



Let Us No More Impoverish the Environment: Pledge to Save its Resources



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Opinion

The survival of human beings and other diverse sort of animal species from times of historical past, has been possible because of continuous drawing of the resources of nature. Forests, water, air, diverse type of minerals together with the evolving of bio-geo-chemical cycles have continued to purvey the essential life support services for all the living objects in a web of periodic flux. Till the days of industrial revolution the interaction among human population, animal population and the resources of nature were not causing any great concern about the sustainability of life on this planet earth over the future years. For some time the relevance of Gaia hypothesis was in vogue and it was believed that the earth can be considered as a super ecosystem consisting of micro ecosystems like mountain ranges, forest ecosystem, rivers, wetland, etc.

According to this hypothesis, there is supposed to be operative a chain of self generating and self supporting forces that provide the continuity of life in all these micro ecosystems. And the earth composed of all these micro ecosystems is considered as a cybernetic and controlled macro system where the flow of life is supposed to continue without any inhibition. But since the days of industrial revolution the optimism held under the aegis of Gaia hypothesis gradually started withering away. The gradual rise in population across different countries of the world, rapid spread of the global culture of consumerism and proliferation of industrial, agricultural and allied other activities have started to exert tremendous pressure on the available natural resources which is of unprecedented dimension in the historical time scale.

This is evinced in the I=PAT expression that was put by Prof Ehrlich. The variable "I" in the equation represents environmental impact. The expression equates human impact on the environment to the product of three factors: Population, Affluence, and Technology. It is similar in form to the Kaya identity which applies specifically to emissions of the greenhouse gas carbon dioxide. The 1972 Limits to Growth (LTG) report (commissioned by Club of Rome) based on the computer simulation of exponential economic and population growth with a finite supply of resources, expressed great doubt about the survival of life based on unbridled use of natural

resources. According to their view, the global endowment of natural resources which human beings interact with, can hardly support the prevalent rate of economic and population growth even with advanced technology much beyond the year 2100. They considered five basic factors that determine and, in their interactions, ultimately limit growth on this planet: population increase, agricultural production, nonrenewable resource depletion, industrial output, and pollution generation. The data considered by them till 1970 were put into developing a range of scenarios extended to 2100, subject to prudent and serious action taken by humanity to counter the adverse environmental and resource use issues.

Unless this action transpires, the model presaged "overshoot and collapse" - in the economy, environment and population - earlier than 2070. This condition has been termed as the "business-as-usual" situation. Melbourne university researchers have vindicated the book's forecasts even 40 years on. Dr Graham Turner's study based on data from the UN as well as US national oceanic and atmospheric administration and the BP statistical review, aligned with the directional movement suggested in Limits to Growth scenarios.

The 1972 study suggests that maintenance of the tempo of sustained growth in industrial output to cater to the culture of consumerism requires ever increasing use of resources. But with gradual depletion of resources, their scarcity would be reflected in their expensiveness. With mounting industrial activities and concomitant pollution and climate change, there is likely to be setback to agricultural production, that may combine to bring about a rise in the death rate from about 2020. Global population is likely to begin to fall from about 2030, by about half a billion people per decade. Living conditions may fall to levels similar to the early 1900s. The global collapse is attributed to increasing pollution and adverse climate change events. Carbon dioxide emissions may gradually result in environmental cataclysm through warming the atmosphere. It is perceived now that the process has already set in as evinced in the form of flash floods, cloud burst, forest fire, unpredictable storms, extreme weather conditions, outbreak of invasive species, long spell of heat-waves and so on.

It is surmised that the Global Financial Crisis of 2007-08 and continuing economic malaise may be an aftermath of the blow emerging from resource constraints. The quest for material wealth aggravated the situation leading to unsustainable levels of debt, with soaring prices for food and oil contributing to economic collapse in many developing nations. The conventional oil production is supposed to have attained its peak. The conservative International Energy Agency has warned about the criticality of this peak oil scenario.

The essence of such retrospective assessment is that the way people are intervening with the resources of nature in order to exploit the so called benefits of modernity, may soon have a backlash impact on the sustainability of human race and the world's ecosystem. Human beings are led by the faulty belief that only they have the absolute property right on the earth's resources, while the other beings are viewed as just pawns subject to their whims of resource use. Bewildered at the sight of mighty reign of human beings on world-wide varieties of life, some scientists have begun to consider the human race as mightier as the geothermal power of volcanoes. It is held by many that the uncontrollable greed of mankind to grasp all the world's resources in its favour has given rise to a new epoch considered as anthropocene. Mahatma Gandhi once said 'nature has given enough for our need, but not enough for our greed'. This epitomizes what human beings are running after, oblivious of the resource constraints at its disposal and the adverse impact of its rampant use.

A comprehensive report on resource use and global warming published last year revealed that climate change is continuing briskly, leaving the future of earth at stake. The UN has warned that staying below 2C of warming should be practised, in order to avoid precarious levels of climate change that could end up in a rapid rise in sea level, failed crop, and the collapse of coral reefs and loss of many other invaluable ecosystems that provide close to \$30b (£21b) each year in goods and services. The report warrants that world can continue to emit carbon for nearly another 23 years at current state, before it attains more than two-third of probability regarding superseding the 2C limit. In this context, celebrating the 'World Environment Day' assumes great importance, as it serves to make us aware of the impending environmental peril unless immediate sincere measures for protecting the treasures of nature and nurturing for its regeneration be undertaken. It is nowadays overtly exposed that in order to reap quicker benefits of development, rampant consumption is being made of petroleum (exhaustible resource) and its by-products. Some of these (viz. plastic) are non-biodegradable and greatly detrimental to the environment. There may be exploration to find new sources of oil but the rate of extraction far outweighs the prospect of new discoveries with its attendant costs.

This year (2018), Environment Day, with the theme 'End Plastic Pollution', is dedicated to making people cautious about the toxic elements associated with handling non-biodegradable plastic and to fundamentally change human approach and dealings with plastics. Indian Govt. is the main stakeholder about this celebration. In 2016, act has been passed by the Govt. for reuse of plastic wastes.

Plastic carrybags and bottles, with random use and improper disposal, across many cities in Indian subcontinent and other developing countries, pile up in landfills or worse, get washed out into water bodies. According to latest studies, an estimated 5 trillion plastic waste accumulates in ocean beds globally, posing a big threat to aquatic life, since plastic is carcinogenic. Often it is found that around wide expressways across major cities, there are huge heaps of plastic wastes. Sometimes to destroy this plastic garbage these heaps are incinerated. The immediate impact is in the form of widespread toxic and poisonous fumes emitted from the smoldering plastic, having a great health hazard to people exposed to such inhaling. Plastic based development may be important but nobody has any headache about its safe disposal.

It is high time that on the Environment Day, people stage open awareness campaigns, stage street corner meetings, or throng together to raise slogans/hold discussions to disseminate the information relating to the effects of plastic on the environment. Citizens themselves should take the resolve for not using plastic any more. The government in every developing nation must mediate and proscribe the manufacturing of plastic commensurate with the UN's cause.

The Formidable Facts Pertaining to use of Plastic is Evident from the Following Statements

- A. Every year the world uses 500 billion plastic bags
- B. Each year, at least 8 million tonnes of plastic end up in the oceans, the equivalent of a full garbage truck every minute.
- C. In the last decade, world produced more plastic than in the whole last century.
- D. 50 percent of the plastic used is of single-use type or disposable.
- E. 1 million plastic bottles are purchased every minute.
- F. Plastic makes up 10% of all of the waste generated on earth.

"Beat Plastic Pollution", the theme for World Environment day, (5th June 2018), inspires governments, industry, communities, and individuals to unite together for a common cause embedded in finding sustainable alternatives and reduced delivery of single-use plastic polluting our oceans, damaging marine life and intimidating human health. Only days back, several kgs of plastic were found from the abdomen of a dead 'Pilot' species whale from coastal region in Thailand. It is also admitted by a section of environmentalists that life now-a-days without use of plastic is not possible. The problem is due to single use plastic. Improved quality of plastic should be available at market friendly price. While bio-plastic is there and does not act as pollutant, its production cost is rather high and not easily available in market. For saving the environment, more research in this direction seems imperative to supply this quality in the market at low price. Further frugality in resource use needs to be urgently exercised from several angles.

Importance of Recycling

Gradually increasing number of people need to be sensitized to the importance of saving the environment. If we merrily go on cutting down the forests, pollute the water courses, vitiate the air, extract the exhaustible resources, sooner or later the natural resources will vanish from the planet earth leaving virtually little for the use by our offsprings. Hence, people should learn how to act prudently such that the environmental condition does not slip beyond control and the earth remains habitable for generations to be born. In saving use of resources, the process of reusing based on recycling, can make a great contribution.

The significance of recycling based on entropy law of thermodynamics has now reached such a height that it is viewed as a possible way of economizing use of natural resources. A large number of things can be recycled and reused, reducing waste and garbage in landfills and across the earth's surface. The rag-pickers, domestic waste material buyers and scavengers play a great socio-environmental role in this regard and their service should be better recognized by the society, as it also makes people aware about the prospects of recycling.

Importance of Protecting Plant Life

The sources of our energy for almost all forms of life on earth come from plants which translate sunlight into complex chemical compound. The civilisation of mankind has sustained because of the services we get from diverse species of plants in the form of varieties of edibles. Forests constituting different type of plants, provide diverse amenity values. Apart from providing us food, forest provide multifarious benefits. It helps control soil erosion, provides habitat for diverse species, protects against storm, helps sequester carbon dioxide from air, controls flood, provides wherewithal of life for the downtrodden section in the form of food, fodder, fencing material, fuel, shelter, medicines etc. Forests maintain the balance of nature, the environment, the climate, the weather, and the composition of the atmosphere. In fact forests act as our life saving element. But often the people across different countries unmindfully destroy the forests, without having any compunction about what might transpire. Most of the world problems today were accentuated by deforestation and inability to revert back in the system with quick rotation. Human beings being prudent one, must save plants and forests, since survival of life on earth heavily depend on their growth and flourish.

Stress on Reduced Consumption

Apart from recycling and reusing, people can help save the environment by reducing the use of several types of natural resources. This pertains not only to paper and plastic, but also things like water and energy. Using less resources for production purposes entails efficiency in technology use. Meticulous care about preventing wastage of resources can save a lot for future generation. Small efforts in this regard, may when aggregated, turn to have a stupendous impact on saving the environment. For instance students can play a big role in this regard: turning off the lights when the classes are over in schools/ colleges/universities; economizing

the use of water in hostels or other public places, saving use of paper in official domain by encouraging writing on both sides, taking recourse to e-notification, using domestic garbages as composts etc. Whenever possible we need to reduce the use of exhaustible resources like oil, coal, natural gases etc. The residents in a country may pledge to spend a day in a month /bimonthly by not riding a personal four wheeler or two wheeler unless exigency of situation demands its use. Instead mobility can be carried on by riding a bicycle. Turning off domestic lights when not in use will also save the resources in the mother earth, and will encourage the neighbours/acquaintances to follow suit through enhanced awareness building.

Saving the Wildlife

The resources of the nature has not been bequeathed to mankind for their whimsical use. The property right of the resources does not belong to human beings only. From long time in historical past a large number of species of animals, big or small and even micro organisms have coexisted with mankind on the mother earth; living things were using it for billions of years, before our own species showed up just some five million years ago. While many of such species have importance in terms of the food chain, a diverse number of insects, birds and animals have contributed to making the earth a wonderful place to live in. Further many of them act in agriculture friendly manner. The existence value of such diverse species itself is of immense dimension. If such species are obliterated from earth's surface, human beings would gradually start feeling lonely species on this planet. So all-round efforts are needed to ensure the survival of these species, specially those which have reached the brink of extinction. There are many such endangered species like olive ridley turtle, blue whale, white elephant, geometric tortoise, bamboo lemur, roloway monkey, gooty tarantula etc.

While extinction of species has taken place throughout evolutionary history, leading ecologists are of the view that the rate of biodiversity loss has accelerated by factors of 100 to 1,000 times since the evolution of human beings on this planet. According to their estimation, with the persistence of the present rates of biodiversity loss, the earth may become impoverished with the extinction of more than 25% of all species by the next half century.

Controlled Emission of Pollutants

Deforestation, industrialization, mining activities as well as urban sprawl have led to enhanced emission of pollutants thus spelling disaster for the environment. Energy and nutrients flow, together with other flows are getting disrupted. Due to increasing emission of CO₂ and other pollutants that are gradually piling up in the atmosphere, the perils global warming will sooner or later annihilate the world civilization unless solid steps are started to be taken to allay these problems.

Due to carbon dioxide and other greenhouse gases emitted by civilization, heat is building up in the atmosphere at a rate not seen for tens of millions of years. The cities are gradually being converted to "heat islands." Pollution is becoming a great assassin. Levels of air pollution, water pollution, noise pollution, and food contamination are high. Human interference has brought nature close to

destruction. Now it is high time that human beings come to a consensus and take a pledge together to stave off pollution and protect the environment for ensuring the flow of life on this unique beautiful planet.

Environmental Education from Primary Stage

Training young minds by using models/pictures about how to protect the environment would instill in them a lifelong habit for taking care for environmental issues. School curriculum from the primary stage needs to be arranged in that manner so that students find active interest in its preservation and keep on nurturing this habit as they grow up. Parents also should motivate their children towards this end. For example closing the running tap while it is not in use, putting off light and fan after class, protecting birds' nests that might be built in trees around the school compound, undertake plantation under the guidance of teachers and regular watering them, not to use the AC in place of fan /hand-fan, collecting the garbage around the school in a vat would make a child student largely aware of the benefits of such programmes. If everyone in the group act according to these norms of behaviour, today's children will thrive as future protectors of the environment, and can provide tangible contribution towards safeguarding the system from collapse.

Reducing the Intensity of Environmental Waste

The waste sink service of the environment in terms of its capacity to absorb garbage/ junk matter has in many cases reached the saturation point. The problem of dumping solid and hazardous waste has assumed a nightmarish proportion in many regions of developing world.

In a number of regions today, municipal landfills and waste incinerators are overburdened and can hardly afford to absorb any further supplies of trash and abandoned materials. Ponds, rivulets, streams and lakes in many rural areas have been vitiated due to rain water driven agriculture runoff mixed with chemical fertilizer and pesticides. This has also resulted in eutrophication of water courses leading to problems of DO and BOD. Further in selected regions ground water has turned polluted because of arsenic /fluoride found at certain depth of water table. Contaminated aquifers in suburban regions of many developed countries stand as great threat and pose serious health hazards to human and cattle life. Peoples' awareness need to be enhanced in order to motivate them to avoid such polluted water sources and put pressure on local stakeholders to help find new avenues of dumping the industrial and domestic garbage.

While the prevention/attenuation of all kinds of environmental adversities/ hazards may be difficult to operationalise on the part of an individual/group of individuals, there are certainly some steps not beyond control by prudent citizens. Saving of huge amount of environmental resources can be done through some of the following steps in our daily life.

Replacing old light bulbs with energy-saving fluorescent and LED bulbs seems very important. These are costly but have guar-

anteed life and can be replaced if found defective within guarantee period. Further these help save on the energy bill in the future and they last longer. An LED light can be seventy-five percent more energy efficient than the old incandescent light bulbs and can last up to twenty-five times longer.

- A. Restricting shower bath to a single a minute can save 150 gallons of water per month. Further it's not just saving the use of water. Operating a shower for just 5 minutes is the energy equivalent of leaving a light on for 14 long hours.
- B. Reusable cloth bags should be put to use at local grocery shopping purpose. Use of both paper and plastic bags should be avoided. It takes about a thousand years for plastic bags to degrade. Paper bags (although recyclable), demand cutting down of trees.
- C. Collecting rainwater is useful when it is saved for domestic gardening purposes Rainwater barrels can be bought at local home improvement store or can be made at home.
- D. Since the majority of lighters now-a-days are disposable in nature, 1.5 billion of them end up in landfills every year. These lighters have usually plastic bodies and are filled with butane, both of which are environmentally inimical. Instead matches can be chosen, specially that are made of paper. The other wooded variety are made from trees, but the paper ones are made from recycled paper and hence does no harm to environment.
- E. Undertaking plantation of trees inside and around house will provide shade. This might save money on purchase of air conditioning.
- F. Double-sided. printing of computer paper, whenever possible should be carried out.
- G. Computer should be turned off when one goes to sleep. This helps conserve energy.
- H. Adequate care should be taken when inflating the tyres. This extends the life of the tyres, ensures a safer ride, and saves gas.
- I. Office can be attended on bi-cycle, if it is not at great distance.
- J. In general following the 3R rule (Reduce, Reuse, Recycle) effective saving of the resources of our precious earth can be made.

There are many other ways in which the depletion of environmental resources can be arrested. Reducing such resource use would save the exchequer from provisioning for depreciation expenses of these resources. The environmental cost of resource use has long been left unaccounted for in System of National Income Accounting. This cost is nothing but the depreciation expenses of natural resources that have already been used up. The United Nations Statistical Division (UNSTAT) has introduced the SEEA (System of Economic and Environmental Accounting) by incorporating

the depreciation cost of used natural resources in a broad based accounting system. The essence of such exercise is that environmental assets are often considered to be irreversible, unique and uncertain. Many of such resources have great existence and option value which do not form any market based valuation.

Hence such valuation needs to be done very cautiously in order to reflect the importance of their maintenance. The earth's resources are not bountiful to satisfy ever increasing human cravings to have more and more wealth under individual ownership. It is high time now that system of combined ownership of resources/articles in small circles be practiced and given premium importance in society in order to lessen individual property ownership scenario. This

would obviate the necessity of single ownership of multiple articles while diffuse it in terms of multiple ownership/use of single article. Many such cases can be visualized where this can be practiced and resource can be saved.

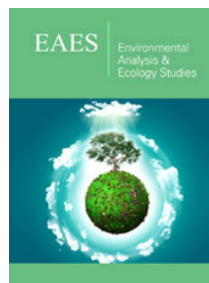
The corresponding institutions/regulations need to evolve towards this direction. The importance of environmental regulations in putting a brake on its use can hardly be denied. But there needs to be proper monitoring and execution of the regulations. Without this, whatsoever the coverage of environmental regulations be, their impact on controlled resource use would remain a distant reality.



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