



Help Me!

**Consequences of Accelerated Global Warming
on Nature and Economy and the Remedies for
Global Green Economy**

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Transforming Research

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GLOBAL warming is the problem of 21st century for the globe. The root cause of problem is heavy oil consumption, deforestation, CO₂ emission due to human and industrial activities and the rising threats of globalization like terrorism etc. This paper will address the impact of global warming on the Industries, human resource and the flora and fauna. The human resource has made a significant change in the current environment with the collective use of industries and the other GHG (Green House Gases) causing disturbance in the environment. In addition, the human resource is thinking on this issue, as it has become a global issue. There have been initiatives taken on Global Scale when Kyoto protocol agreement was signed which is in continuation till 2012. There have been further initiatives when the Ministers from across the global met at Copenhagen but at the end of the end there have been no discrete plans for Global Warming. Though it is a problem but how certainly can we manage this is more important. Global warming solutions can reduce the amount of heat-trapping gases that we emit into the atmosphere. Among the solutions, is a model G213 addressed in this paper and the role of every Individual which can make a great impact on the environmental problems.

KEY WORDS: GLOBAL WARMING, KYOTO PROTOCOL, CARBON CREDITS, CO₂ EMISSION

INTRODUCTION

Global warming is the process in which there has been an increase in the average temperature of the earth's atmosphere and oceans. The increase in the earth's average temperature has made many alterations, including an increase in sea level and alterations in the quantity and model of precipitation. These alterations affect imbalances into the system such as farming yields and can cause floods and famines. Figure-1 shows a pinch of Global Warming Process.

OBJECTIVES OF RESEARCH

- To identify the consequences of accelerated global warming on nature and economy.
- To understand the contribution of government and global institutions for green economy.
- To identify the remedies for global warming.

RESEARCH METHODOLOGY

Methodology used for research is entirely based on secondary data collected from various sources. The sources used for research are highly reliable. The research design is exploratory in nature. Therefore, the information has been gathered from News Paper, Journal etc to address the situation and acknowledge thereof.

GLOBAL WARMING AFFECTS AND EFFECTS

Global warming is caused by green house gases, which trap in the sun's infrared rays in the earth's atmosphere, which in turn heat up the earth's atmosphere. The effects of green house effect are visible more prominently in the recent years, with number of natural calamities on the rise in the whole world. The global warming has happened in the past few years and is evident from the rise in mean temperature of the earth's atmosphere. The main causes for the global warming are attributed to release of green house gases by human activities.

GHG – Green House Gases

The main gases contributing to green house effect are carbon dioxide, water vapours, methane and nitrous oxide. The largest producers of these gases are the thermal power plants, which burn the fossil fuels and produce these gases in large quantities. The next most contributing sources of these green house gases are the road vehicles. Air polluting industries are other main contributors to green house. Figure-2 shows a pictorial contribution of GHG in earth atmosphere.

The concentration of CO₂ in the atmosphere of earth has increased due to industrial and non-industrial activities. The magnitude of this atmospheric increase is recently reported to be about 4 GtC (Gigatons) of carbon per year. Total human industrial CO₂ production, primarily from use of coal, oil, and natural gas and the production of cement, is recently reported to be about 8 GtC per year (7,56,57). Humans also exhale about 0.6 GtC per

year, which has been sequestered by plants from atmospheric CO₂. Figure-3 shows leading sectors emitting GHG components whereas Figure-4 shows GHG Concentration graph in earth atmosphere.

Global Warming is Melting Ice or Species

Global warming has led to increase in mean earth surface temperature and thus melting of polar ice. There are frequent melt down of glaciers that result in floods and other natural calamities. The melting of ice at the earth poles had led the mean sea level. And further increase in temperature may further melt the ice and lead to further increase in mean sea level, which will engulf low lying countries. The effect of global warming is very evident on the animal kingdom also. Some animals have become extinct due to loss of their natural habitat or their inability to evolve to the rapid changes in the climate. This has affected the animals and made them to change their lifestyle accordingly, and those who failed to do so have perished or on the verge of extinction.

Global Warming - A cause of crop failure

Global warming is also affecting the crop production, as the sudden change in temperatures or sudden onset of rains is destroying the crops. In addition, the floods and other natural calamities affect the crop. Recently, we have seen heavy flood in many states of India including Haryana, Madhya Pradesh, Delhi and Haryana where in the average rainfall has been higher and have caused major loss to the crops during July 2010 to Sept 2010. In fact, because of global warming, the earth's atmosphere is getting more unpredictable with heavy rains in the areas, which have scanty rainfall or drought in the areas, which received good annual rainfall.

Global Warming - Disease Spreading

The global warming is also responsible for the introduction of some new diseases. The bacteria are more effective and multiply much faster in warmer temperatures compared to cold temperatures. The increase in temperature has led to increase in the microbes that cause diseases.

Warmer global temperatures will allow an expansion of the geographic range within which both the mosquito and parasite could survive with sufficient abundance for sustained transmission. Model predictions indicate that a 3° C global temperature rise by 2100 could increase the number of annual malaria cases by 50-80 million (not

considering factors such as local control measures or health services) (Martens et al., 1995). WHO Director General Dr. Margaret Chan, in a speech on (10th September 2007), said that even if greenhouse gas emissions were to stop immediately the changes already being seen would go on throughout this century.

Moreover, the increase in Global Warming has also caused the spread of disease like dengue and other bacterial diseases causing severe problems.

INDIVIDUAL CONTRIBUTION TO GLOBAL WARMING

Exponential growth of population is the real cause of Global Warming. Each individual in any part of the world uses products and services that cause carbon emissions into the air. Ranging from simple campfires to industrial power plants, from the poorest to the richest, people cause GHGs to enter the atmosphere. Increase in the population is leading to the increase in the consumption and thus the industrial production, transportation is adding to the global warming. Moreover, use of organic products (fast foods), energy resources, use of more technological and conversion of agricultural land to the Industrial land is also adding on to the global warming.

Table-1 summarises a report published in 2009 showing annual CO₂ emission in different countries.

Figure-5 shows contributions from leaders of CO₂ emission (per person)

GLOBAL WARMING IMPACT

Global warming has increased the temperature of earth atmosphere. The intensity may have a positive or negative conduct.

Positive: If we work together locally/globally and have an ecological focus, the likely temperature increase is projected to be +1.8°C. Because projecting the climate is difficult to do, each scenario has a lower and upper limit, in this case (+1.1 to +2.9°C)

Negative: If we don't do much and just go about our business as usual, the likely temperature increase is +4°C, with a lower limit of +2.4°C and an upper limit of +6.4°C.

Figure-6 shows the disasters leading due to global warming and hereby raises alarms about the facts.

REMEDIES -GLOBAL WARMING SOLUTIONS – G2I3 MODEL

The G2I3 Model of remedies for global warming includes Global Efforts, Government Efforts at National Level, Industrial Efforts, Institutional Efforts, and Individual Efforts.

Global Efforts

Global efforts could be the collective efforts from different nations in solving it on a macro level. This may be done through agreements and treaty as has been done in the Kyoto Protocol agreement. On a universal basis, about more than two trillion tons of the 10 trillion tons of CO₂ emitted each year comes from flaming the forests. So, improved organization of forests is one of the single most significant strategies for solving the climate disaster. Sources like wind energy, solar energy should be made in common use.

President of United States pledged that the United States would stop the growth of greenhouse gas emissions by 2025, without giving any specifics about how that would happen. The promise was an about-face for the current administration, which has long resisted emission caps and refused to join the Kyoto Protocol on limiting such emissions.

Swift economic growth and huge populations in India and China mean these countries are contributing more to the growth of emissions than developed countries. But, on an individual basis, these nations still produce far fewer pollutants and gases than developed countries.

Industrial Efforts for Green Economy

Industries have their own goals for making the environment clean and green. There are some MNCs who are serious about becoming the Carbon Neutral and one of them is the Dell Computer. Dell Computers is making additional investments in wind power in the U.S., China, and India; and is partnering up with Conservation International on a habitat. Dell's reliance on greater energy efficiency and renewable energy would save the company \$3 million a year and avoids nearly 20,000 tons of carbon dioxide.

Energy giant Vattenfall has launched an emissions-free coal-fired test plant near Berlin using a technology touted as a huge potential breakthrough in the fight against global warming.

Swedish energy utility Vattenfall sees carbon capture and storage (CCS) as a revolutionary answer to global warming which is largely blamed on carbon

dioxide released when fossil fuels burn. This technology will become more important than offshore wind farms - Vattenfall boss Lars Josefsson.

Government Efforts for Global Green Economy

According to the Prime Minister, India will pursue eight national "missions" for sustainable development they are: pursuing solar energy, urging energy efficiency, creating a sustainable habitat, conserving water, preserving the Himalayan ecosystem, creating a "green" India, creating sustainable agriculture and, finally, establishing a "strategic knowledge platform for climate change." The concrete plan has yet to be developed.

India is the fourth-largest emitter of carbon dioxide, the main gas linked to climate change, after the United States, China and Russia, according to the most recent World Bank data. On an individual basis, though, Indians emit far less carbon dioxide than people in those countries and in Europe.

Individual efforts

There are many simple things individuals can do in their daily life — what they eat, what they drive, how they build their home — that can have an effect on our immediate surroundings.

- **Plant a Tree:** Trees suck up carbon dioxide and make clean air for us to breathe. Save 2,000 lbs. of carbon dioxide per year.
- **Buy Local and Organic:** Individuals should understand that the ingredients of an average meal travel more than hundreds of miles from the farm to our plate. Think of all the energy wasted and pollution added to the atmosphere - not to mention all the pesticides and chemicals used to grow most produce.
- **Buy Minimally Packaged Goods:** Less packaging could reduce our garbage by about 10%. Save 1,200 pounds of carbon dioxide per year. McDonald's replaced its clam shell packaging with waxed paper because of increased consumer concern relating to polystyrene production and Ozone depletion.
- **Buy a Fuel Efficient Car:** Getting a few extra miles per gallon makes a big difference. Save thousands of lbs. of CO₂ and a lot of money per year.
- **Carpool when can be:** Carpooling with friends and co-workers saves fuel. It reduces carbon dioxide and saves thousand of Rupee per year.

- **Buy a Hybrid Car:** The average driver could save 16,000 lbs. of CO₂ per year driving a hybrid.
- **Inflate Tyres:** Keeping the tires on automobiles adequately inflated and checking them periodically can save 250 lbs. of carbon dioxide and many dollars per year.
- **Use Recycled Paper:** Make sure our printer paper is 100% post consumer recycled paper. Save 5 lbs of co₂ per ream of paper. Xerox's "Revive 100% Recycled paper" was introduced a few years ago in an attempt to address the introduction of recycled photocopier paper by other manufacturers.
- **Do not leave appliances on standby:** Use the "on/off" function on the machine itself. A TV set that is switch on for 3 hours a day and is in standby mode during the remaining 21 hours uses about 40% of its energy in standby mode.
- **Cover the pots while cooking:** Doing so can save a lot of the energy needed for preparing the dish. Even better are pressure cookers and steamers: they can save around 70%.

CONCLUSION

Global warming needs immediate action plan in order to protect the environment and to let the next generation enjoy the natural life on earth, Thus, every Individual, Industry, Institute and the Government need to focus on the constant innovations for the road map to Green and clean environment across the globe. The solution to the Global problem could be collectively addressed by an Individual, Industry, Government, Institutions as well as Global organisations and countries. So far as the problem is concerned an immediate attention of each and every individual is required to mitigate and resolve in this era of information, communication and changing technology.

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Table 1: Country wise annual CO2 Emission (2009)

| Country | CO2 Emission (Million Tons) | CO2 Emission (Billion Tons) | CO2 Emission (Giga Tons) | Per Capita Emission (Tons) |
|-------------|-----------------------------|-----------------------------|--------------------------|----------------------------|
| | 33,508,901 | 148,940,000 | 6,852,472,823 | 4.9 |
| China | 8,240,958 | 9,640,821 | 1,339,724,852 | 6.2 |
| USA | 5,492,170 | 9,826,675 | 312,793,000 | 17.6 |
| India | 2,069,738 | 3,287,263 | 1,210,193,422 | 1.7 |
| Russia | 1,688,688 | 17,075,400 | 142,946,800 | 11.8 |
| Japan | 1,138,432 | 377,944 | 128,056,026 | 8.9 |
| Germany | 762,543 | 357,021 | 81,799,600 | 9.3 |
| France | 574,667 | 1,648,195 | 75,330,000 | 7.6 |
| South Korea | 563,126 | 100,210 | 48,875,000 | 11.5 |
| Canada | 518,475 | 9,984,670 | 34,685,000 | 14.9 |
| UK | 493,726 | 2,149,690 | 27,136,977 | 18.2 |
| Spain | 493,158 | 243,610 | 62,262,000 | 7.9 |
| Italy | 476,557 | 1,919,440 | 237,424,363 | 2.0 |
| Italy | 407,924 | 301,338 | 60,681,514 | 6.7 |
| Australia | 365,513 | 7,617,930 | 22,794,166 | 16.0 |
| USA | 362,556 | 674,843 | 65,821,885 | 5.5 |
| USA | 309,985 | 312,685 | 38,186,860 | 8.1 |

(Source- from http://en.wikipedia.org/wiki/List_of_countries_by_carbon_dioxide_emissions)

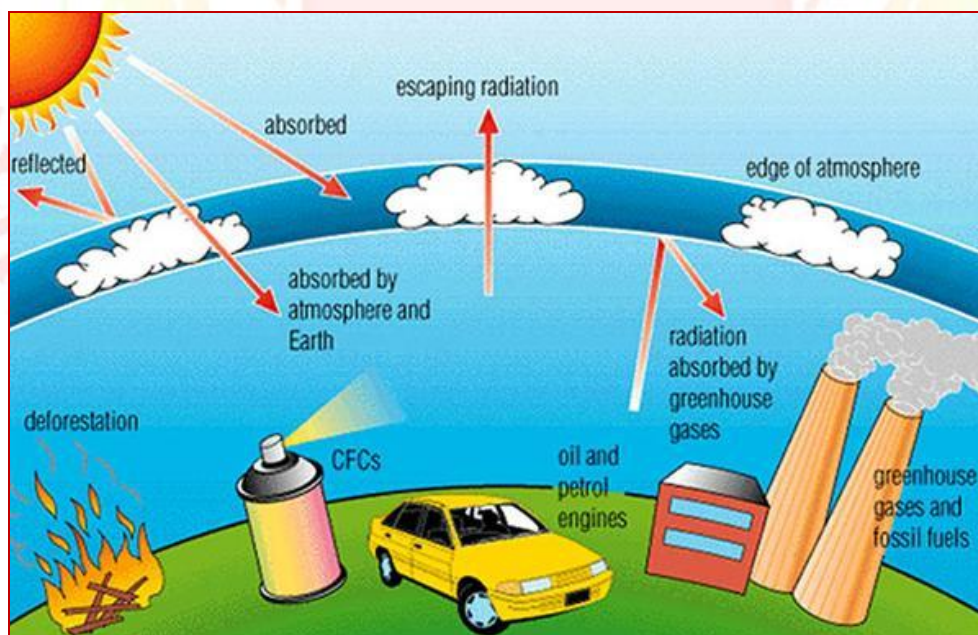


Figure 1: Global Warming Process

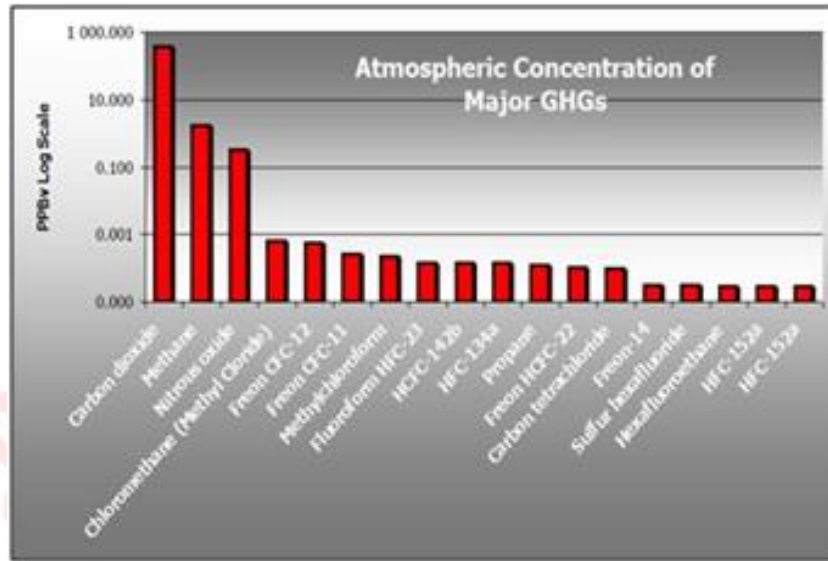


Figure 2: Contribution of GHG in Earth Atmosphere.

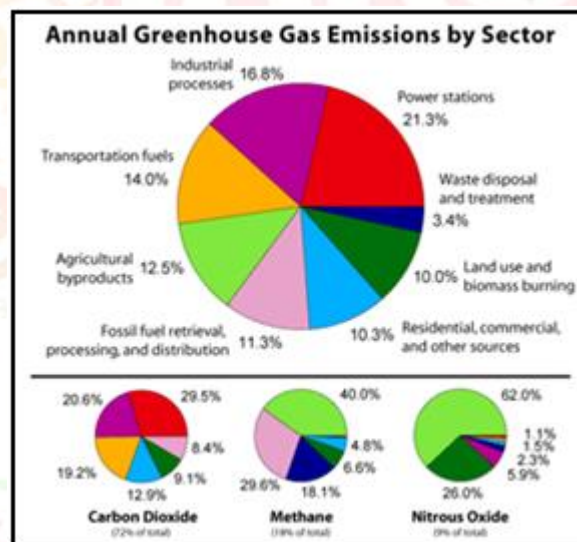


Figure 3: Leading Sectors Emitting GHG Components

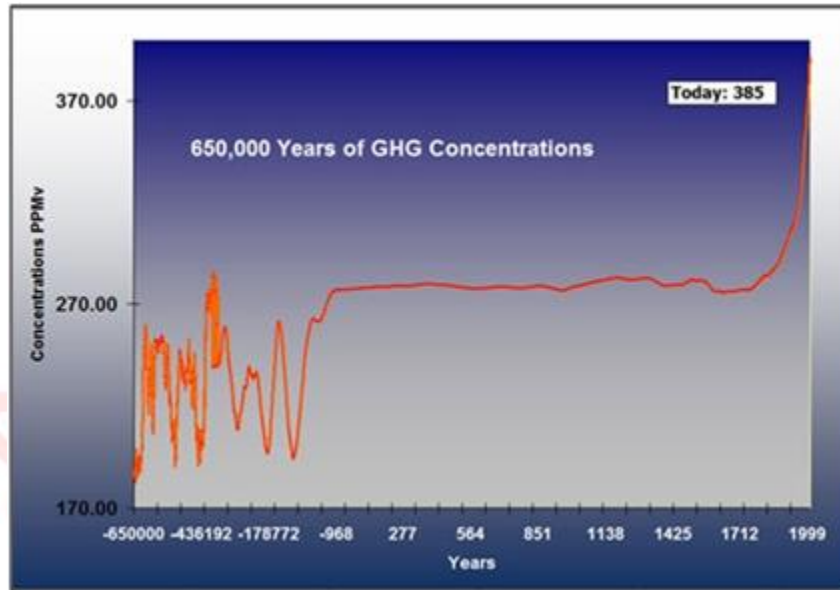


Figure 4: GHG Concentration Graph in Earth Atmosphere

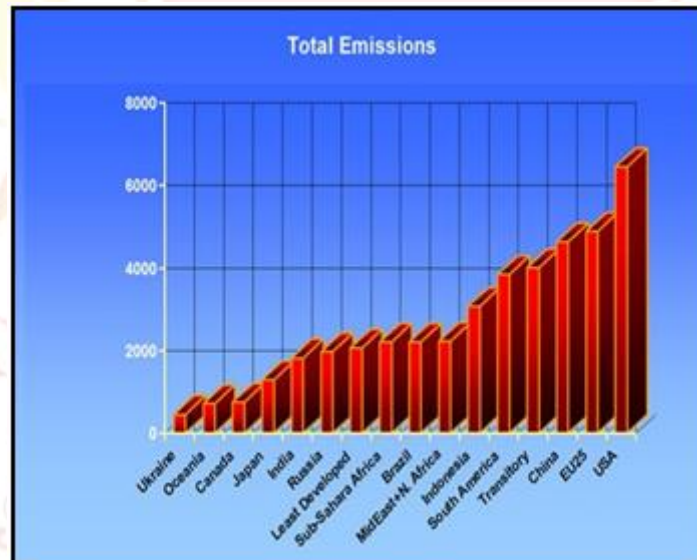


Figure 5: Leaders of CO₂ Emission (per person)

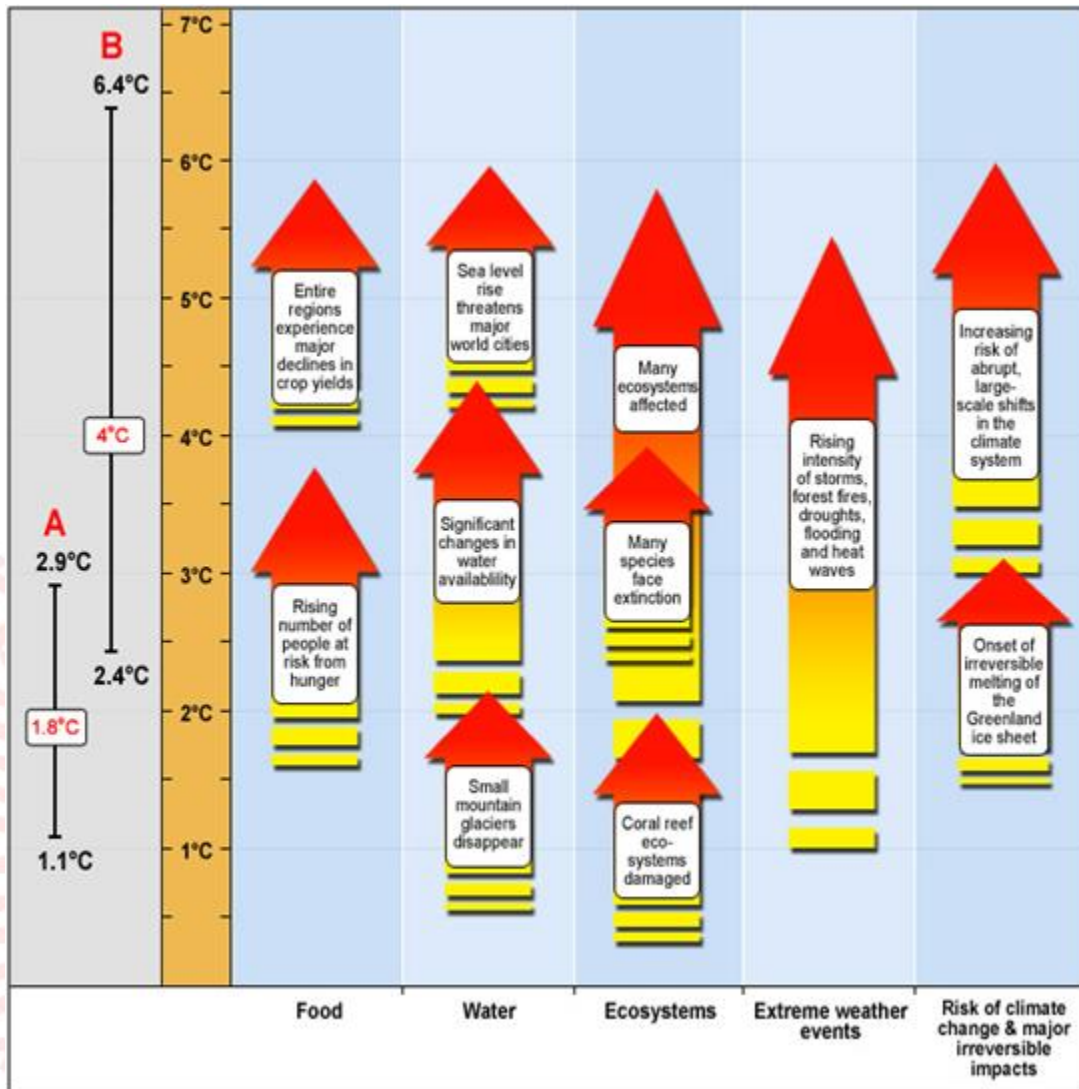


Figure 6: Disasters Leading due to Global Warming

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