

The Perils of Human Civilization: An Environmental Analysis

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To understand what is meant by modern civilization a brief history of the differences between the ancient cultures and those of today is needed. The Vedic civilization which is considered as the oldest recorded civilization is a post ice age phenomenon. Human civilization therefore is about 10-12,000 years old. But recent studies suggest that genes of *Homo sapiens* originated in Africa. If that is so, then the entire population of the Vedic culture must have originated from Africa. That is to say, we got the genes from Africa.

Human civilization began with agriculture. During the post ice age there was a steep rise in the Earth's temperature which induced the glaciers to melt. There was enough fresh water to start agriculture. So that was how civilization began. The model changed from hunter-gatherers to the agriculturists. And what happened afterwards? In the industrial age which culminated in a plethora of inventions, man had been declared as the conqueror of Nature. But are we the real conquerors of Nature? That is the question which comes to be addressed every other day in this modern world of ours. Why? Because *Homo sapiens* is the name given to man by man himself. *Sapiens* means wise. Are we wise? When I think of all these I relate to the first outstanding paragraph of the classic novel—*A Tale of Two Cities*—by Charles Dickens (1780). The paragraph describes pointedly in a few words the condition of the human civilization in the 18th century. Today we have

reached the 21st century; the societal condition is by any comparison much advanced and supposedly better than in London or Paris of 1780. Anyway, Dickens writes:

... it was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of light, it was the season of darkness, it was the winter of despair; we had everything before us, we had nothing before us.

The perspective was the French Revolution, but the same description is also true for the present-day scenario of the 'human civilization'. Advancement of industrial achievements had already started to take its toll during the last century and some remarkable events described below compound our fear of the perils of the highly lauded industrial revolution going on in leaps and bounds. Even at the end of the year 2009, we are confronting the same worrisome situation of the cities of today as in the last century.

Escape of poisonous gases from industrial depots has often been very dangerous to the general public. On 20 May 1928, two girls fishing from a rowboat near Hamburg, Germany, suddenly collapsed. Several hours later people and cattle on Wilhelmsburg Island, in the Elbe River, also faced the same debility. Later, when the wind shifted, several men, women and children at a pleasure resort also suddenly collapsed and some cases were fatal, facing agonizing pains before death. Even the guests at a wedding

feast were not spared where almost everybody lay unconscious. The animals were not spared either—chickens, ducks, cats were out of breath and eventually died. Death of this magnitude in the resort sent an alarm and the city fathers were determined to find the culprit which was a hissing tank. It was found that one of the many tanks contained deadly phosgene gas, the kind of gas used in the war. Expansion from warm weather and a corroded top had caused the gas to escape. All reasons of the gas leakage were found but unfortunately eleven young persons never returned to life and many of the 250 hospitalized remained ill for weeks, some for months. Numerous cities have had such experiences with 'peacetime gas attacks'.

In June, 1929, hydrogen sulphide gas suddenly swept over a part of El Paso, Texas, killing two sleeping children and sending a number of people to the hospital. It probably came from oil refineries nearby.

In 1931 almost every citizen of Oradour-Sur-Vayres, in France, suddenly lost the power of speech. Many suffered strange fevers that did not yield to any treatment. Finally the mysterious plague was traced to arsenic in the wine, just sufficient to paralyze the tongues of those who drank it.

A similar type of unknown ailment visited the Meuse Valley in Belgium on a December day in 1932. The death (poison) fog swept ferociously sending hundreds to the hospitals and scores to death. The affliction was more pronounced in those having weak lungs or suffering from asthma. Cattles too were not spared. The pungent odour of the fog clearly suggested that the fog was not innocent. It was mixed with some deadly gas. A long inquiry revealed that sulphuric acid fumes from various factories mixed with water vapour, dust and other toxic particles rendering the mixture acutely poisonous. Such attacks are only one phase of the hidden perils that hang over modern cities. The worst

single catastrophe of modern times was the explosion of the Baden Aniline Dye and Chemical Works, at Oppau, Germany in 1932 where more than 1,000 died and thousands were injured. The ravages of the gas attack also wrecked the town and damaged an area of about fifty miles. Thus the hazards of mass death are always present in areas where many people live close to chemical industries, power plants and explosive materials.

5 December 1984 was a date with death for thousands of poor people in Bhopal where the greatest tragedy of the human civilization took place. It occurred on a cold winter night, the misery was thousandfold greater in Bhopal and the death toll was a few thousands. The populace being the poorest of the poor, having no compensation either from the Union Carbide or the government, is still struggling to come back to the mainstream. Many have been maimed for life.

Do we really have a future?

Do we really have a future? To answer this question we have to know the present condition of our environment. In a very few words we can say that it is undergoing critical stress. Different ecosystems such as the agro ecosystem, the coastal ecosystem, freshwater ecosystem, forest ecosystem, are faced with disaster. For example: agro ecosystem that covers 25 per cent of the land in the world has lost fertility. In the coastal ecosystem 70 per cent of the world's major fisheries are overfished, while in freshwater ecosystem 20 per cent of freshwater fish is endangered. Water supply too is declining. 80 per cent water is overutilized by 40 per cent of population that belongs to the Western world. Moreover, 55 per cent of the grassland is fragile and one-fifth is completely degraded. The North American prairie, 100 per cent of it, will be lost very soon. So far as soil is concerned, as the industrial revolution has taken place all over the world

after the Second World War, 11 per cent of the Earth's vegetative surface has been degraded. This 11 per cent means an area as large as India and China taken together. One can then well imagine the amount of soil that is being lost everyday.

There is again a fallout of biodiversity paradox. No doubt that we are losing biodiversity irreversibly. If it is not controlled, then in a few more years from now very few species will be left on this Earth. But then, since 1993, 408 new mammalian species have been discovered. This information is not a cause to joy about because of its implications. For example, a new virus detected recently is highly fatal. The vector in the rodent species lives in the forests. What is happening is that the number of rats which carry the virus is increasing and species not having the virus is disappearing.

DDT, a pesticide, was discovered in 1944, during the Second World War. It was then heralded as a boon to human civilization as all insects could be killed with it. People forgot that DDT being liquid soluble not only kills insects but also gets accumulated in the living systems. When this dark side of DDT got revealed, it was banned in 1972. But then, after the ban the vector-borne diseases such as malaria, dengue and encephalitis appeared with renewed vigour. Organophosphates, the second generation pesticides after DDT did not work. So, to kill mosquitos we had to again fall back on DDT. It is an environmental paradox.

In 1974 Henry Kissinger, who was then possibly the US Secretary of State, became worried about global food shortage and wanted to save food. So he stopped the supply of wheat to India under PL 480 scheme. Ultimately it did India good because the Green Revolution that followed soon had made India self-sufficient.

Ozone depletion is another area of concern. We are alarmed that ozone depletion

will give rise to diseases such as skin cancer. The maximum level of exposure to ozone recommended by the United States Environmental Protection Agency (EPA) is 120 PPB which is very minute toxicologically. Even below that level macrophage cells in our bodies that kill the bacteria and save life loses the capability to consume the bacteria. It causes immune suppression of the lungs. So, ozone, on one hand, can protect us and, on the other hand, can kill us if we are not careful.

Carbon monoxide is a gift of the cars we use. A study done in 1983 reveals that 20 per cent city commuters who travel 6-10 hours per week are exposed to deadly carbon monoxide emitted by cars. Again, tetraethyl lead is added in petrol to give a high octane rating. This lead was even traced in the glaciers of Greenland! You can see then the scope of passage of any pollutant from the site of its origin to a location where there is little or no habitation. This anthropogenic lead is an important environmental pollutant which is already present in the environment through the use of unleaded petrol. Children are suffering the most. Their IQ level is coming down. Among other things, it is causing neural damages, high blood pressures and so on. Diesel bus drivers have high incidence of lung cancer. Then comes the deadly effect of greenhouse gases, especially carbon dioxide. It was calculated in 1994, before the surge in industrial activities, that 358 ppm (parts per million) of carbon dioxide were released worldwide which was equivalent to 760 billion tonnes.

In the nuclear fatality of Chernobyle (Russia) in 1983, 200 times more radioactivity was recorded compared to the explosion of uranium-based bomb dropped on Hiroshima on 6 August 1945 and plutonium-based bomb on Nagasaki on 9 August 1945 put together.

In 1940 Sir Albert Howard had written an article called 'An Agricultural Testament'.

There he pointed out that since the industrial revolution, the processes of growth have speeded up to produce food and raw materials needed by the population and the factory. Nothing effective has been done to replace the loss of fertility involved in this vast increase in crop and animal production. The consequences have been disastrous. Agriculture has become unbalanced. Land is in revolt. Diseases of all kinds are on the increase. Nature is removing the worn-out soil by means of erosion. Did we pay any heed to the warning? Immediately after World War II we sprang agricultural revolution on the world. Earlier, there were only family farms. So all the farms were small. Afterwards all the farms were joined together. It was no more a farming then. It became an agricultural industry. The pristine environment of farming, of peace and harmony, of people living in the happy company of their neighbours was lost. This agricultural factories induce a monoculture, ie they produce only one type of crop. So we have only miniket rice. Where have the other varieties of rice which used to be cultivated once upon a time in Bengal gone? Birbhum had so many varieties. We have lost them. No germ plasm of these we get anymore.

The humans think they are supreme. It is a sort of species arrogance. We deny the right of all other species, be it an insect, a reptile, or a tiger. We have become megalomaniac. We only want. We do not want to give anything back to Nature. We are missing the point that if we do not give anything back to Nature, our own survival is at stake.

Reviving the environment faces some problems from sectors such as the multinational corporations and economists. Corporations dismiss all these problems because they do not want to admit their own culpability. Solutions to these may not allow them to do their business, while the economists refuse to face the reality because if they do

so they have to admit that their earlier predictions were wrong.

The scientific community, however, has become vocal since 1992. Nevertheless they point out in different reports that there are many divides obstructing a solution to the crises already referred to—environmental divide, policy divide, vulnerability divide and lifestyle divide. The environmental divide is the gap between regions which is characterized by stable improving environment in North America and Europe and regions characterized by continued environmental degradation. The policy divide separates regions which have strong policy development and implementation from regions which do not. Interestingly, the US, the greatest polluter vacillates always between a strong position and a weak position. The vulnerability divide is widening both within the countries and across the regions. It is the divide between the disadvantaged who are at a greater risk and the affluent who are at a lesser risk. Lastly, the lifestyle divide is that the most affluent one-fifth of the world population are responsible for 90 per cent of environmental damage.

New concept of human ecology

The hope that we have for the future is to adopt the new concept of human ecology. Human beings can change the course of life on Earth. Jonas Salk once said that 'if all the insects on earth disappeared, within 50 years all life on earth would disappear. If all humans disappeared, within 50 years all species would flourish as never before.' New human ecology requires rethinking human capacity and creativity as they are now understood in education. It also requires a better appreciation of the potential of human imagination in searching for sustainable solutions to heal our crowded and destabilizing planet.

There is indeed no doubt that man with his smart gadgets of civilization has

unknowingly been trapped in a course which spells disaster as he is continuously colliding with Nature. Humanity has no chance of escape from his own dreams of a civilization which inflicted irreversible damage on the environment and on the non-renewable resources of Nature. In Order to see the dawn of 2100 fundamental changes in our habits of exploitation of Nature has to be contained, that is the only way to avoid the disaster of annihilation of the human species.

Is there a way out of disaster?

The present times is considered as a critical era that will make or break the experiment of human civilization. We have experienced two great World Wars. But we have survived with one model of civilization for around five thousand years. The price paid for the two wars was indeed awesome, (37 million casualties in WWI and 62-78 million in WWII) but it was not the end of civilization. The participants in the wars felt it was the end of everything; yet we have survived. Some scientists are of the opinion that the perception is as important as the fact: it set off the alarm bells and it is just as well that we had the First World War when we did. At a relatively modest cost, it gave us early warning of what kinds of perils we were about to encounter and caused us to start thinking about how to survive them a few decades earlier than we might otherwise have done. For all we know, that could be the margin between success and failure. Finally the alarm bell rang with a loud and clear message; we have to engage proactively in the environmental awareness and protection of the third planet, the only habitat for life. Unfortunately, *Homo sapiens* lack wisdom and therefore facing an intriguing situation with show of powers over each other and over weapons and even over the balance of the environment. These fights for supremacy over each other are making the

transition to a different model of survival, peaceful coexistence and toleration difficult. It is said that man learns from history, but in reality man does not learn lessons early enough to save the civilization. One of the characteristics of the European consciousness after the Second World War was the realization that history needs help in this troubled circumstance. People were afraid of industrialization which would lead to another war. In 1919 no one foresaw the advent of the Nuclear War, but it happened, thousands of innocent lives were lost or maimed for the rest of their existence. The peril of a future nuclear catastrophe is being actively prevented by all nations and vigil is also continued. Because once the genie is let out of the nuclear bottle we have no future left for life. From the invention of printing to today's CNN, the modern mass media have begun to supply those means to have restored the possibility of democracy in mass societies.

The question whether we have a way out of this is very difficult to answer, because the degree of harm to Nature by human-related activities is phenomenal. We are at such a state that we cannot turn the clock back to the time of the pristine environment where Vedic rishis chanted '*Vanaspate, O Lord of the forest, give forth thyself and call the gods for sacrifice*'. . . . '*May Agni, god intelligent, speed our oblations to the gods*' (RV I: 142.11). Tree worship was the first worship man learnt in all ages and cultures. Alas, modern civilization began with the voluntary destruction of forests. Over the ages of development of the modern civilization man has halted before the altar of survival because he has realized what a mess he has made of the bounties of Nature and now the darker side of the coin is visible. Warnings against environmental disasters are a very common issue and environmental activism has matured. A word of caution is necessary here in order to repeal the human adversities

against Nature and environmental activism needs to be avoided. Most of the times it is transformed into over enthusiastic journalism which puzzles the general public and cannot really correct or reverse the situation. However, it is heartening that fallibility of man is now explicit in the consciousness of humanity and there is a rising trend of awareness for environmental protection and conservation of Nature. Enough has not yet been accomplished to endure the backlash. Animals show a premonition and sense a danger is approaching and try to escape. Man has almost perfected the warning systems but rarely responds to the predictions, rather reacts better when a crisis precipitates. Man will have to struggle very hard to come out of this dreary environment of death and disease. It is definitely a struggle which will continue. Man must live in hope and it may be possible to reverse the perils of civilization.

Civilization cannot be maintained by man alone. Civilization is dependant on Nature. What we see today? Indiscriminate destruction of tropical rain forests, tropical and temperate dry forests. If such activities continue, the days are not afar when critical forest types will be gone before the end of the next century. Tress and biota are interdependant characteristics of any ecosystem. Annihilation of trees will take away large numbers of plant and animal species, which by 2100 may reach one-third of all species now living. We are losing the potential they hold for providing medicinal and other benefits, and the contribution that genetic diversity of life forms gives to the robustness of the world's biological systems and to the astonishing beauty of the Earth itself. Our massive tampering with the world's interdependant web of life, coupled

with the environmental damage inflicted by deforestation, species loss, and climate change, could trigger widespread adverse effects, including unpredictable collapses of critical biological systems whose interactions and dynamics we only imperfectly understand. Uncertainty over the extent of these effects cannot excuse complacency or delay in facing the threat.

What we must do to save ourselves

The need of the hour is to take solemn pledge that a) we will stop all damaging activities and restore and protect the fragile planet; b) we will manage resources more effectively for human welfare; c) stabilize the *population* and d) reduce abject poverty and gradually eliminate this scourge. No nation can escape from injury when global biological systems are damaged. It is true that the developed nations manage and utilize maximum resources for the minimum number of people, nonetheless developing nations must realize that environmental damage is one of the gravest threats they face, and that attempts to blunt it will be overwhelmed *if they do not check their populations*. The greatest peril staring at us today is to become trapped in the complex of environmental decline. Environmental damage is closely related to poverty, and unrest, leading to social, economic and environmental collapse. Therefore, to save ourselves from the catastrophe we need to develop a new ethic which will make us realize the responsibility we have towards Nature. We need a new attitude towards discharging our responsibility and stop ravaging the riches of Nature. This ethic must motivate a great movement to save ourselves from the perils of human progress. ■

* This article is based on the Surrendra Paul Lecture Professor Shelley Bhattacharya delivered at the Institute on 29 December 2009.