

## **SOCIAL SCARES OF GLOBAL WARMING: PRESENT AND FORTHCOMING DISASTER**

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### **ABSTRACT**

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One of the most significant environmental problems modern civilization has ever faced is Global Warming. Nine of the ten warmest years ever recorded have occurred in the past decade. Studies conducted on past climate shifts, notes of current situations, and computer simulations, it is concluded that lacking of big curbs in greenhouse gas discharges, the 21st century might see temperatures rise of about 3 to 8 degrees, climate patterns piercingly shift, ice sheets contract and level rise in seas up to several feet. With the probable exemption of one more world war, a huge asteroid, or a fatal plague, global warming may be the only most important danger to our earth. This is a highly challenging problem due to the current worldwide dependence on fossil fuels, whose consumption is expected to increase by 50% within the next 25 years. In future, energy is likely to become expensive and less reliable, and at the same time there is growing concern about the environmental damage created by fossil fuels. There are modern technologies which reduce carbon pollution, they reduce other harmful pollutants that poison our water bodies, make our land infertile, and harm human health. Specific actions should be recommended to address the problem relating to increase in energy efficiency, expanding renewable and nuclear energy, and promoting carbon sequestration for substantial and long-term reduction in net global greenhouse gas emissions.

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### **INTRODUCTION**

The earth is constantly changing, evolving into different sets of environmental conditions. Geologists tend to take a long-term view of environmental change, e.g. glacial-interglacial cycles and fluctuation of sea level. Global environmental change, such as planetary warming cycles, is triggered by tipping points related to planetary physics viz. the familiar luni-solar cycles. Global warming is by far the most severe form of climate change the world has ever seen. Since the middle of the 19<sup>th</sup> century, human

agriculture and industrialization have dispensed an enormous quantity of these green house gases into the atmosphere, where these have trapped enough heat to begin climate change.

Based on the study on past climate shifts, notes of current situations, and computer simulations, many climate scientists say that lacking of big curbs in greenhouse gas discharges, the 21<sup>st</sup> century might see temperatures rise of about 3 to 8 degrees, climate patterns piercingly shift, ice sheets contract and seas rise of several feet. The average facade temperature of the globe has augmented more than 1 degree

Fahrenheit since 1900 and the speed of warming has been almost three folds the century long average since 1970. With the probable exemption of one more world war, a huge asteroid, or a fatal plague, global warming may be the only most important danger to our planet earth.

This temperature rise is the result of an increase in carbon dioxide and other greenhouse gases, including methane, nitrous oxide and aerosols, in the atmosphere. An increased global temperature will shift ecosystems; glaciers will retreat, altering water supply for habitats and millions of people. Plant productivity and vitality will change, destroying fragile ecosystems. Overall, the effects are widespread and largely irreparable.

The IPCC estimates that global mean surface temperature would be 2°C above the pre-industrial levels by the year 2030, and about 4°C above pre-industrial levels by the year 2090. Already, findings so far suggest that the earth's climate has risen by 0.3 to 0.6°C since the late 19th century. Global sea-level has risen by 10-25 cm over the past 100 years. It is expected to rise between 9 cm & 29 cm by 2030 and 28 cm & 96 cm by 2090.

#### CAUSES AND SOURCES

The energy sector is the largest contributor of carbon dioxide emissions in India. The National inventory of greenhouse gases under ALGAS (Asia-Least Cost Greenhouse Gas Abatement Strategy) indicates that 55% of the total national emissions come from energy sector. These include emissions from road transport, burning of traditional bio-mass fuels, coal mining, and fugitive emissions from oil and natural gas. The main reasons for the emission of green house gases are burning of fossil fuels like use of coal in power plants, for the purpose of generation of electricity. Another green house gas is methane which is more than 20 times more effectual than CO<sub>2</sub>. Methane is obtained from resources such as rice paddies, bovine flatulence, bacteria in bogs and fossil fuel manufacture. When fields are flooded, anaerobic situation build up and the organic matter in the soil decays, releasing methane to the atmosphere. Nitrous oxide, which is a colorless gas with a sweet odor, is also a green house gas. The main sources of nitrous oxide include nylon and nitric acid production, cars with catalytic converters, the use of fertilizers in agriculture and the burning of organic matter. Another jump in the category of green house gases is in the name of hydroflourocarbons and perflourocarbons,

man made chemicals initiated as a substitute to other chemicals that deplete the atmosphere's protective ozone layer.

#### CONSEQUENCES AND IMPACTS

Scientists all over the world are making predictions about the ill effects of global warming and analyzing some of the events that have taken place in the past few decades. The consequences may comprise of higher or lower agricultural outputs, glacier melting, lesser summer stream flows, genus extinctions and rise in the ranges of disease vectors. As an effect of global warming various new diseases have emerged lately. The diseases are occurring frequently due to the increase in earth's average temperature and even multiply faster when the conditions are favorable. While global warming is not the only factor involved, it is estimated that there are 300-500 million cases of malaria in Africa, resulting in between 1.5-2.7 million deaths, more than 90 percent among children fewer than five years of age. The UN Food and Agriculture Organization has warned that in some 40 percent of the poorest developing societies with some two billion people, global warming may drastically increase the numbers of malnourished peoples. The ice melted would be enough to raise the sea level 20 feet worldwide if it broke up and slipped into the sea.

#### STATISTICS

Although the entire world is suffering from the effects of global warming, each area endures different effects and levels. Understanding the statistics of global warming is the key to take preventative actions. According to data from NASA, two of the hottest years on record within the past decade, 1998 and 2005 have been experienced. According to a study completed by researchers and scientists at MIT there has been a 100% increase in the intensity and duration of severe storms such as hurricanes and tornadoes since the 1970s. According to the National Climatic Data Centre estimates, \$100 billion of damage was caused by hurricanes hitting the U.S. coast in 2005 alone. In fact, the average surface temperature has increased by about 0.6 °C over the last 100 years. USA contributes 25% of emissions into the atmosphere even though the U.S. only makes up 5% of the world's population. It is widely believed that despite existing international commitments to curtail growth in greenhouse gas emissions, global carbon emissions from fossil fuel combustion by 2015 may be 61% higher than in 1990. The US Energy Information Administration (EIA) under a reference scenario estimated that, emissions

would grow from 6,012 mmtc (million metric ton of carbon) in 1990 to 9,704 mmtc in 2015. Still faster economic growth might inflate annual emissions to 11,292 mmtc in 2015, which may be therefore 87% higher than in 1990. The EIA report clearly illustrates the failure of the industrialized nations to meet their initial commitment to limit emissions in 2000 to 1990 levels. Under the reference scenario, emissions from industrialized nations stood at 15% higher than in 1990 level. And by 2015, emissions from industrialized nations might reach 4,074 mmtc, a 36% increase over 1990 level. Carbon dioxide emissions from coal combustion in the developing countries of Asia are expected to grow by a whooping 157% from 1990 level by 2015. At present, India is rated as the 6th largest contributor of CO<sub>2</sub> emissions and China the 2<sup>nd</sup>. However, our per capita CO<sub>2</sub> of 0.93t per annum is well below the world average of 3.87t per annum. The Indian Cement Industry with an annual production of 99 million metric tonne (mmt) of cement contributes about 89 mmt of CO<sub>2</sub> emission @ 0.9 mt of CO<sub>2</sub>/mt of cement produced. It is now expected that going by the present trend, carbon dioxide emissions from energy sector for India may be ten times greater than the 1990 level, by the year 2010.

Between 1997 and 2004, carbon dioxide emissions rose as follows: worldwide emissions increased by 18.0%; Emissions from countries that ratified the protocol increase by 21.1% and that from non-ratifiers by 10.0%. Lastly, emissions from the US increased to about 75% of ratifying countries. With respect to the last point, the following are the percentage rises in emissions for a list of selected countries which have ratified the protocol (or which were exempted from targets): Maldives, 252%; China, 55%; Luxembourg, 43%; Iran, 39%; Norway, 24%; Russia, 16%; Italy, 16%; Finland, 15%; Mexico, 11%; Japan, 11%; and Canada by 8.8%.

#### GLOBAL-WARMING FACTS

1. It's more than 90% sure; humans cause global warming.
2. Eleven of last 12 years were the hottest ever recorded since 1850.
3. About 1000 tons of CO<sub>2</sub> per second is being dumped into the atmosphere. Current rates of greenhouse gas emissions into the atmosphere are unprecedented.
4. Current greenhouse gas levels are far higher than for the previous 650,000 years.

The current atmospheric concentrations of carbon

dioxide are 35% greater than pre-industrial levels. Methane concentrations have increased by 250%

5. Warming oceans and melting ice have caused the sea level to rise at a rate unprecedented in the last 3000 years. Other changes associated with warming include increased incidences of drought, flooding, heat waves, and intense cyclones.

6. Global warming effects are predicted to get much worse by 2100; global temperatures will increase another 2 to 11 °F.

7. Global warming will affect millions of people by 2100 Increases are predicted in heat-caused deaths, famines, drinking water scarcity, disease and forest fires.

8. 25% of the world's species could be lost from global warming effects

More than one million plants and animal species will vanish if global temperatures continue to rise as predicted in the next 50 years.

9. China plans to build about one coal-fired electrical power plant per week over a period of a decade and will soon pass the US as the worst greenhouse gas emitter.

10. It's too late to stop global warming, but we can limit it.

#### GLOBAL WARMING SKEPTICS

Skeptics think that global warming is not an ecological trouble and the recent enhancement in the earth's average temperature is no reason for alarm. According to them, earth's coastlines and polar ice caps are not at a risk of vanishing. They stress on the fact the climatic conditions vary because of volcanism, the obliquity cycle, changes in solar output and internal variability and due to the variation in cloud the cover. The variations are also a result of cosmic ray flux that is modulated by the solar magnetic cycles.

There are various benefits of global warming e.g it will increase humidity in tropical deserts, higher levels of carbon dioxide in the atmosphere trigger plant growth. Over geologic time, the earth's mean temperature is 22 degrees C, as compared to today's 15.5 degrees. According to the global warming skeptics, temperature rises happened before the extensive discharge of carbon dioxide in the middle of the 20<sup>th</sup> century and the earth's climatic system is far stronger than being effected by minor changes in the emission of carbon dioxide. Also, if CO<sub>2</sub> reasons to global warming, then the warmed air should rise, dipping air pressure at the surface. The global warming skeptics say that the attempts to stop global

warming will do a greater harm. According to global warming skeptics, the scientists that are involved in

MYTH	FACT
1. The science of global warming is too uncertain to act on.	In most parts of the world, the retreat of glaciers has been dramatic.
2. Even if global warming is a problem, addressing it will hurt American industry and workers.	There is no debate among scientists about the basic facts of global warming.
3. Water vapor is the most important, abundant greenhouse gas. So if we're going to control a greenhouse gas, why don't we control it instead of carbon dioxide (CO <sub>2</sub> )? jumpstarting a new carbon economy.	A well designed trading program will harness American ingenuity to decrease heat-trapping pollution cost-effectively,
4. Global warming and extra CO <sub>2</sub> will actually be beneficial- they reduce cold-related deaths and stimulate crop growth. warm-	Although water vapors trap more heat than CO <sub>2</sub> , because of the relationships among CO <sub>2</sub> , water vapors and climate, to fight global ing nations must focus on controlling CO <sub>2</sub> .
5. Global warming is just part of a natural cycle. The Arctic has warmed up in the past.	Any beneficial effects will be far outweighed by damage and disruption.
6. We can adapt to climate change - civilization has survived droughts and temperature shifts before.	The global warming we are experiencing is not natural. People are causing it.
7. Recent cold winters and cool summers don't feel like global warming to me.	Although humans as a whole have survived the vagaries of drought, stretches of warmth and cold and more, entire societies have collapsed from dramatic climatic shifts.
8. Global warming can't be happening because some glaciers and ice sheets are growing, not shrinking. there,	While different pockets of the country have experienced some cold winters here and the overall trend is warmer winters.
9. Accurate weather predictions a few days in advance are hard to come by. Why on earth should we have confidence in climate projections decades from now?	Climate prediction is fundamentally different from weather prediction, just as climate is different from weather.
10. As the ozone hole shrinks; global warming will no longer be a problem.	Global warming and the ozone hole are two different problems.

the climatic study are just making the matter as a way of gathering publicity for them.

#### MYTHS AND FACTS WHAT SHOULD BE DONE

There are modern technologies reduce carbon pollution, they reduce other harmful pollutants that poison our lakes, make our land infertile, and harm human health. By reducing global warming pollution, we help to make our energy and transportation systems more efficient, protect our forest ecosystems, wildlife and biodiversity, and improve our air quality and protect peoples' health.

There are many ways you can reduce global

warming emissions at home and on the road. Buying green power goes a long way toward cutting heat-trapping emissions because clean energy sources emit little or no CO<sub>2</sub> pollution. It is slightly higher in price, but includes various benefits, e.g.: reduces smog, soot, mercury and acid rain pollution, reduces financial risks, future regulations, caps on greenhouse gases, creates new jobs and generate income, because green power sources tend to rely on local labor, land and resources, especially in rural communities.

Options for energy efficiency in all sectors, shall however be selected on the basis of three main criteria including consistency with national development

priorities, relatively high level of energy conscription in the base activity and the relatively large GHG reduction potential offered by the abatement technology. Specific abatement strategies for the energy sector include fiscal incentives and taxes, voluntary emissions reductions, green rating, and capacity building.

In the agriculture sector, methane emissions from rice cultivation remain the major contributor of GHG emissions. Other sources being enteric fermentation, manure management, agricultural soils. Abatement strategy in agricultural sector, in India, can be achieved through the following: increasing the digestibility of animal feed by supplementing it with molasses, replacing open pit method of manure treatment with small scale digesters, using improved paddy varieties and draining fields frequently and encouraging cultivation of rice varieties that emit less CH<sub>4</sub> per unit of output and improving application efficiency of nitrogenous fertilizers.

#### CONCLUSIONS

- The present consciousness of the public and the government, will have to adapt to the reality of global warming in a variety of ways, including technological fixes, reliance on renewable energy sources, less reliance on cars and airplanes for transportation, improvement of mass transit systems, more efficient forms of heating and cooling, the development of buildings and dwelling units that are more energy efficient, the redesign of cities, simpler patterns of consumption, and health facilities to deal with diseases.
- The environmental, political, economic and socio-cultural crises associated with global warming requires strategies that should also contribute to mitigation, a process that checks and reverses the present build up of greenhouse gas emissions.
- The problem of public understanding of global climate change would probably work itself out over many years through science education in schools and media coverage. This process could be accelerated greatly if those who communicate with the public

(science journalists, environmental groups and others) specifically target some of the gaps.

- Ultimately, the effort to examine the impact of global warming on humanity has to be an interdisciplinary effort, one that involves collaboration among climate scientists, social scientists, public health people and other specialists.

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