



GLOBAL WARMING: FROM FACTS AND FIGURES TO CAUSES AND CURES

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ABSTRACT

In this work, the facts and figures relating to the phenomenon of global warming are presented and then the remoter causes underlying the immediate, visible causes that have been discussed extensively in the literature on the subject are discussed. Our analysis shows that there are in the collective psyche of mankind deeper problems which need to be addressed in order for us to be able to have any lasting solution worth the name to the various problems that we have been facing. In particular, we show that the very concept of human progress and development that we've been adhering to so far is in serious need of a reappraisal in the wake of the myriad global concerns that it has engendered in all spheres of human activity. Our incomplete understanding of ourselves, of mother nature and of the interrelationship obtaining between them, coupled with a serious misunderstanding of the purpose of our existence in the whole scheme of the cosmos, and also, our selfish actions stemming out of such ignorance can be seen to be the true causes behind our sufferings and fears at the individual, social and global levels of existence. We argue that any kind of superficial or half measures (like the carbon trading or the sustainable earth society proposal) in addressing the crises facing us without tackling these fundamental issues will simply push the problems a little farther into the future so that we'll inevitably have to meet them in future, but in a more dangerous form, and may be, even in a humanly insolvable form. The role of India as a global awakener to these deeper issues is emphasized and exhortations are made through the instrumentality of this article to all Indians to wake up to their sacred duty of leading the global community out of the impending crises by propagating the spiritual vision of life as the supreme ideal and the goal of all humanity at all times and climes.

Keywords: *Global Warming, Green House Gases, Carbon trading.*



Introduction

A century of industrial civilization has brought mankind face to face with numerous problems arising out of an upsetting of the balance and the rhythm of nature so much so that the alarm bell has been sounded with regard to a possible wiping out of large sections of human population by the end of the current century owing to the flooding and submergence of the coastlands of the world which include some of the world's most populous and most advanced cities. Disastrous changes in the global and local climatic patterns, increase in the spread of epidemics and in the range and the frequency of natural calamities, food crisis, water crisis and energy crisis are all simultaneously staring at us to completely overthrow our "supreme ruler" status on the planet earth before long. Global warming is one of the stages through which all these terrifying phenomena are going to take their toll on us and its recognition by the world community has come as a timely "**global warning**" to call a halt to the ongoing anthropogenic unsettling of the equilibrium of nature in the name of progress of civilization. The warmest decade recorded in history so far has been the decade from 2014 to 2023[1].

It goes without saying that the extent and the intensity of damage to the environment has increased manifold because of technological applications of scientific knowledge in the production of consumer goods through the setting up of industries on a large scale to meet the ever-growing demands of the burgeoning world population. And we have gotten habituated to the logic that there is no other alternative to the fulfilling of the selfish desires in man through the indiscriminate exploitation of nature. This has resulted in the pollution of all the components of our environment which has been sustaining life on earth since eons. We have land/soil pollution, water pollution, radiation/light pollution, air pollution and also sound/noise pollution-- in short, all the five great elements viz. earth, water, fire, air and space have been polluted. Desires are inevitable; fulfilment is inevitable; increased consumption is inevitable; increase in production is inevitable; industrialization is inevitable; pollution is inevitable and finally, this chain of inevitability lands us in the inevitability of global warming and the associated catastrophic consequences thereof. The warmest year since 1850 has been the year 2023[2]. This is where in the history of the world we find ourselves now and we shall be discussing these in detail in section-II below.

In section-III, we discuss the true causes behind this scenario with special emphasis on the role of India in this context to rise up to its age-old status of the world-teacher and awakener to the higher ideals of life wherein the perfect remedy to the crises facing mankind are to be found. The lopsided view of human life with its well-known tilt towards sense satisfactions, the lopsided view of nature as a milch-cow for the selfish desires of man and the incorrect understanding and approach in respect of



the man-nature relationship have to be set right in the light of the spiritual, all-comprehensive and integral view of life propagated by the great saints and sages of India right from the era of the Vedas up to the present times.

We conclude the essay in section-IV with a discussion of the main ideas presented and the modalities of practically implementing them in our day-to-day lives in right earnest as concerned individuals so as to rid the earth of the impending crises of various hues and dimensions including global warming.

Global Warming: Facts and Figures

The factors influencing the mean global temperature are many but the most important ones can be listed as follows:

- (a) the intensity of solar radiation,
- (b) the orbital position of the earth,
- (c) the infra-red absorptivity of the earth-atmosphere system,
- (d) the forest cover,
- (e) the mean annual rainfall, and
- (f) the heat produced by natural and anthropogenic combustion,

in order of their effectiveness.

The first two are obviously beyond any human interference or control but the last four have a partial dependence on human activities and it is here that the phenomenon of global warming assumes a human responsibility. In particular, the third factor above, namely, the infra-red absorptivity of the earth-atmosphere system is dependent on the reflectance of the earth surface and the concentration of the so-called greenhouse gases in the atmosphere. Greenhouse gases are the ones that have strong peaks in the infra-red region in their absorption spectra and thus absorb the heat that is radiated by the earth surface thereby trapping the heat in the system. This leads to the phenomenon of global warming that has become a major concern today because the atmospheric concentration of greenhouse gases (GHGs) like carbon dioxide (CO₂), methane (CH₄), nitrogen oxides (NO_x) and CFCs (chlorofluorocarbons) has been continuously increasing due to various human activities.

The primary GHG with an appreciable concentration (~350ppm) and also an appreciable rate of increase in concentration is carbon dioxide which contributes around



57% of the total heat trapped, although its global warming potential is low compared to the others. The most dangerous are the CFCs which have a concentration of only 0.32 ppm but contribute around 25% of the total heat trapped because they are 10,000 to 15,000 times more effective in trapping heat compared to CO₂. Methane has a concentration of 1.7ppm and contributes 12% of the heat trapped. These data are displayed in the following two tables to contrast between the year 2003 and 2023[3].

TABLE – I: The essential facts and figures causing Global Warming (2003 AD)

Sl. No	GHG	Atm. Conc. (ppm)	Global warming potential (GWP)	Contribution to global warming	Major anthropogenic Sources of production
1	CO ₂	~ 350	1	~ 57 %	Burning of wood and fossil fuel; deforestation; cement industry.
2	CH ₄	~ 1.7	25	~ 12 %	Gas, oil and coal production and transmission, bio- mass burning and decay, wet land rice cultivation, landfill waste sites,
3	CFCs	~0.32	15000	~ 25 %	Used for solvents, refrigerants, propellants, aerosol spray, foam packaging etc.
4	N ₂ O	0.336	265-310	~6%	Fossil fuel and biomass burning, use of chemical fertilizers, heavy tropical deforestation, transportation, industry, testing of thermonuclear weapons, Waste material treatment plants.

(Table - I: The essential facts and figures causing Global Warming)

The CO₂-content in the atmosphere has seen a 30% increase (from ~ 275 ppm nearly 100 years ago it has reached ~ 350 ppm now) in the past century and is



projected to increase by 50% by 2050 and to become double by the year 2100. Similarly, the concentrations of all the other GHGs have been showing consistent increase primarily due to the causes mentioned in the tables [4,5]. The global warming potentials (GWP) are estimated over a time horizon of 100 years [6].

The impact of the increase in CO₂-concentration alone has been predicted to be devastating, to say the least. It has been shown that it would result in an increase in the average global temperature by about 1.6 to nearly 6 degrees by 2100 and that most of the coastal areas of the present landmass would be submerged due to sea-level rise following the melting of the polar ice caps. The other major effects would be the drastic global and local climatic changes; upsetting of the biodiversity in the natural habitats like forests due to the extinction or migration of several species which would find it difficult to cope with the changed climatic conditions; alterations in the global cropping patterns; food and water scarcity; very hot and humid summers in India with hovering tropospheric clouds and smog, and a probable ceasing of the monsoon altogether; increase in the cardiovascular, respiratory and cerebro-vascular diseases due to the increased temperature; increase in the frequency and the spread of tropical epidemics like amoebiasis malaria and worm infections etc. due to the greater rate of spread of vectors and the increased frequency and intensity of the climatic disasters like cyclones etc., all of which are going to be extremely dangerous to our existence[7].

This has sounded the warning bell in all quarters and efforts are now on to somehow cut down or reduce the emission of GHGs. However, the major offenders happen to be the developed nations of the West and they are not ready to compromise on their own development agenda through industrialization and they are also aggressively engaged in the industrial development of other so-called less developed or developing nations which have no other go but to follow the concept of material progress through industrialization held up by the developed ones. As a result, there is an ever-increasing trend in the emission of GHGs in spite of all our knowledge about the hazardous consequences. Tables 1 and 2 give us a clear picture of how the earth is getting warmer year after year.



Table-2: (2023 AD)

Sl. No	GHG	Atm. Conc. (ppm)	Global warming potential (GWP)	Contribution to global warming	Major anthropogenic Sources of production
1	CO ₂	~ 419	1	~64 %	Burning of wood and fossil fuel; deforestation; cement industry.
2	CH ₄	~ 1.9	25	~16 %	Gas, oil and coal production and transmission, bio-mass burning and decay, wet land rice cultivation, landfill waste sites,
3	CFCs	~0.32	4750-14400	~14 %	Used for solvents, refrigerants, propellants, aerosol spray, foam packaging etc.
4	N ₂ O	~0.336	265-310	~6%	Fossil fuel and biomass burning, use of chemical fertilizers, heavy tropical deforestation, transportation, industry, testing of thermonuclear weapons, Waste material treatment plants.

The three major blocks to effectively cutting down on the production of GHGs are:

- (a) the philosophic block,**
- (b) the nationalistic block, and**
- (c) the individualistic block**

in order of their profundity and these have led to elaborate defense mechanisms from very fertile western minds in the form of the proposals or half measures like **(a) the**



sustainable development Goals (b) carbon trading proposal and also arguments that base themselves on **(c) Natural positivism**: the assumed self-correcting ability of nature to maintain the ecological balance by setting right any deviations (e. g. by developing new forms of polythene-degrading microbes to take care of the land and water pollution by the dumping of polythene) and, **(d) Technological positivism**: the assumed future ability of the earthlings (i.e. scientists) to not only develop cleaner, greener and environment-friendly technologies which will replace the currently adopted ones before long, but also by their very ingenious inventions, to set right any damage done to the environment by the continued industrial assault till that time[8,9].

These can very easily be seen to be clever but extremely detrimental arguments advanced for the furtherance of individual or national goals at the expense of the rest of the world stemming from a lack of understanding of the basic purpose of life on earth in general and of human life in particular. We discuss these issues at greater length in the following paragraphs in order to clear the air of misunderstanding now prevailing the world over due to the march of materiality as the sole determinant of progress, the sole marker of development.

Global Warming: Causes and Cures

The questions that are to be addressed are of a very fundamental character like – “why at all we need industrialization?”, and as such cannot be answered within the domain of science and technology. They have more to do with the inner make-up of man as a composite of the body, the senses and the mind which veils his true innermost identity as a ray of divinity. The psychological being of man is such that it wants to **acquire, possess** and **enjoy** what it finds is external to itself because of a very deeper connection of itself with the latter in a unity at their common non-dual source [10]. It gets attached to the object thus enjoyed and pines more and more for a more lasting (and if possible, permanent) and more intense (and if possible, the most intense) enjoyment arising out of such contact. Man thus wants his objects to be **(a) readily available**, i.e., should have less cost, less weight, less size and more portability/mobility, **(b) highly durable**, i.e., should last longer without wear and tear in spite of continuous use, **(c) extremely attractive**, i.e., to appeal to the taste of oneself and of others in terms of shape, colour, polish, finish, appearance etc., and finally, to be **(d) highly versatile**, i.e., should have multiple utility, require greater skill, information, knowledge etc.

These criteria are broad enough to apply in respect of both conscious beings and the material things that man desires to acquire, possess and enjoy, and as such, fix the



very outlines of man's inner mental make-up in very general terms. The mind in man works through the senses to rid itself of a peculiar sense of lack of joy in itself and thus prods man to move outwards in pursuit of sense contacts which generate pleasurable sensations through the nervous titillations and give a false sense of enjoyment in the beginning, although, finally they lead to misery and suffering. This is, in a nutshell, the psychology behind all of man's endeavours on this earth plane all through the millennia of human history [11].

The need felt by man for the technological applications of scientific discoveries and inventions through large scale industrialization and the subsequent notion of progress of civilization based only on such applications is thus seen to be a consequence of this tendency in the psyche of man, or even in the collective psyche of humanity to move outwards in the search of pleasurable sensory contacts and the efforts to cling to such contacts at any cost. And mostly, it is at the cost of one's own wellbeing, sometimes at the cost of one's familial or one's social or national welfare and no wonder then, that one is the least bothered if it is at the cost of the environment [12]. This is what has happened in the end, and we are now having probably the largest number of conferences on the themes relating to environment because it has been given the least consideration in our selfish agenda of human progress so far.

Having thus briefly pointed out the psychology behind industrialization, we shall now discuss the various blocks that were pointed out in the last section which stand in the way of our cutting down on the GHG output.

(a) The Philosophic Block: The first block that needs to be cleared is the philosophic block which is basically a block in the understanding of the true meaning of life and once this is cleared, the others would not be difficult to overcome. And, this is where the role of India and its spiritual vision of life come as the supreme all-encompassing vision that soothes and embalms the strife-torn nerve fibers of modern civilization. We have strifes of every kind starting from those between individuals and between nations to those between man and nature and even, between man and God Himself!

The philosophic block is cleared once humanity realizes the futility and ephemerality of all endeavors to get lasting happiness out of sense contacts through the



falling into the trap of the foolish extroversion of the mind. The mastery over the senses and the mind, known as self-mastery or self-control in spiritual parlance is not such a difficult thing as it sounds on first acquaintance. There have been great self-realized and perfected saints and sages in India in the very recent past like Sri Ramakrishna, Swami Vivekananda, Sri Aurobindo, Paramhansa Yogananda, Swami Sivananda, Swami Chidananda etc. to name but a few, who not only perfected themselves but also showed by their own personal examples to global humanity the royal road to such perfection and self-mastery through easier and scientifically enunciated steps. But, most unfortunately, their teachings have not found the desired level of favour with their own countrymen who have been blinded, although temporarily, by the hedonistic and consumerist civilization and culture propagated by the west. At the same time their teachings have appealed readily to the westerners who have been searching for inner peace and solace after having tired themselves out in the pursuit of external objects for sense satisfaction. In any case, the Indian mind will- and it must- bounce back from the hedonistic grooves to again set the world on track by propagating the message of self-control and moderation in respect of sense enjoyments to the whole world at large which is the destined role of India in the world stage- that of the preceptor or teacher of the whole world [13].

The fulfillment of desires is no solution to the problem of desires, since every attempt at such fulfillment increases and intensifies the desire and at the same time has a degrading and debilitating effect on the entire being of man [14,15]. This, when once understood and internalized as part and parcel of one's outlook of life and when it starts to guide and direct one's motivations and actions, one is then said to be on the spiritual path. When this becomes the guiding philosophy of global mankind, truly then shall we have heaven on this very earth. Hedonism, consumerism and all other such crippling isms will take to their wings and industrialization will be seen to be but an aberrant stain, a temporary blot on the spreadsheet of human aspiration for happiness and perfection. The evil effects already generated will die out within no time and humanity would enjoy the supreme calmness, the infinite peace and eternal bliss of God, which is the true goal of civilization.

Once the philosophic block is cleared and humanity clearly sees its well-chalked-out path to supreme felicity, peace and bliss through the spiritual life of absolute harmony with the whole environment, the nationalistic and the individualistic roadblocks can be cleared relatively more easily.



(b) The Nationalistic Block: The most difficult nationalistic block comes from the considerations of not just the economic wellbeing but of the economic growth of a nation, measured in terms of a rising per capita GNP indicative of an increasing per capita consumption. And, this is so ingrained into the thinking of the planners of every nation economic agenda that there is hardly any nation today which would buy the idea of the Physical Quality of Life Indicator (PQLI) which is based on the triple factors of Life Expectancy, Infant Mortality and Literacy, much less the Bhutan King's proposal of a Gross National Happiness (GNH) as the true markers of a nation's developmental status. This situation has to be remedied sooner rather than latter if mankind is to see a new dawn at the horizon before the environmental crises really become too severe to be tackled humanly. In fact, the Bhutan king's proposal is an eye-opener for humanity so that we start asking the right kind of questions at least, if not start following the answers obtained readily. For, to what end are all our attempts at economic growth at the national level if not for the wellbeing and happiness of all citizens of the nation? And, if with the present level of economic growth, we're not satisfied and happy, what guaranty is there of a satisfaction and happiness suddenly dawning upon the nation at a particular high value of the GNP, since there's no greatest number and there is no upper limit either to human greed and selfishness apart from that set by the serious reactions set up by the operations of the universal law of action and reaction?

A Human Development Index (HDI) has been proposed to comparatively study the status of human life in various countries which again is based almost entirely on the western notions of development. We wish to move ahead and propose the concept of Spiritual Development Index (SDI) which will be the true marker of the development of a nation for then the index will be based on the virtuous and spiritual qualities of the citizens which are truly above the ordinary level of human qualities like acquiring, possessing and enjoying of objects of sense satisfaction. These higher qualities like Truthfulness, Nonviolence, Purity, servicefulness, contentment, universal love, compassion, selflessness, endurance, equanimity, control of the senses and the mind, divine contemplation and prayerfulness, and, the spirit of sacrifice for the wellbeing of others etc., can each be measured by adopting appropriate questionnaires as is done in measuring, for instance, one's leadership skills etc., and appropriately weighted to give the picture of the spiritual quality of the life of a nation.

Indians must pioneer efforts in such directions following the footsteps of the great saints and sages so as to be the harbinger of a new era of spiritual development of the entire humanity. We must forget once and for all our dismal records and scores in terms of indices formulated by western minds which are based on a materialistic



understanding of life and thus are of an inferior character compared to the SDI. We must usher in a new dawn of civilization beyond humanity to super-humanity since the human is not the ordained end of evolution but only a rung in the middle, albeit, an extraordinary one at that.

The nationalistic arguments of economic superiority, defence preparedness, rising productivity and rising levels of consumption by the citizens as primary indicators of development would then lose their importance and we must open ourselves up to such broader and deeper understanding of the facts of life than are presently thought of or paraded. A more austere national and global life of **reduced consumption, equitable distribution and voluntary sharing** of the available resources amongst all members are the wisest course of action and probably the only alternative before global mankind to sure extinction. Though mankind does not yet seem to be ready for such a paradigm shift in national and international policies, it is easily seen to be gradually and almost inevitably moving towards such an eventuality and, here again, India has to take the lead and show the path by its own example. Are we ready?

(c) The Individualistic Block: Having thus tackled the nationalistic blocks we can now rather effortlessly handle the trickier problem of the individualistic roadblock to environmental safety. These stem from the vices that the human mind is prone to, namely, lust, greed, hatred, anger, jealousy and egoism. The capitalists want to amass as much as they can by using various tactics and policies that are detrimental to the environment, to their own brethren and in the final analysis, to themselves also. They care not a hoot to cause grave damages to the delicate balance of nature because of being blinded by greed and the profit motive and thus quite unthinkingly exploit natural resources beyond limits. They advance sound arguments and convince the respective governments of the possible benefits that are going to accrue to the state exchequer if their projects are implemented, but, in reality, in their hardened hearts, they want to fatten their own purse and increase the number of digits in their net profit. In the name of liberalization and globalization, the western capitalist forces have now dominated the world's markets and consumerism has reached new heights, never before scaled in the history of mankind.

Our individual likes and dislikes, prides, prejudices and predilections are to be reigned in by the raising of the cane of self-control and self-abnegation in respect of material enjoyments so that we can make amends for the wrongs already committed and can arrest the trend of environmental degradation by reducing the dependence on



industrial products and turning instead to products from small cottage industries. Gandhiji's call to boost cottage industries can still be the saving grace in this hour of crisis if only we pay heed to wiser counsel. Cultivation of contentment in regard to one's lot is of paramount importance as a value to be inculcated in the minds of the public. A superbly cooperative existence for commonweal is to be the ideal in place of a fiercely competitive flux characterized by restlessness, lack of peace and poise, and, a mechanical and fast-paced life as has happened in the metropolises. If we do not consciously adopt such strategies, nature will, of course, sooner or later force us to do so, but is it not wiser for a race like humans to adhere to that which is good rather than that which is merely pleasant? This is as much a choice of the individual at every moment as also of a nation and of humanity as a whole.

The apparent impossibility of reversing the trend of industrialization owes much to our own weakness in regard to sense satisfactions and is therefore sure to lose its shin once there is an inner awakening to the higher values of life. This is the great task before us now as members of humanity and an even greater task before us as Indians who have the responsibility of leading the rest of the world's population, by their own austere and simple lives to a spiritual peace and beatitude that is unfathomable.

At the same time, if the US and the other Western nations are to lead mankind on the path of material progress through the concept of a global village, they have the onus to ratify and abide by the KYOTO PROTOCOL on reduction of GHGs first. They have to lead by example and sincerity of purpose and not by arrogance and aggression. The arguments based on "my nation first" do not carry much meaning when we are dealing with the future of the entire world. The individual self, the national self and even the collective self of humanity have to be sacrificed, one succeeding the other, if we are to really have peace profound reign supreme on earth- this is the Vedic vision of life enshrined in the famous peace-chants.

The ***self-contradictory proposals*** such as Sustainable Development, stem similarly from a lack of confidence in really having a higher-than-human aspiration and in working sincerely towards the realization of such aspiration which aims at such perfection in the human beings as befits gods. Is it too much to expect from man? If man can heartlessly exploit his environment and his own brethren in the name of progress, if man can ruthlessly bomb his own brethren in the name of establishing his supremacy in one form or the other, why can't the same man be called upon to show at least some valor to experiment with these proposals which have not only been



experimented in India long since and have been proved to be very much possible of attainment by the modern saints that our motherland has produced[8]?

The ***carbon trading proposal*** is yet another artefact of western ingenuity to safeguard selfish individual and national interests at the cost of the environment because the ones forwarding such proposals know very well how inefficient the governments the world over have turned out to be in checking deforestation and in promoting afforestation. That, companies and industries and corporations will compensate their carbon dioxide output by undertaking suitable number of plantations in another's backyards is as good as a blatant lie. Where the primary motive is safeguarding the rate of increase of the profit, how can they be expected to undertake such measures which will lessen the profit or its rate by some margin? Human greed will again have the upper hand and the environment will suffer heavily but by the time such fraud is detected, we would already have damaged the prospects of our healthy existence a great deal further through global warming. The international community must take note of these facts stated here for the benefit of one and all, so that we're not pretending on purpose on the issue [9].

Discussion and Conclusion

We've discussed at great length the various issues at the back of the phenomenon of Global warming and pointed out the true causes lying beneath the surface. We have analysed these causes from the angle of the psychology of human desire for ready availability, great durability, attractiveness of features and cost, and also multiple utility of the consumer goods as the causes behind our going industrial from a pastoral-agricultural background. While, there might have been an element of inevitability in such a shift in the history of human progress, it can't certainly be taken to mean that the humans should industrialize so much so that that the earth, as the only living planet, is doomed forever! Thus, somewhere we've to cry halt to our materialistic frenzy and delve deeper into the causes behind materiality itself.

Thereafter, we come to realize that the triple blocks to implementing the strategies for reduction in the GHGs being released by industries which have damaged the environment and have led to global warming are the philosophical, the national and the individual blocks, which we have discussed at great length and have pointed out India's role in the coming decades as the global awakener to the higher destiny of mankind far above the petty human pursuits of material objects and financial lucre.



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