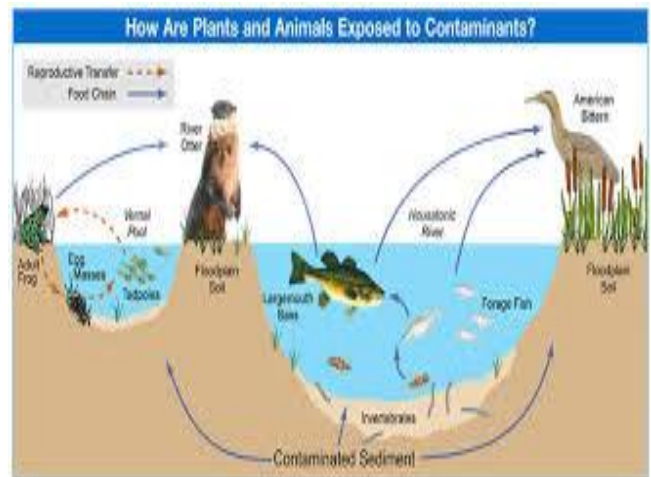


Fig: Effects of Dying Environment on Human, Animals and Plants

According to Gardiner (2006) acid rain destroys fish life in lakes and streams and kill trees, destroy the leaves of plants, can permeate soil by making it inappropriate for reasons of nutrition and habitation, unwarranted ultraviolet radiation through the ozone layer eroded by some air pollutants, may cause skin cancer in wildlife and damage to trees and plants, and Ozone in the lower atmosphere may damage lung tissues of animals and can prevent plant respiration by blocking stomata (openings in leaves) and negatively affecting plants' photosynthesis rates which will stunt plant growth; ozone can also decay plant cells directly by entering stomata. Polluted drinking water or water polluted by chemicals produced waterborne diseases like, Giardiasis, Amoebiasis, Hookworm, Ascariasis, Typhoid, Liver and kidney damage, Alzheimer's disease, non-Hodgkin's Lymphoma, multiple Sclerosis, Hormonal problems that can disorder development and reproductive processes, Cancer, heart disease, damage to

the nervous system, different type of damages on babies in womb, Parkinson’s disease, Damage to the DNA and even death, meanwhile, polluted beach water contaminated people like stomach aches, encephalitis, Hepatitis, diarrhea, vomiting, gastroenteritis, respiratory infections, ear ache, pink eye and rashes (Water Pollution Effects, 2006). Loss of wild life is directly related to pollution (Progressive Insurance, 2005) and according to Water Pollution Effects (2006) on animals

- i) Nutrient polluted water causes overgrowth of toxic algae eaten by other aquatic animals, and may cause death; it can also cause eruptions of fish diseases,
- ii) Chemical contamination can cause declines in frog biodiversity and tadpole mass
- iii) Oil pollution can increase susceptibility to disease and affect reproductive processes and negatively affect development of marine organisms and it can also a source of gastrointestinal irritation, damage to the nervous system, liver and kidney damage
- iv) Mercury in water can cause reduced reproduction, slower growth and development, abnormal behavior and death
- v) Persistent organic pollutants may cause declines, deformities and death of fish life and Fish from polluted water and vegetable/ crops produced or washed from polluted water could also make impact on human and animal health.

More sodium chloride (ordinary salt) in water may kill animals and plants, plants may be killed by mud from construction sites as well as bits of wood and leaves, clay and other similar materials and plants may be killed by herbicides in water (Kopaska-Merkel, 2000). For tree and plants water pollution may disrupt photosynthesis in aquatic plants and thus affecting ecosystems that depend on these plants (Forestry Nepal, n.d). Soil pollution effects causes according to tutorvista (n.d) are cancer including leukaemia and it is danger for young children as it can cause developmental damage to the brain furthermore it illustrated that mercury in soil increases the risk of neuromuscular blockage, causes headaches, kidney failure, depression of the central nervous system, eye irritation and skin rash, nausea and fatigue. Soil pollution closely associated to air and water pollution, so its numerous effects come out as similar as caused by water and air contamination. TNAU Agritech Portal (n.d) soil pollution can alter metabolism of plants’ metabolism and reduce crop yields and same process with microorganisms and arthropods in a given soil environment; this may obliterate some layers of the key food chain, and thus have a negative effect on predator animal class. Small life forms may consume harmful chemicals which may then be passed up the food chain to larger animals; this may lead to increased mortality rates and even animal extinction.

IV. RESEARCH

The lack of good data on the effects of environmental change and the lack of understanding of the behavior of the materials worsening with the shift of climate goal posts was a significant issue. Research is needed on monitoring change and developing appropriate sustainability indicators, with outputs being used to drive policy, develop strategies and disseminate knowledge and awareness.

V. EDUCATION

Education on global warming for must begin from their parents and teachers. Even now the media are educating global warming for students by airing television shows such as National Geographic. In addition, museums and exhibitions also show and educate adults and children about the adverse effects of global warming. Educate them how to organize their trash to recycle and save energy consumption is another way to teach global warming for. This will encourage your children to be more aware of the effects of global warming. The public needs educating on the impact of climate change on cultural heritage and on the importance of cultural heritage as a climate change indicator. At a local level, site logbooks are needed to record impacts of climate change as part of the implementation of conservation plans. At an international level, a mechanism for sharing knowledge and experience would enable information, resources and good examples of adaptation to be shared.

Office for the Coordination of Humanitarian Affairs (OCHA) Report from the UN:

Climate disasters are on the rise. Around 70% of disasters are now climate related - up from around 50% from two decades ago. These disasters take a heavier human toll and come with a higher price tag. In the last decade, 2.4 billion people were affected by climate related disasters, compared to 1.7 billion in the previous decade. The cost of responding to disasters has risen tenfold between 1992 and 2008. Destructive sudden heavy rains, intense tropical storms, repeated flooding and droughts are likely to increase, as will the vulnerability of local communities in the absence of strong concerted action. Climate change is not just a distant future threat [8]. It is the main driver behind rising humanitarian needs and we are seeing its impact. The number of people affected and the damages inflicted by extreme weather has been unprecedented. Unless we can reduce the amount of carbon dioxide in the atmosphere to 350 parts per million, we will cause huge and irreversible damage to the earth. (350.org)

VI. GLOBAL WARMING

Global warming is the unusually rapid increase in Earth’s average surface temperature over the past century primarily due to the greenhouse gases released by people burning fossil fuels. Archaeological sites and some buildings have survived at least two periods of global warming and intervening cold periods, with international scientific evidence mounting and the reliability of future climate predictions increasing. Heritage commissioned research to gather evidence on climate change as a possible cause of environmental instability of cultural heritage and to inform present and future planning (Figure 1).

Roles of WWF to Protect from Global Warming -

WWF-India is one of the largest conservation organizations engaged in wildlife and nature conservation in the country. A part of WWF International, the organization has made its presence felt through a sustained effort not only towards nature and wildlife conservation, but sensitizing people by creating awareness through capacity building and environ-legal activism. A challenging, constructive, science-based organization WWF addresses issues like the survival of species and habitats, climate change and environmental education.

Some Facts and Figures about Global Warming-

According to the report of WTO International Organization 2007 the following things are take place in the world and affecting the natural disaster. The biggest ice cap in the arctic region, the ward hunt ice shelf broke into Fragments as a result of global warming, reported NASA. More average shoreline in Fiji receding by half a foot every year. Adelie penguin populations in Antarctica reduce in size by 33%. 20-30% of the world's reefs wiped out. The above mentioned facts are the tip of the iceberg as far as disastrous effects of global warming.

Effects of Global Warming in India -

Elevated carbon dioxide emissions from industries, factories,

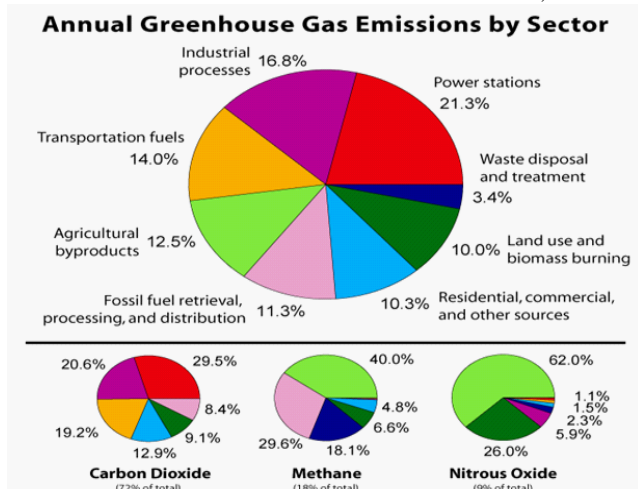


Fig: Annual greenhouse gas emission by sector

Vehicles etc. have contributed to the greenhouse effect, causing warmer weather that lasted long after the atmospheric shroud of dust and aerosols had cleared. Further climatic changes 20 million years ago, long after India had crashed into the Laurasian landmass, were severe enough to cause the extinction of many endemic Indian forms. The formation of the Himalayas resulted in blockage of frigid Central Asian air, preventing it from reaching India; this made its climate significantly warmer. Several effects of global warming, including steady sea level rise, increased cyclonic activity, and changes in ambient temperature and precipitation patterns, have affected or are projected to affect India. Ongoing sea level rises have submerged several low-lying islands in the Sundarbans, displacing thousands of people. Temperature rises on the Tibetan Plateau, which are causing Himalayan glaciers to retreat. The present rate of global warming could mean that many plants and animals currently living at lower elevations or at lower latitudes will

progressively migrate to higher elevations and latitudes. Hence, in the long term, it may be expected that some of our currently important agricultural species will no longer be able to grow at their present lower latitudinal and lower elevation limits if the global temperate warms.

Temperature

Evert year rapidly increase the temperature from the global warming and climate change. As the result natural calamities like Tsunami, Soil erosion, Ice glaciers melting in Himalayas and other things.

VII. DISCUSSION

On large scales, the environmental effects specifically attributable to climate change would suggest that reefs as a global biotic phenomenon are not seriously threatened. We know that reefs are structurally and functionally similar over a wide range of conditions and dominant species, indicating that the communities are not highly dependent on specific individual taxa and may be resilient to the loss of some more vulnerable species. When we consider individual climatic factors in isolation, we see that the effects of sea level rise on coral reefs over the next century are more likely to be positive than negative. Increases in maximum sea surface temperatures will increase the frequency of temperature-induced stress or mortality events, but increases in minimum and/or average values may extend the geographic range of conditions suitable for reef development on a longer time scale. Climatic changes in hydrologic or hydrographic factors may have positive or negative effects on a local scale. Although we may expect significant changes in the details of reef characteristics and distributions, there is at present no basis for predicting widespread deleterious effects on average.

VIII. CONCLUSION

Global climate change is causing these areas to experience an increasingly sparse and erratic rainfall pattern and a lengthened dry season, affecting the livelihoods of thousands of villagers; some areas are also facing water shortages. People are becoming aware of sick of global warming, so they cultivate more and more trees, planting mangrove forest by the sites of the coastal areas and reduce the usage of plastic. They have sowed more than 12 million seeds & half a million of plants. Planting trees balances carbon emissions and pollution. There are organizations that will help you offset your carbon footprint. The deforestation comes in a close second in causes for global warming.

There is still much that is unknown about the potential health effects of global climate change. The various phenomena that can be said to contribute to the rubric include stratospheric ozone depletion, global warming, acid aerosol formation, desertification, and deforestation. At the current time, these phenomena are being investigated separately, yet the case can and should be made that these things are happening concurrently and there are many instances where interactions are possible as well as likely. Thus, a more global view is required, particularly with regard to the science, but also with regard to policy. These phenomena are not occurring independently, and to analyze them and try to develop

responses to them as though they were seems an exercise designed to fall short of the optimum solution. Although it is sometimes helpful to divide a problem into components in order to analyze what contributions are made by the various pieces, at some point the analyst has to reassemble the parts and look for the sum of the effects. This has not yet been done in the public health arena regarding global climate change, and there is very little evidence that it is being done in other important areas such as agriculture and natural resources. At last, global warming can be dealt with only through international agreement. The context is one of game theory, and the stressing need is to design incentive systems for global cooperation. The Montreal protocol on ozone may be an ineffective guide to the prospects for a greenhouse agreement. The most urgent need is to develop appropriate policy instruments and compensatory mechanisms for the best results. The growing recognition that greenhouse gas reductions are not the only option we have to slow and ultimately reverse global warming. Restoring and expanding global forests can also cool the planet.

ACKNOWLEDGMENT

I would like to thanks of Hon. Shri Sunil Rane Sir,”AET's college of Engineering, Malad (w).This work is supported by the coordinators and faculty members of Atharva college of Engineering. I would like to extend our gratitude and sincere thanks to them for their exemplary guidance and encouragement.

REFERENCES

- [1] Cassar M (2005) Climate Change and the Historic Environment. Centre for Sustainable Heritage, University College London, London, UK.
- [2] Cranfield S (2001) UK: United Kingdom Climate Impacts Programme, Department of the Environment, Food and Rural Affairs and United Kingdom Water Industries Research.
- [3] Harrabin R (2007) climate change hits India's poor. BBC News.
- [4] Holman I, Loveland PJ, Nicholls RJ, Shackley S, Berry PM, et al. (2001) REGIS- Regional climate change impact and response studies in East Anglia and in North West England (RegIS). DEFRA, UK Climate Impacts Programme, UK.
- [5] Hulme M, Jenkins GJ, Lu X, Turnpenny JR, Mitchell TD, et al. (2002) Climate change scenarios for the United Kingdom: the UKCIP02 Scientific Report. Open Grey: 119.
- [6] Karanth KP (2006) Out-of-India Gondwanan origin of some tropical Asian biota,Current Science WWF International Organization 6: 1-4.
- [7] McCarthy JJ, Canziani OF, Leary NA, Dokken DJ, White KS, et al. (2001) A Report on Working Group II: Intergovernmental Panel on Climate Change. Summary for Policymakers, IPCC: 1-18.
- [8] Epstein PR (2002) Is Global Warming Harmful to Health, South American Magazine.
- [9] National Aeronautics and Space Administration, Goddard Institute for Space Studies (2005) Air Pollution as Climate Forcing, Goddard Space Flight Center.
- [10]http://upload.wikimedia.org/wikipedia/commons/e/e0/Greenhouse_Gas_by_Sector.png.