

## Biodiversity Erosion Sensitization, Awareness and Motivation for Conservation

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### ABSTRACT

All of us want to "Save the Planet" and fulfill the Green Dream and one of the biggest mistakes we people make is to think that going green is something only rich can afford to think and do. April 22, 2010; was the 40<sup>th</sup> anniversary of Earth Day and no matter what we are old or young, male or female, poor or rich, geek or amateur, the planet is something we should all care about; it is after all, only one we have got to live happily. Our attempt should be to give damn for the Earth we live on by taking a good look of one's own self and see how we can improve upon the present situation of crisis and erosion of biodiversity without laying allegations or talking about the wrong doings of **NGO's**, government or technology. We know, millions of distinct biological species is the product of four billion years of evolution. The biodiversity is the variation of life for entire globe and value of biodiversity is more than sum of its parts. The natural world among us is extremely rich and variable in forms, colours, odours, behaviours, movements; to live with it needs proper sensitization awareness and understanding of richness and variability of biosphere. Every living creature including humans live in a proper balance with the non-living component of the ecosystem leading to the welfare of existing biodiversity. Native biodiversity erosion is manifested as species extinction, restriction of geographic range, unusual population fluxes, reproductive failure and depletion of genetic diversity. The consequences are loss of potentially valuable organism and biological compounds for human welfare. Human cultures have of course, adapted to local environment by discovering, using and altering local biotic resources. Many areas that now seem natural bear the marks of millenia of human habitation, crop cultivation and resource harvesting. Rejuvenation or regeneration of habitat and reversing erosion of biodiversity is an extremely difficult and long process. We cannot solve the problems that we have created with the same thinking that created them. In 2009, humanity used 40% more resources than nature can regenerate in a year. The rate of using resources is faster than these can be regenerated and creating waste such as carbon dioxide faster than it can be absorbed is ecological overshoot resulting in depletion of resources, extinction of species, leading to the creation of hot spots, global warming, climate change; all added leads to biodiversity loss, crisis and ultimately erosion. The biological diversity is being eroded as fast today as at any time since the **Dinosaurs** died out some 65 million years ago. The crucible of extinction is believed to be in the tropical forests. A rough estimate is within next 30 years 50% to 10% of tropical forest species may face extinction. There are not only sites with endangered biodiversity; world wide many areas whether terrestrial, aquatic or forest ecosystems face serious loss and degradation of unique native population of species. It is customary to make everyone aware of adverse human impacts on biodiversity like habitat destruction, over harvesting, global warming, climate change, environmental pollution, commercial trade of plants and animals, introduction of species and genetic engineering. The present scenario is arguably the greatest threat to world stability and security today and for generations to come. At present, globally we require the equivalent of 1.4 planets to support our life styles. This is humanity's current ecological foot print, the demand people place upon the natural world or biosphere. The need of the hour is proper sensitization awareness and motivation of general masses for conservation of biodiversity with a holistic approach; by replacing traditional frontier economic concept to modern spaceship economy for ensuring long term survival of the human race. The idea of conservation or protection is probably as old as human species, the use of word in its present context is relatively recent. The conservation should involve human feeling, beliefs and attitudes as well as science and technology. The International

union for Conservation of Nature and Natural Resources needs to manage the human use of biosphere so that it may yield the greatest sustainable benefit while maintaining its potential to meet the needs and aspirations of future generations.

### **BIODIVERSITY**

All life on earth is part of one great interdependent system. It interacts with and depends on non-living component of the planet. Humanity depends totally on this community of life (biosphere); of which we are an integral part. We know, biodiversity refers to the totality of species, population, communities and ecosystem of both wild and domesticated species that constitute the life of any one area of the entire planet. India being a mega diverse nation has a rich and varied heritage of biodiversity encompassing a wide spectrum of habitats from tropical rainforests to alpine vegetation and from temperate forests to coastal wetlands. India contains about 8% of the world's biodiversity on 2% of Earth's surface making it one of the 12 mega diverse countries in the world. This variety is attributed to the vast variety of landforms, climates resulting in habitats ranging from tropical to temperate and from alpine to desert. In addition to this is a very high diversity of human influenced ecosystems including agriculture and pasturelands and of course, an impressive range of domesticated flora and fauna. India is also considered one of the world's eight centres of origin of cultivated plants. Being a predominantly agriculture - based country, India also has a mix of wild and cultivated habitats giving rise to a much specialized biodiversity which is specific to the confluence of two or more habitats. Hence, India is a repository of genetic resources of several life supporting plants of food and medicinal value that form a base for future crop improvement. India has got five world heritage sites and about twelve biosphere reserves due to varied physical features and geographical locations.

Biodiversity deals with biological unities such as genes, chromosomes, species, families and bio-geographic regions. It even includes genetic difference within each species as between variety of crops and breeds of live stock. This native biodiversity is inexorably linked to human health and welfare rather human existence is dependent on environment health and maintenance of natural habitats. In human history, in the last fifty years the human behaviour has changed the biosphere more rapidly and extensively than in any other period of human history and the next thirty years are the crucial years of biodiversity erosion as the resources are being used faster than they can be regenerated and creating more waste than it can be absorbed is an ecological overshoot. The biodiversity has declined more than a quarter in last 35 years. The living planet Index (LPI) tracks nearly 4,000 population of wildlife and shows an overall fall in populations trends of 2% between 1970 and 2005. At present, globally we require the equivalent of 1.4% planets to support our life styles this is humanity's demand upon the natural world. Biodiversity is being eroded at a much faster pace for the vested interests of human beings. The crucible of extinction is the tropical forests. Around 10 million species live on earth, according to best estimates tropical forests house between 50% to 90% of this total. About 17 million hectares of tropical forests, an area four times the size of Switzerland are now being cleared annually, and a rough estimate is that within next 30 years 5% to 10% of tropical forest species may face extinction. Tropical forests are by no means the only sites with endangered biodiversity worldwide. In many areas the species rich in old growth forests have been steadily replaced by secondary growth forests and plantations. Even the aquatic biodiversity system faces serious loss and degradation. The hardest hit being the fresh water and the marine ones wherein the loss of unique populations of many species, introduction of many alien species and major ecological changes have eroded the biodiversity of these ecosystems. So, it is customary to understand and analyze the adverse human impacts on biological diversity which is the greatest threat to world stability and security to day and for future generations. We need to stress on and practice the concept of new international economic order which is based on equitable sharing of resources and knowledge amongst the developed and

developing countries in order to save this globe. The modern economists suggest a new economic system at global level which is necessary for long term survival of the human race. The present economic system is characterized by maximum flow of money, maximum production, maximum consumption, maximum resource use and maximum profit. This frontier economy as it is called now should be replaced by space ship economy which says that earth is like a spaceship is a closed system. This sustainable economy promotes recycling, conservation, use of renewable resources, product durability and a clean healthy environment. People need to live within the limits imposed by earth. Future patterns of development should be made much less material intensive. Broken goods should be repaired rather replaced. Harmful and non-degradable wastes should be eliminated as much as possible. We need to sensitize and motivate the masses for conservation of biodiversity with a holistic approach. The concept of conservation or protection is probably as old as human species, but the use of word in its present context is relatively recent. Over the years conservation has acquired many connotations, to some it has meant the protection of wild nature, to others the sustained production of useful material from the sources of earth. The most widely accepted concept presented by world conservation strategy by International Union for Conservation of Nature and Natural resources (1980) is that the management of human use of biosphere so that it may yield the greatest sustainable benefit while maintaining its potential to meet the needs and aspirations of future generations. This is only possible when conservation will involve human feelings, belief and attitude as well as science and technology.

#### **HUMAN IMPACT**

The loss of species and habitats at an ever increasing and alarming rate coupled with the depletion of non-living resources by the modernization of human species has threatened the web of life on the earth. This year is the year of biodiversity, we should be aware of the goods and services provided by the ecosystem in particular or the biosphere in general. The over exploitation of biodiversity by man in the form of medicine, souvenirs, status, symbols, building material, food etc. is currently unsustainable and the next thirty years are critical for the globe. The bio-resources which are of direct, indirect or of potential use to humanity are getting exhausted thus, posing a threat for the survival of present and future generations as basic human needs are to be satisfied by bio-diverse environment. Although, the human society has evolved at a much later period of time in the evolutionary pathway of living organisms but for the selfish interests we are endangering the millions of biological species, a product of four billion years of evolution. Extinction is no doubt, part of evolutionary process, but today's rate of extinction is much greater than the scale at which species disappear due to evolution alone. Many biological species and other a biotic resources are now vanishing faster than at any other time in Earth's history. Scholars believe that in 5.5 billion years of Earth's history we are currently experiencing extinction rates rivaling or exceeding the rates of pre historic mass extinctions. Although 99.9% of all animals that once lived on Earth are now extinct, the mass destruction is attributable to one species humans is apparently unique in earth's history. Even the conservative figures predict a loss of at least 1% existing species per decade, which means we are losing at least two species an hour. Most threats to biodiversity are directly or indirectly attributable to a growing human populations, which is increasing at about 90 million per year. The world's population is 6 billion people and is projected to reach 10 billion by the years 2050. This rapid population growth will put additional stress on the world's ecosystems and species resulting in the erosion of biotic as well as abiotic resources of the biosphere. The biodiversity is of course threatened by more than just one cause, some of them can be reduced in the short term while others like reversing climate change trends are of a long term nature. The steps are required to be taken now to combat further damage to the existence of the biosphere. The predominant threats being habitat loss or degradation, invasion of non-native species,

pollution, overexploitation of resources, global environmental change and introduction of genetically engineered organisms. The consequences are loss of potentially valuable organisms and biological compounds for sustenance of the existing biodiversity.

### **CONSERVATION AND MANAGEMENT**

If man expects to have a future on this earth, one must use the resources in the possible prudent manner. It means the optimum and wise management of resources to provide a continuous supply for a long time into the future. This implies continuous renewal of a resource and recovering, recycling or reusing the products. Conservation means maintenance, of a natural area in its natural state for the purpose of enjoyment or study. Conservation is a broad concept which involves not only the scientific but ethical, moral, economic and political aspects as well. Conservation is achievement of highest sustainable quality of living for mankind by the rational utilization of environment, protection of nature to enrich the life of humans and the control or elimination of environmental pollution in its many manifestations. Conservation advocates practice that will perpetuate the resources of the earth on which man depends or in whose continued existence he takes an interest. The aims of the conservation are two fold.

- To ensure the preservation of a quality environment that considers aesthetics and recreational as well product needs.
- To ensures a continuous yield of bio-resources by establishing a balanced cycle of harvest and renewal.

Biodiversity conservation is required to be achieved through measures adopted in favour of bio-resources in order to increase their longevity and improve usage pattern. The biodiversity conservation many pose some strong bioethical issues which have roots in the value system of most religious philosophies and cultures and thus can be easily understood by the general public. They appeal to a respect for life, reverence for living world and a sense of intrinsic value in nature. Ethical arguments for conserving biodiversity appeals to the nobler instincts of people and are based on widely held truths. People will accept these arguments on the basis of their belief systems. So, need is to tap such concerns of human psche, human feelings, beliefs, attitudes together with science and technology which will really force the general masses to think on the lines of sustainable development of biodiversity which will ensure the existence of life on the earth in the near future. In India, the institutional set up for documentation of biodiversity is well recognized, but the value of biodiversity and its significance in the livelihood process and the survival itself was never communicated to the masses. To inculcate sort of fervour at the individual level for this noble cause we have to exercise pressure on political, religious government as well as the social level. Recently, in March this year a Swiss family belonging to NGO "Top to Top" globe trotting wanted to warn against global warming. Dario Schavorer, 41 year old climatologist and mountaineering expert, his wife Sabina and two children born during expedition travelled over 80,000 km. across 45 nations by walking, cycling and sailing last 8 years. The goal was to bring awareness to environmental issues;

- To promote search for environmentally compatible solutions.
- To encourage projects beneficial for earth.
- To maintain biodiversity of globe for future generations.

Along the expedition route they tried to leave a green path and minimise the ecological footprint by clearing at least some amount of waste that they produced during expedition. This exemplary expedition should be an eye opener for all of us to assess the duties and responsibilities we have for the sustenance and survival of life on this globe. Here I Quote Indira Gandhi (1972) "We can no longer afford to neglect our natural resources. This is not simply an environmental problem but one, which is basic to the future of our country. The strak question before us is whether our soil will be productive enough to sustain a

population of one billion by the end of the century at higher standards of living than now prevail? We must have long term plans to meet the contingency." The Biological Diversity Bill passed by National Democratic Alliance (1994) the first such legislation by any of the 12 mega diverse countries seeks to check biopiracy, protecting biological diversity and local growers through a three tier structure of national, state boards and local committees to regulate access to plant and animal genetic resources and share the benefit. In 1999 Ministry of Environment and Forest prepared a National Policy and Macro level Action Strategy on Biodiversity through a consultative process and formulated a macro level statement of policies, gaps and strategies needed for conservation and sustainable use of biological diversity. There is need to prepare action plans at district, state, regional and national levels building on this frame work document. Preparation of such a detailed microlevel plan for conservation of the country's biodiversity is also part of India's obligation as signatory to the convention on Biological Diversity Ministry has accessed funding from the Global Environment facility (GEF) for preparing the National Biodiversity Strategy and Action Plan (NBSAP). The documentation at Institutional level is of course, well recognized like Botanical Survey of India, Zoological Survey of India could rightfully claim the place of pride. Followed by them there are so many bureaus under **ICAR** and **CSIR** for biodiversity assessment but all such programmes, however, remain largely under state control. The value of biodiversity and its significance on livelihood process was never communicated stressfully to the masses. As our moral and social responsibility we need to take a pledge.

- To be good to our climate
- Save forests by buying good wood.
- Buy sustainable food.

*I would like to conclude with a quote.*

*"Human health is strongly linked to the health of ecosystem which meet many of our most critical needs" - Maria Neira*

*"Action without Vision is only pass time, Vision without Action is merely day dreaming, But Vision and Action can change the World" - Nelson Mendela*

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