# Changing Face of Earth

**Manjula Uppal**
*Asso. Prof., Deptt. of Zoology, S.L. Bawa D.A.V. College, Batala.*

Reference to this paper should be made as follows:

**Manjula Uppal ,**
"Changing Face of Earth",
Voyager: Vol. VIII,
No. 2, Dec 2017,
pp.120- 123

***Abstract***

*Economy being the basis of human survival, the earth is relentlessly explored and exploited for natural resources with a consequential explosion of human race so as to endanger its own existence as well of other co-existing species. In the course of evolution, earth underwent changes with an extinction of its various life forms at mass level from time to time making a way for a highly evolved human species. Scientists are of the opinion that since the appearance of life approximately four million years ago, the earth faced five major mass extinctions and is heading towards sixth extinction which is far intense and eliminating the species in vast numbers at a faster pace. The humans are the ones responsible to expedite and create this havoc due to their ruthless action against nature, thereby disturbing nature's homeostasis. By the time it could be realised that nature is a self healing and self sustaining entity, the arrow was already set out of quiver never to return back. As a result, life itself is under a great threat and life forms which would be able to adapt to this tilting scenario will be favoured by nature.*

Living planet with a load of species and ever increasing population of its highly evolved creation H. sapiens sapiens., is being exploited by the latter for its own benefit, which is creating havoc by imbalancing the delicate equilibrium of nature to sustain itself. This species with its high cranial capacity and ever evolving brain could use the natural resources for its survival, increasing in leaps and bounds, and exploiting diversity of nature, adapted to inhabit and traverse in all directions pushing rest of the species to oblivion and increasing its number beyond the carrying capacity of earth. Being a social animal, it established a society, which further gave a boost to its number and it became a successful creature from the point of view of its survival, since the most successful species is considered to be the one which leaves a larger progeny. The social structure gave rise to increased materialistic needs, but the basic requirements of animal nature could not be gotten away as it needed food and space to survive, which by law of nature is limited and is a constraining factor on the growth of an over populated species.

As per Malthus an economist and Darwin an evolutionist, food increases in arithmetic while population does so in geometrical progression whereas space is limited. To accommodate the increasing masses, a ruthless destruction of nature was the only alternative left. An ever growing species would affect other weaker species encroaching upon their environment and establishing their own selves, leading to a genetic drift. The increased cranial capacity favoured the human species to conquer upon its environment and other species which although physically stronger could not stand in competition to the brain power of humans. To support its masses cultural evolution progressed in favour of social development and economy which created a buying capacity in individuals for their respective needs of food and space. Cultural ties led to engage a mate for reproductive activities, changing the flavour of wilderness and wild animal instinct to modern day sophisticated being. Higher the buying capacity of an individual more established became a particular being. The groups, boundaries, economy among races and geographical distribution of land led to the establishment of developed and developing nations over the surface of earth. Increased materialism and rising economy has now become the criteria of survival. To increase per capita income and GDP ruthless over exploitation of natural resources has become the basic prerequisite. Through the production and utilization of hydrocarbon energy, a fast pace of life is being supported and maintained to explore and conquer the globe, its lithosphere, hydrosphere, atmosphere and so much so a space centre has been established to fathom the vastness and limits of universe. Research and development in all the technical, biomedical fields, computer and internet technology further brought a revolutionary change enough to intervene nature and its norms. The longevity of life and imbalance

of mortality and natality has led to population explosion and demographic dividend earned over the years has now started kicking back. As a consequence, sustainability of life is becoming questionable in itself with increasing pollution levels, over utilization of petrochemicals, production of green house gases, global warming, melting glaciers, rising sea levels and submerging lands.

Since the advent of universe and solar system approximately 4.5 billion years ago and appearance of life 5.4 million years ago the earth underwent innumerable changes. Geological time scale indicates that on the way starting from early life forms i.e. proterozoic era, and moving through paleozoic (cambrian, ordovician, devonian, permian), mesozoic (triassic, jurassic, cretaceous) and coenozoic era, life went on destroying and creating itself till the attainment of present epoch i.e. holocene era with a domination of mammals and more specifically the modern man. To mark and specify the impact of man the present time has been termed as anthropocene epoch. According to a report of American Museum of Natural History species go extinct all the time. Scientists estimate that at least 99.9 percent of all species of animals and plants ever lived are now extinct. Over a brief history of planet, mass extinctions took place only a handful of times. Mass extinction is a terminology prevalent to express the condition when at least half of all the species die out in a relatively short time span. About 440 million years ago small marine organisms died out in Ordovician-silurian extinction. Devonian extinction occurred about 365 million years before which led to the elimination of many tropical marine species. During Permian-triassic extinction, 250 million years earlier, a range of species including many vertebrates got eliminated. Approximately 210 million years before Triassic-jurrasic extinction wiped away many other vertebrate species and allowed dinosaurs to flourish. Almost fifty percent of plants and animals including nonavian dianosaurs got wiped out towards the end of Cretaceous and beginning of Tertiary period about 65.5 million years ago in a major extinction, termed as Cretaceous-tertiary or K-T extiction.

Bronsky et.al., 2011 were indicative of the fact that a major threat is looming on the earth, and it is heading towards another great extinction with 41percent of all amphibians, 26 percent of mammalian species and 13 percent of birds being in endangered state and in all probability will be lost forever. And human activities are blamed to be responsible for this. Ceballos et.al., 2015 are also of the view that earth's biota is entering a sixth mass extinction as current extinction rates are far above the "background" rate prevailing between the previous five mass extinctions. Using extremely conservative assumptions, whether human activities are causing a mass extinction, a recent estimate of a background rate of extinctions considered 2 mammal extinctions per 10,000 species per 100 years

(i.e. 2 E/MSY). Whereas the average rate of vertebrate species loss over the last century is up to hundred times higher than the background rate. Under the 2 E/MSY background rate, the number of species that have gone extinct in the last century would have taken, depending upon the vertebrate taxon, between 800 and 10,000 years to disappear. These estimates reveal an exceptionally rapid loss of biodiversity over the last few centuries, indicating that a sixth mass extinction is already under way. The most intriguing factor of the present scenario is that mankind itself is responsible for creating this disastrous situation. Various international organisations like International Union of Conservation of Nature (IUCN), Intergovernmental Panel on Climatic Changes (IPCC) and World Metrologic Organizations etc. are putting up their heads together to curb down carbon elimination so as to rectify and mitigate its harmful effects. Whether humankind is able to undo the injustice it has done towards its own self and other coexisting life forms has become questionable. Or are we debating a situation which has already reached a point of no return. Nature has always its own course to follow, and human beings though consider themselves capable enough to mould the current to their suitability are already facing up a stark reality of it in the form of weather vagaries. The instinct to survive is ingrained in all the life forms and the species which would be able to resist the changes of coming times and adapt, would inherit the earth.

As said by famous writer & philosopher Voltaire," Men argue Nature acts."

## References:

American Museum of Natural History (AMNH): Mass Extinction. *www.amnh.org>past-exhibition>mass.*

Barnosky,A.D., Matzke,N., Tomiya,S., Wogen,G.O.U., Swartz,B., Quental,T.B., Marshall,C., McGuire,J.L., Lindsey,E.L., Maguire,K.C., Mersey,B., Ferrer,E.A. (2011): Has the Earth's sixth mass extinction already arrived? *Nature* **471**, **51-57** doi:10. 1038/nature09678

Ceballos,G., Ehrlich,P.R., Barnosky,A.D., Garcia,A., Pringle,R.M., Palmer,T.M. (2015): Accelerated modern human-induced species losses: Entering the sixth mass extinction. *Sci.Adan.* 1(5), e1400253 Doi : 10.1126/Sciadv.1400253.