Chapter II
Gandhian Philosophy and Sustainability

2.0 Introduction:

This Chapter deals with the importance, nature, concern, complexities of degrading environment, Eco-System and Bio-diversity. While analysing the criticality and complexities of deteriorating environmental scenario, we have tried to analyse and evaluate the relevance of Gandhian sustainable approach. During Gandhian era, environment was not a matter of serious concern. But Gandhi was a man of vision. He envisaged the environmental crisis haunting the future generation. Gandhi warned the humanity against chimney and factory culture, modern civilization, multiplicity of wants, unconcern, apathetic and rapacious attitude of humanity towards nature. We find that Gandhi was in favour of a holistic approach to development to preserve nature and environment. In the words of Albert Schwetzer: "It is clear now that the suicide of civilization is in progress." (Mathur, 1997) Man and nature have always lived in harmony through centuries. The relationship and interplay between man and nature have been demonstrated by the two renounced ecologists, namely, Tom Dale and Vernan Gillcarter in the following words:

"Man, whether civilised or savage is a child of nature he is not a master of nature. He must confirm his action to certain natural laws if he has to maintain his dominance over his environment. When he tries to circumvent the laws of nature, he usually destroys the natural environment that sustains him and, when his environment deteriorates rapidly, his civilisation declines." (Dale, Tom and Carter, 1995) Man has to be surpassed. He has to preserve himself. The future is in our hands. It is not inevitable. The nature sets limits. But man has always tried to cross that limit. 'While the animals adapt themselves according to the environment, man tries to modify the environment, according to his requirement. This very requirement is at the heart of the problems humanity faces these days.

2.1 Environment as a Concept:

Environment has become a catch word of present era. The global environment is being increasingly threatened by growing pollution, imbalance of ecology and exhaustion of non-renewable resources. Our preoccupation and obsession with
materialistic concept of growth and technological advancement have given rise to serious concern for preservation of healthy environment. The People are now highly concerned about Green house effect, depletion of the Ozone layer, deforestation, air, water, soil, noise pollution, traffic congestion. These are causing both physical and mental health hazards.

The ecological disaster, environmental degradation has created global problems. It is felt necessary to tackle these issues at a global level through conferences and conventions. The First World Conference that is UN world conference held in June, 1972 followed by series of conferences on various global issues like global warming, ozone depletion, climatic changes etc. out of these the Earth Summit, 1992 was important which resulted into five documents out of which Agenda -21 is most important. This shows that environment is on the Agenda of the International Community. People in the different parts of the world are trying to be more eco-friendly with the goal to save the earth.

The global human concern and awareness to preserve environment, make it pertinent to know 'environment' as a concept. The term, 'environment' etymologically means surroundings and is generally used for an abstract concept. It includes surroundings which may be natural or man-made and may be physical, chemical or biotic. The environment is thus, a complex of many things encompassing an organism that interact among themselves. As a result of this, it is difficult to isolate or alter any one of them without affecting other components. (Agrawal, 1996)

Another environmentalist has explained environment in the following words: "Environment is not the atmosphere and other physical factors surrounding us, but is a complex of all factors which not only affect one organism, one time, but all organisms all the time." (Verma, 1988) The air, water and land are therefore, the basic components of environment. Their indiscriminate degradation poses a serious danger to environmental stability. The necessity to protect and improve such environmental stability has recently been recognised by all the developed and developing nations. The Stockholm Declaration (1972) on the human environment, said to be the 'Magnacarta' on human environment proclaimed:

“The natural resources of the Earth, including air, water, land, flora and fauna are especially representative samples of natural eco-system, must be safeguarded for the benefit of present and future generation through careful planning and management, as appropriate. The state should take all possible steps to prevent
pollution that are liable to create hazards to harm living resources and human health. The man and his environment must be spared against the nuclear weapons and all other means of mass destruction.” (Mathur, 1994) In the beginning of the twenty-first century the growing threats of environmental degradation and ecological decay, the problem of rising population and poverty and impoverishment of the vast masses of peoples especially in developing countries is due to Industrialism and high technology. It is a formidable predicament that it seems nearly impossible to return to a normal ordered life within a framework of modernity.

Gandhi has foreseen these problems in the beginning of the last century when the environment was clean, pure, virgin and acceptable to all. He observed: “It is not possible to conceive Gods inhabiting a land which is made hideous by the smoke and the din of mill chimneys and factories and whose roadways are traversed by rushing engines dragging numerous cars crowded with men who do not know what they are after” (Gangal, 1997) Gandhi had realised this predicament the oncoming disaster as early as 1909. (Hind Swaraj, 1909) He throughout his life continued to warn world against it and showed the way to steer through it by practicing truth and non-violence. At the same time, Gandhi had characterised 'Modern Civilization' as disease.

In 1938 he said, "After the thirty years, have been passed there nothing to make me alter the views expounded in it. In early 1927, he criticised on multiplying their wants will retrace their step. Two weeks before his death in January 1948, Gandhi made the rather prophetic statement, that, "This modern civilisation is such that one has only to be patient, and it will be self-destroyed." (Falk, 1975): “If the present trend continues, the world in 2000 will be more crowded, more polluted less stable ecologically and more vulnerable to disruption than the world we live in now. Serious stresses involving population, resources and environment are clearly visible ahead” (Global Report, 1980)

Thus, the cumulative impact of degradation of environment and growth syndrome is now being felt like shock waves in rising disillusionment, thickening frustration and mounting fear. It would, therefore, be in fitness of things to examine critical global concerns, chiefly pollution and environmental degradation, and to see whether, and to what extent Gandhi offers an alternative to the larger problem of a peaceful world order.
2.2 People and their concern for environment:

Man and environment have always been in interaction. From the ancient Indian scriptures, we get a myriad of examples which show that people used to live in harmony with nature. "Van-Prasth" the last phase of life in Indian culture, is nothing but a change from the materialistic life to a non-materialistic one and to adjust and adopt the natural environment. India's cultural tradition inculcates the principle of reverence for all living objects, men, animals and trees. If one looks into various traditional pujas, one will notice that nearly every tree is worshipped more particularly the banyan tree, the pipal, the mango tree, the bamboo, the neem, etc. Cutting of green trees was considered sin. Cow is worshipped as mother. Rivers are considered sacred. Even God's incarnations have been in the forms of the pig, the tortoise, and the fish. Monkeys, bears were those who helped Lord Rama to fight the evil that Ravan was. Lord Krishna was named Gopa the protector of cows. (Kinkri Devi v. State, AIR 1988) A survey from Vedic period to the beginning of second half of the 18th century reveals that even in the complete absence of environmental legislation, the environmental stability was maintained to its maximum extent. We did not even conceive of any statutory obligation for such stability.

With the emergence of British Imperialism and colonialism on Indian land, the eco-balance of India started deteriorating. British imperialism came to India with its high technology, use of modern machines, factory-life and modern life complexities. Slowly, Indian environment started getting disturbed. The British Government through Indian Penal Code (1860), water pollution and atmospheric Pollution Code of Criminal Code, 1998, Police Act, 1861 tried to maintain ecology and environment. But their attempts were only an eye wash. When India became independent, the gravity of deteriorating ecology and environment was realised. But sincere and concrete steps were taken only after the United Nations Conference on Human Environment held in Stockholm in 1972. In 1976, 42nd constitutional amendment was done in the Indian Constitution committed to the protection of environment. In the chapter of Directive Principles of State Policy, Article 48A was included: 'The state shall endeavour to protect and improve the environment and safeguard the forests and wild-life of the country.' (Article 48-A) By the same amendment is created a fundamental duty of every citizen under Article 51-A(g):"To protect and improve the natural environment including forests, lakes, rivers and wildlife, and have compassion
for living creatures”.

The Indian Parliament has also shown it’s resolute in maintaining Indian environment by enacting several statutes, especially Water Prevention and Control of Pollution Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, and the Environment (Protection) Act, 1986. The courts have also pronounced several judgements showing their grave concern for ecological balance and have also sounded a note of caution to the executive which warning if falls on deaf ears, the court would not remain silent. Britain, mother of Industrialisation, has a long history of environmental pollution, over three hundred years ago, Queen Elizabeth 1 of Britain repeatedly kept out of London because of her inability to withstand the city smog. It was during her regime that the Tames was widely described, "As a vast sewer which spread disease and death around". (Gangal, 1997)

However, amid a glitter and material boom following the unprecedented Industrial advance in the 19th and 20th centuries, environmental and ecological problems tended to be overlooked. The League of Nations, for all its International Agenda, was virtually unconcerned about these issues. They did figure as a major issue in the early programmes of United Nations. (Gangal, 1997)

It was the UN Conference of Human Environment, held in Stockholm, 1972 which declared environment and the related issues of pollution, ecological imbalance and resource depletion as matters of overwhelming global concerns. It set-up the United Nations Environmental Programme (UNEP) a first step to deal with the problem and later established an expert group, under the Chairmanship of Professor W. Leentief, to study the impact of perspective environmental issues on policies and international development. (Gangal, 1997)

2.3 Types of Pollution:
The global environmental problem has two major dimensions;

i) Resource depletion and

ii) Environment pollution,

It is presumed that the environmental problem is due:

i) Industrialisation;

ii) Urbanisation;

iii) Population explosion;
iv) Excessive exploitation of natural resources;
v) Throw away concept of human beings.

The Problems are myriads and numerous solutions being tried at various levels are:
i) International through conventions and conferences to tackle different issues like biodiversity, global warming, ozone depletion, climatic changes etc.
ii) National level through enactment and economical solution by levy of cess, issuing bonds, certificates, tradable permits etc.
iii) Local level by local authorities. Besides Non-government Organisations and voluntary organisations involved in Environmental protection in different fields such as conservation of biodiversity, water conservation, renewable energy resources, microfinance, women empowerment etc. The efforts appear to be truncated because problems still persist.

Besides these there are other important issues agricultural production, population, education, women empowerment poverty, migration, rural development etc. which has given less importance and ignored. But Gandhian philosophy is integrated and takes up all the developmental, economical and social issues along with environmental protection with individual at centre. (Tingbergen, 1976)

i) Air Pollution:

Air is one of the most important constitutes of man's environment. It is calculated that a man breathes about 22000 times a day inhaling about 16 Kg of air by weight. Therefore, clean and pure air is necessary for survival and good health. But and entire biosphere is endangered due to the air pollution.

Air pollution has attracted the attention throughout the world. Air pollution is the major cause of diseases in India. A World Bank Report reveals that every year 40,000 people die due to pollution related problems. Another study by the Tata Energy Research Institute (TERI) mentions that 62 cities in India are reeling under air pollution with 20 in the dangerous category. Vehicles are the major contributors to the air pollution. This problem is acute in urban areas. 48.8 percent of all vehicles in India are run in three metros namely Delhi, Mumbai and Calcutta. In Delhi, the incidence is 12 times more than the national average. (Bhan, 1988) The problem of air pollution still exists in mega cities. Analysis of air bubbles trapped in fossils, such as in fossil amber, show that our air in earliest times contained about 35% oxygen. Today, the average oxygen content of our air is approximately 20%. In some larger, more polluted cities, oxygen content in the air has been measured at 12 - 15%. Anything
less than 7% is not able to support human life.
(www.thenaturalhealthplace.com/Articles/Oxygen.html)

Views of Gandhi:

Gandhiji was aware of impending danger of air pollution. He said that “Nature has provided air to such an extent that we can have it at no cost but modern civilisation has put a price on it. One has to travel great distance to breath fresh air and his cost money. (Indian Opinion 1-2-1913) It is at Matheran that resident of Bombay (now Mumbai) can get fresh air to inhale and improve health. In Bombay only Malabar hill people may be getting fresh air. If Darbanites wants fresh air, have to go to Berea. Whether air is fresh or paid, we cannot carry on without it for a moment” (CWMG, 11:453) Gandhi stresses importance of fresh cold air from field which is much healthier than hot carbon loaded air in stuffy city rooms. (Indian Opinion, 5-8-1911; 11:137) Thus importance of healthy air is precisely underlined by Gandhi in as above. (www.sciencemag.org/content/77/1984/1.extract)

ii) Water Pollution:

The water is an indispensable and precious natural resource on this planet. But due to industrialization, urbanisation and other developmental activities, resources of water (river, pond, lake, streams even seas) have become highly polluted. Today, many of the rivers of the world receive millions of litre of sewage, domestic waste and industrial-agricultural effluents. In India, all the 14 major rivers (including Narmada, Ganga, Yamuna, Brhaputra,Gomti, Damodar, Mini-Mahi Cauvery, Krishna etc.) have become polluted. The river Damodar in South Bihar is probably the most heavily polluted river of India. Industries and coal mines situated near the Damodar River release their effluents and pollute water of river. In the same way, river in Baroda is heavily polluted loaded with industrial and Petro-Chemical effluents. The holiest river of the country, the Ganga has become highly polluted. All the big cities in North India with their industries dump their wastes and effluents into the Ganga. From only Kanpur, 270 Million litres of untreated industrial effluents flow into it. Many of our lakes, notably the Dal Lake, have become darkened, smelly and choked with excessive growth of algae. (Agrawal, 1996)

Views of Gandhi:

Gandhi opined “like fresh air, pure water is health giving rather than poised water vomited by others”. (Indian Opinion 5-8-1911, CWMG,11:453)
In his speech at Ahmadabad meeting on 1-1-1918, he explained need for purity of air water food, saying “We are generally careless about air, water, food and hygiene. The peasants are very careless about water. The pond water used for drinking, cooking must be clean containing no leaves and dirt. No one may bathe there and should wash cattle and clothes”. (Navajivan 2-11-1919, 16:272) Gandhiji emphasised (1-9-1942) for purity of drinking water. Drinking water must be clean and pure and fit for dirking. In big cities due to drainage, sewage and navigation the purity of water is doubtful. The water should be boiled before drinking (CWMG, 77:5)

Gandhi expressed his opinion about pollution of Ganga River at Hardwar. Men and women are washing, defecating on bank of Ganga. In his words “This will destroy dharma and disregard duty to society.” Such recklessness leads to pollution of air and water. The people may suffer from cholera, typhoid and other contagious diseases. (Shikshan ane Sahita, 22-9-1929; CWMG, 41:415)

iii) Soil Erosion:

It may be recalled in the environmental context that food production has also suffered from reckless deforestation which, in turn leads to floods, soil erosion, silting up of rivers and eventually desertification. The hapless residents of Malpa region in U.P. have experienced the worst type of natural calamity due to flood, heavy rain, soil erosion and land slides created by human meddling with natural balance in the name of development.

The growing demand for farmland and increased export of forest products to the affluent industrial countries have caused deforestation to the extent of eleven million hectares every year in the third world countries. This has led to a large scale flooding, as the Brandt Commission Report has pointed out, in many countries notably in Bangladesh, Nigeria and Panama. In India, since 1947, 53,000 Sq. km. of prime forests area larger than Punjab has been lost. (Thapa, 1998)

So, deforestation, a substantial cause for ecological disruption, arises largely from the need of modern industries in affluent countries or from, "Wasteful Patters of Resources use for the conspicuous consumption of money elites everywhere." In India, indiscriminate felling of trees is reducing the forest cover. Orissa is one such example where denudation of forests is causing desertification in the Western region. (Bhan, 1988)

The Hilly region of Kumaun which was once the scene of Jim Corbett’s' legendary encounters with tigers and other ferocious animals, has been deforested by
urban-based contractors. This has generated the famous *chipko* (Stick to the trees) movement to prevent cutting of trees and consequently soil erosion. Also, soil fertility and the earth's recuperative powers are also damaged in the long-run by the excessive use of chemical fertilizers and pesticides. Chemical pesticides and fertilizers are also big pollutants. Excessive use of these chemical and fertilizers will contaminate agricultural products.

Thus, it is rendered unfit for human and animal consumption. This will increase demand for food and soon the world may be inclined towards widespread hunger, famine and starvation, which may endanger global peace. (Mukherjee, 1985)

Along with food, the non-renewable mineral resources of the world are also fast getting depleted. According to a study undertaken by the United States National Academy of Sciences, the world mineral resources, like iron ore, and tungsten may not last beyond two hundred years at the present rate of utilization and consumption. The coal's reserves may last only a century and oil may well disappear by the year 2050 or even earlier. (Falk, 1975)

The largest international agency, set up in 1972, is the United Nations Environment Programme. The International Union for Conservation of Nature brings together 83 states, 108 government agencies, 766 non-governmental organizations and 81 international organizations and about 10,000 experts and scientists from countries around the world. International non-governmental organizations include Greenpeace, Friends of the Earth and World Wide Fund for Nature. Governments enact environmental policy and enforce environmental law and this is done to differing degrees around the world.

Sustainability is the key to preventing or reducing the effect of environmental issues. There is now clear scientific evidence that humanity is living unsustainably, and that an unprecedented collective effort is needed to return human use of natural resources to within sustainable limits. For humans to live sustainably, the Earth's resources must be used at a rate at which they can be replenished. Concerns for the environment have prompted the formation of Green parties, political parties that seek to address environmental issues. Initially these formed in Australia, New Zealand and Germany but are now present in many other countries.

(www.en.wikipedia.org/wiki/Environmental_issues_in_India)
Views of Gandhi:

Gandhi recommended using organic manure to retain texture and quality of soil. Gandhiji advised “If we use farm yard manure or compost it is not necessary to keep field fallow. Manure always keeps the soil fresh. This is beneficial for soil and farmers”. (Harijanbandhu 18-1-1948, CWMG, 90:400) That tractors and chemical fertilizer will spell our ruin, I have not shadow of doubt”. (Harijan 1-2-11948, CWMG 90:480) Gandhi has provided detailed and scientific method to convert human excreta and urine to valuable manure. Human excreta are to be buried superficially earth no deeper than 9-12” (Dr. Poore). Earth very deep down does not contain germs to turn filth into manure. The effect of minute life, air and light will turn excreta into good, soft, sweet smelling soil in one week. Urine to be passed in a ditch with plenty no bad smelling no splashing and it will turn manure. It is profit material without labour. (Navajivan on 2-11-1919; CWMG 16:272-73)

Same things applied to animal excreta, back yard kitchen waste. This will keep the premises clean, disease free, increase fertility of soil, no much labour work. It help to get manure of lacs of rupees worth (economical aspect) Chinese are expert in this matter. (Harijan, 8-2- 1935; CWMG 60:191)These things are converted into manure due to minute life and bacteria present in the soil. (Talimi Sangh 16-2-46; CWMG 83:143) He explained further that vegetable peels and excreta cannot turn into manure by burring together because worms do not operate on the two in the same manner. (Harijan 1-3-1935; CWMG 42:371)

Mahatma Gandhi, the father of the nation, had very poignantly said in 1946, "To forget how to dig the earth and tend the soil is to forget ourselves". If we forget to take care of the land in our desperate search for food security we will only harvest disaster. Lord John Boyd Orr, the first Director General of FAO said in 1948, "Increases in agricultural production are possible through modern methods. But these advances in science will be useless, unless there is enough good land for farming. If the soil on which all agriculture and all human life depend is wasted away then the battle to free mankind from want cannot be won". (www.tn.gov.in)

Soil texture is spoiled due to wrong method of tillage. In this context there was advertisement in the news paper Cooper Engineers, Satara manufacturing heavy duty plough. Mr. Jal Adi Naoroj referred this to Gandhi for his opinion. Gandhi opined that so far such plough is not affecting soil it can be used (As narrated by Mr. Vasant Prathan Mani bhavan, Mumbai from his memory)
Gandhian way is memorable in this context. His love and concern towards conservation of nature is reflected throughout his thinking. His life and action was in tune with nature. His views on nature conservation and economic thinking closely related to environmental thinking. This has been reflected in his extensive and life long mission on khadi and village reconstruction programme. Gandhi said “nature is lenient. It often does not punish us for our sins immediately. Nature has provided us with sufficient reserve for vitality. But for that man would have long ago disappeared from the face of earth because of his own mistake. (CWMG 84:43, CWMG 77: 4-5) Nature has provided us just enough an no more for our daily need (CWMG 36:400) Environmental issues are addressed at a regional, nation or international level by government organisations.

iv) Forests depletion:

Forests are a major factor of environmental concern. According to Brewbaker (1984) the total forest area of the world in 1900 was nearly 70 MKM2. But in 1975 it was reduced to 28.9 MKM2. If this alarming trend continues, by the year 2000, the forest cover would be merely 23.7 MKM2. India has a total geographical area of 32, 88,000 Km2. Out of this, 7, 47,800 Km2 (22.74%) was occupied by the forest at the time of Independence. But according to an assessment done in 1989, a loss of 18.39% of forest cover has disturbed the bio-eco and environmental balance in India. Data on satellite imagery by NASA shows that of the 34,020 Km2. From the year 1951 to 1972, 71.5% was deforested because of agricultural activities alone. Deforestation leads to soil erosion, loss of food grains, occurrences of droughts (Rajasthan, Himachal Pradesh, Tamilnadu, Orissa, etc.), and threat to Himalayan ecosystem.

Thus, aorestation has become a necessity of our time. It is why social forestry, Agro-Forestry and movements like Chipko movement, Tehri Dam Opposition, Narmada-Bachao Andolan get prominence. The first Chipko action occurred in April 1973. Over the next five years, the movement spread to several hill districts in Uttar Pradesh. In 1980, Chipko activists won a fifteen-year ban on green felling in the Himalayan forests. The movement has also succeeded in stopping the felling of trees in the Western Ghats and the Vindhyas. Spurred by its victories, the Chipko Movement spread to Himachal Pradesh, Kamataka, Rajasthan, Bihar and to the Vindhyas in Central India. The word Chipko literally means ‘to embrace’, and indeed, protesters hugged trees, putting their own bodies between them and the
contractor’s axe. The Chipko Movement, which is a collective name used to refer to a number of such struggles, gained nation-wide attraction and inspired many other ecological movements in India. This was one of the key reasons for the increase in the environmental awareness in the 1990s in India.

Origins of the Chipko Movement Historically, the Chipko Movement were started by a community of villagers in the state of Rajasthan, called the Bishnois. The first known incident of Chipko movement was believed to be in 1604 A.D., when two Bishnoi women, Karma and Gora, sacrificed their lives in an effort to prevent the felling of Khejri (Prosopis cineraria) trees, which in Rajasthan are treated with great reverence. Thus movement started which has made the Bishnois the pioneers of environment and wildlife conservation in India.

Views of Gandhi:

The germ of the Chipko Movement in Modern India was sown before Independence by Mahatma Gandhi and his concept of non-violent protest, Satyagraha. Post Independence, three key leaders, Dev Suman, Mira Behn and Sarala Behn, settled in the Himalayas. Armed with the Gandhian world view of development based on justice and ecological stability, they worked tirelessly to develop environmental consciousness in the hills of Uttar Pradesh. They nurtured a new breed of Gandhian activists, amongst who was Sundarlal Bahuguna. He led one of the earliest spontaneous agitations against indiscriminate felling of trees, and involved thousands of women to protest with him. The women put themselves between the logging contractors and the trees they wanted to fell, and became the first tree hugging environmental activists. An ancient hill legend explains why Chipko protesters chose to hug trees to stop them from being felled. The story goes that a local Maharajah ordered a part of the forest in his kingdom to be felled for wood to build his new fortress. His decree was opposed by a young girl, Amrita. When his tree cutters arrived, Amrita jumped in front of the trees and hugged them. In some versions of the legend, her efforts paid off and the trees were saved. In other versions, she died hugging the trees she loved.

However, his concerns were not limited to human beings alone as he had a very strong sense of the unity of all life. He believed that all creatures had the right to live as much as human beings and felt a living bond between humans and the rest of the animate world. He believed that humans should live in harmony with their surroundings. The best part of Gandhi’s ideas was that they empower the individual.
It is up to each and every individual to simplify his or her life; to share his or her resources and to care for his and her surroundings. (www.copperwiki.org) Gandhi was deeply pained when tree is cut. The tree is to be cut when it is absolutely necessary. Similar type tree is to be implanted and care is taken for one year before cutting earlier old tree. (Narrated by Mr. Vasant Prathan from his memory) In letter dated 4-81926 to D.B. Kelkar Gandhi said “Trees again make rain fall more regular and are also more independent of rain than grain field”. (CWMG 31:256) Gandhi strictly warned people in morcha (protestor) at New Castle, South Africa not to destroy any trees on the way. Hence he travelled by train with activist. (Narrated by Mr. Vasant Prathan from his memory)

v) Threatened Wildlife and life of domestic animals:

The 'environmental chaos' has threatened wildlife. Indian biological and botanical heritage are in perilous stage. An eye opening report has been presented by T.N. Khoshoo. He says, "since the turn of century, nearly 132 plants, species face extinction, 24 plant species are possibly already extinct. One mammalian and three bird species have become extinct and 71, 47 and 15 species of mammals, birds and reptiles respectively have been declared threatened.(Khoshoo, 1986)

Over exploitation of forest resources, thoughtless shooting and indiscriminate killings, for game, bone and skin trade, destruction of habitat, collection of zoo and researches are main reasons for extinction of wildlife. To preserve the wildlife and protect the environmental balance, ecosystem stability is to be maintained at all costs.

Views of Gandhi:

Gandhi said that it is an arrogant assumption to say that human beings are lords and masters of the lower creatures. On the contrary, being endowed with greater things in life, they are the trustees of the lower animal kingdom. Wildlife is decreasing in the jungles, but it is increasing in the towns. A society can be judged by the way it treats its animals. (findarticles.com/p/articles) Gandhian views on economical values of cattle in India are “It is stupidity to destroy cattle wealth and put country in huge economic loss. The cow and cattle will cease to be burden on the country only if dead cattle are fully utilized. Many times emancipated cattle are exported to and slaughtered in Australia where their bones are converted to manure, flesh into meat extract and their hide into shoes. (Rs. Nine cores worth of hide is sent abroad (Speech at Dhulia 13-2-1927; CWMG 33:77).
The meat extract, the manure and shoes are then re-exported to India and used without any compunction.” (History pf the Satyagraha ashram; 50:231)

In this context Gandhi said “villagers should learn the technique of cattle rearing, extracting maximum quantity of milk cow without torturing her. The villagers must learn scientific way of pasturing, oilcake and hay making to maintain live stock. The dairy and tannery work should rest in the hands of qualified villagers and not to illiterate tanners who will waste hide and bones. The old cattle will be burden on owner and sent to slaughter houses in cities. Thus, living wealth will be perished” (Navajivan dated 22-5-1927; CWMG 33:350-51)

Besides cow and cattle dung can be converted into good manure (Harijan 7-9-1934; CWMG 58:418). Cow can be used for ploughing without torturing her. This will make her strong and increase her milk yield. Knowledge, education and kindness can put end to slaughtering of animals who are burdened on land or perhaps man who is burdened. Similar opinion expressed “A cow with a name produces more milk than one without, have shown that by giving a cow a name and treating her as an individual, farmers can increase their annual milk yield by almost 500 pints.” It is found by the scientists Drs. Catherine Douglas and Peter Rowlinson at Newcastle University. (Harijan dated 15-9-1946; 85:256, www. Scientistlive.com)

vi) Energy Crisis:

In the area of energy, however, hydro-electric power, nuclear energy and solar energy are good substitutes for coal and oil. But each one of them has its limitations. Water resources are very unevenly distributed in the world, the entire African continent has about 12 per cent of the world total and the United States alone has 30 per cent. As for nuclear energy, it is a hazardous source of energy and is fraught with the risk of accident and long-term exposure to radiation. Hence, the First Brandt Report (1980) has put it that the nuclear alternative is problematic, and in most countries it cannot be expected to make more than a partial contribution to the energy problem in the near future. The solar energy is still in the realm of experimentation. It is contingent on the evolution of a low-cost technology and a breakthrough in the techniques or methods of storage. Thus, given the present urban Industries and mechanised agricultural systems and the present consumption patterns, the world would be moving fast towards a serve problem energy reserve. This will lead to impoverishment and degradation of human conditions. According to the Second Brandt Report entitled, "Common crisis (1983) these questions have assumed
emergency proportions" and there is immediately need to reverse these processes. (Gangal, 1997)

Views of Gandhi:

While emphasizing necessity to self sufficiency in a letter dated 13-11-1945 to Mr. Jawaharlal Nehru Gandhi opined “People should produce their won food, clothes, water and electricity”. (CWMG 82:72) Solar equipments used in Gandhi Ashram Ahmadabad (www.india.com/energy) Gandhi Institute of Rural Development and energy in Bangalore inspires and trains village people inn application of sustainable rural energy using biogas for kitchen produced by cow dung and other similar material. (www.the-g;ass-half-full.org).

Mahatma Gandhi Community Forum estimated wind power in India to 45000MW. So far installed capacity is around 2500MW. Hence there is scope for increase in capacity. India land holdings are fragmented. It is essential to have small turbines of 10 KW capacities. Cost will be Rs. 16000/= approximate. If efforts are taken then within 20years flow of renewable energy will be from villages to cities. (www.gandhiserve.org.)

vii) Thermo-Nuclear Pollution:

The greatest pollution today is radioactive fallout from nuclear testing or from long-term storage and disposal of nuclear wastes. When in 1954, a Hydrogen bomb was tested by the United States in the pacific area. It caused widespread radiation sickness among a large number of Japanese fishermen and about 80 percent of the children living on the Island of Rouge lap Developed thyroid growth of an intractable nature. (Isachs, 1972) According to the noted British marine biologist, Arthur Bourne, an increasing number of children born in the test areas, are likely to die of cancer and leukaemia induced by radiation from them. Such tests are continuing by the Chinese and French still conducting them in atmosphere. Also underground nuclear explosion by India at Pokahran, Rajasthan on 18-5-1974 and Pakistan28-5-1998 at Chagai (en.wikipedia.org/wiki/pokharan)

The effects are not limited to the present generation bust also including unborn. As a result of increases in radiation, the mutation rate in the genes increases and generations of organisms can be crippled and destroyed. In January 1996, The US bomber carrying a hydrogen bomb collided with an air tanker over Spanish territory radioactive contaminations created havoc. The worst of all, there was the horrifying tragedy at Chernobyl on 26-4-1986. (en.wikipedia.org/wiki/Che
There was the devastating earthquake and tsunami followed by the nuclear crisis and huge leaks of radiation on 11-3-2011 in Japan. The earthquake and tsunami claimed about 20,000 lives and hampered two lost decades of economic growth. (www.topics.nytimes.com/top/news/international/japan)

After the attack on world trade centre, USA by terrorist the then president Bush remembered Gandhiji’s non-violence principle. So also Mr. Wolfowits, deputy defence secretary, USA advised Palestinian to follow Gandhian way of non-violence. Also New Jourcy state assembly passed resolution sating that Gandhian principle of Ahimsa (non-violence) to be included in syllabus of schools. The president of USA Mr. Barack Obama accepts Gandhi as his idol and took inspiration from the picture of Gandhi in his office. (www.modernghana.com/todays-world-and-gandhian-thought) Thus, the cumulative pollution of the atmosphere, land and water may in the long-run, interfere with the life support systems. The polar ice caps may melt and lead to massive flooding by the middle of the next century, or even earlier. Some scientists have even predicted that our world may reach the 'doomsday' on 14th Nov. 2026. (Tingbergen, 1976)

**Views of Gandhi:**

Though Gandhi did not talk directly about nuclear pollution, he was aware of nuclear disaster in Second World War. Gandhi appeals the world to accept non-violence instead nuclear weapon to prevent global destruction. It is clear from His following thoughts:

The weapon of violence, even if it is the atom bomb, becomes useless when it is matched against true non-violence. (Harijan, 1-6-1947)

I regard the employment of the atom bomb for the wholesale destruction of men, women and children as the most diabolical use of science. Unless now the world adopts non-violence, it will spell certain suicide for mankind. (Harijan, 29-9-1946) There is no way to check the accuracy of a 'doomsday' projection. Perhaps, its author has used the term to highlight the unmistakably tragic fate of the modern world which continues to disregard environment and ecological considerations in its craze for unlimited production and often wasteful production. It is, in essence, a counsel for restraint and even reversal over a period of time. Some of the best minds of the western world have lately voiced this concern, and seen in the present order the portents of impending danger of catastrophe which Gandhi had foreseen nearly 100 years ago. (Gangal, 1997)
2.4 Sustainable Development:

Sustainable development has been defined in many ways, but the most frequently quoted definition is from Our Common Future, also known as the Brundtland Report – 1987. "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: The concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs." There are mainly two models of sustainable developments overlapping model and nested model as indicated below. Both these models have its inbuilt limitations. It is proposed by experts that instead of trying to 'balancing' and 'integrating' the models it is better to make intense efforts to “preserve” the resources for future generation.

1) Overlapping Model

2) Nested Model

(Links to additional resources provided in text)

The effect of Brundtland Report after 20 years is enumerated below in the Key note speech of Volker Hauff, Chairman of German Council on Sustainable Development. The topic was “Linking Policies, Implementation, and Civil Society Action”, in between 3-5, June, 2007 held at Berlin: The Brundtland Report marks a point in our history when awareness was growing around both the concept of environment and the concept of development. But even today – 20 years later - tensions, controversies, and gridlocks between development and environment still exist. They will continue unless we really respect the notion of sustainability. The challenge of meeting the needs of present generations without compromising the ability of future generations to meet their needs was moulded by the Commission into the concept of sustainable development. 20 years ago, this was totally new. It was the notion of equity and justice within and between generations. It was the clear idea of developing a shared understanding of the long-term goals for human life on earth. Under prevailing circumstances, all this is still a challenge today. We overstep limits of the long-term carrying capacity in the one world we share. There is no common future, unless we adapted our use of natural resources.

The majority of the world’s population only has a small share in this overuse of resources. There is no way towards environmental responsibility, unless we addressed unequal opportunity and unequal distribution of prosperity. Mainstream policies are still cantered on administrative command and control approaches. – There is no sustainability politics, unless we overcome this reduction and find new ways to include civil society and the private sector. Bernhard Chidzero – one of my colleagues in the Brundtland Commission from Africa – told us: “Poverty is the main reason for the pollution of the environment”. 20 years ago I was not sure if this is true. Today I know that this is definitely true for the developing and emerging countries. And while humankind doubtless had the capacity to destroy life on earth, humankind had never had greater capacities and possibilities to safeguard the environment and to improve the living conditions for all people on earth.

(http://profwork.org/wsy/intro/20_year_brundlandt_update.pdf)
Sustainable development was coined in 1987 by the Bruntland Commission in 1987. Since then, sustainable development theory has been greatly expanded globally. The need for development to become more sustainable is important, as many of the planet's ecosystems are degraded. Without the essential services provided by these natural systems, the planet cannot sustain life. For this reason, sustainability has been integrated into development at an ever-growing pace.

(http://EzineArticles.com/3865141)

So, the sustainable development means meeting the needs of present generation without compromising the ability of future generation to meet their own needs. The sustainability means possibility that human and other life forms on the earth will flourish forever still remained unfinished. In the above circumstances, Gandhain call to sustainable approach could be relevant today.

2.5 Sustainable Approach of Mahatma Gandhi:

The environmental degradation and pollution in India and the world have been viewed globally. It is only recently that thinkers all over the world are giving increasing attention to problems of ecology, pollution and exhaustion of non-renewable resources. Gandhi had foreseen these problems in the beginning of the present century. Gandhi said "Man must recognise the necessity of cooperating with natural. He must taper his demands and use and conserve the natural resources of earth for the continuation of his civilization." (Osborn, 1948) Man himself would perish if world devoid of other living creatures. All living things are interrelated even the tiniest insects. We are overlooking the fact that animals life on the earth, its interrelationship, its preservation are wrapped up directly with human well-being. It must be realised that in the long-run life can't be supported by artificial processes and science is incapable of providing for the continuity of human life by substituting its methods of those of nature. There would be no real hope for the future unless we are prepared to accept the concept that man like all other living things is a part of biological scheme. The pre-occupation and obsession with materialistic concept of growth and technological advancement has given rise to serious problems of ecology and preservation of healthy environment. People are now highly concerned about 'green house effect' depletion of ozone layer, deforestation, pollution of water, traffic congestion, etc. These are creating health hazards both physical and mental. The
solution ultimately lies in what Gandhi had suggested in changing life-styles that teaches us to live in harmony with nature. We can destroy nature but can't create it.

The western thinkers now trying to find out a solution for disproportionate material resources advanced out of proportion to that of moral resources. According to Gandhi acceptance of Charkha and voluntary simplicity, poverty and slowness could be a solution to the problem. (Gandhi, 1950) The present day situation is fraught with a danger. The advances in science, technology and use of heavy machines for mass productions and material comforts causes energy shortages, ecological imbalances exhaustion of natural resources, environmental pollution. Excessive technological growth has created physical and mental unhealthy life, polluted air, irritating noise, traffic congestion, chemical contamination, radiation hazards and are severely damaging, disrupting the ecological process that sustains our natural environment and the very basic of our existence.

We have no hope of success and survival without a holistic approach to development and environment. Sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are made consistent with future, as well as present needs. (Mathur, 1997)

Thus, entire issue of sustainability revolves around Gandhi’s prophetic statement “The earth provides enough to satisfy every people’s needs, but not people’s greed”.

2.6 Human survival and Gandhi:

Thus, we can say that the present ecological crisis is a direct consequence of inability of human beings to rise to the level of understanding and responsibility demand by his new power role in the world. Finding of professor Schumacher and a host other technologist and ecologist have reinforced the basic validity of Gandhi's approach. The problem is within man, not outside him, and so is any solution. And this is precisely what Gandhi emphasised. Human being will have to realise that a way of life that rapidly depletes the power of earth can only be called violent. Man's urgent task is to follow a non-violent way of life. It is a concept that needs to be widened to combat human dealing with living nature around him and with the limited
and finite resources of nature. It is clear that the development strategies in the majority of the third world countries borrowed from the "affluent countries", and based on high technology and capital intensive industries, resource depletion and unmindful of distributive justice and the need for the amelioration of the conditions of the masses and high consumption and domination by a centralised and organised elite, are utterly incapable of delivering the goods. There is, therefore, an urgent need for a new alternative model of development, conservation, production, labour intensive production, equitable distribution. Such is the order of the society that Gandhi conceived.

The Delhi Declaration in November, 1986 was a welcome sign in this context. For it committed not only India but also a superpower to a world free from weapons of mass destruction, a world without war a non-violent world, by solving problems such as environmental degradation, shortage of food, illiteracy and growth of population. Let us hope that as we move closer to the twenty-first century, this perceptive Gandhian vision of a "non-violent eco-friendly world order" would spread to other areas of the world, not only at verbal or declaratory level but also into the concrete realm of personal, international action. (Gandhi, 1950) There is no other avenue but man has to explore himself his goals and values as much as he seeks the world to change. There needs be unending commitment to ensure that man will survive without falling into a state of worthless existence. More and more people all over the world should look for the ways to redirect ecological system "as if people mattered." (Schumacher, 1973) Environmental issues are addressed at a regional, nation or international level by government organisations. The largest international agency, set up in 1972, is the United Nations Environment Programme. The International Union for Conservation of Nature brings together 83 states, 108 government agencies, 766 Non-governmental organizations and 81 international organizations and about 10,000 experts and scientists from countries around the world. International non-governmental organizations include Greenpeace, Friends of the Earth and World Wide Fund for Nature. Governments enact environmental policy and enforce environmental law and this is done to differing degrees around the world. Sustainability is the key to preventing or reducing the effect of environmental issues. There is now clear scientific evidence that humanity is living unsustainably, and that an unprecedented collective effort is needed to return human use of natural resources to within sustainable limits. For humans to live sustainably, the Earth's resources must
be used at a rate at which they can be replenished. Concerns for the environment have prompted the formation of Green parties, political parties that seek to address environmental issues. Initially these formed in Australia, New Zealand and Germany but are now present in many other countries.

(www.en.wikipedia.org/wiki/EnvironmentalissuesinIndia)

2.7 Case Studies:

The loss of forest coverage is a serious concern worldwide. The causes of forest loss are different in different regions of the world. Less developed countries clear forests because of population pressure and developed countries clear forests for industrial purposes. However, the loss has been recurrent with a high rate of deforestation, which may lead to a catastrophe in the near future. In India, from northern Himalayas to southern Nilgiris, eastern Himalayas to western Shivalik Hills, forests have been depleted exclusively for human activities. Now, the question is how to rebuild the nominal portion of that damage. This paper is a part of the research project which tried to highlight the willingness of the people in the study area to contribute to conservation of forests. It is also an attempt to involve in community conservation schemes like Joint Forest Management (JFM) in Nameri and Charduar ranges of Sonitpur district, Assam. The analysis reveals the perception of local people towards the importance of forest conservation and willingness to participate in conservation-related activities. Status of Forestry Depletion of forest coverage is a cause for concern worldwide. But a recent study conducted by forestry experts and presented at the Rome headquarters of the UN agency reported that planting programs, notably in China, India and Vietnam, helped to dramatically slowdown the rate of forest loss from 20.3 million acres a year in the 1990s to 12.8 million acres per year from 2000 to 2010. Assam, the north-eastern state of India, is a treasure of rare and endangered flora and fauna. It is also the proud possessor of luxuriant rain forest covering an area of 78,438 sq. km (2.4% of the mainland). It is situated within 24°44" N to 27°45" latitude and 89°41" E to 96°02" longitude.

In Assam, almost one-fourth of the land area is covered by forest. The area falls under sub-tropical region forest associated with tropical wet evergreen, semi-evergreen, moist deciduous, sub-tropical broad-leaved hill, sub-tropical pine and littoral, swamp forest and coniferous and vast area with grassland (Department of
Environment and Forest, Government of India). High and low grasslands with indigenous shrubs are available on the riverside, especially in the Brahmaputra valley. The present shrinking pattern poses a threat to the very existence of the forests and it is high time to rebuild a concrete method to protect the forests. A review (Rainforest Destruction) stated that the dense forest belt of Assam has been under siege since the early part of the 19th century. In 1900, Assam’s total forest coverage was 20,830 sq. miles, one of the highest percentages of any state in India.

i) The forest history of Assam has been intermingled with the intricate ethnic and cultural pattern of the state (Gait, 1926). The remote high tract, even on the high hills of Assam including her adjacent states, is a home to a wide variety of tribal groups, whose primary base of livelihood is shifting agriculture (Chaturvedi and Uppal, 1953). During the later part of the 19th century and early 20th century, farmers from the low land began to occupy the most fertile forestland. (Goswami, 2012):

ii) A two-sector dynamic model for agriculture and forestry is proposed. Agricultural yields are a function of the rate of deforestation, the forest stock, and purchased inputs. We examine the impact of changes in the social discount rate, net returns to agriculture, and direct marginal benefits of the forest stock benefits on the optimal deforestation path under the assumption of a quadratic agricultural yield function. Finally, steady-state comparative static analysis is conducted. (Ehui, 1990):

iii) With ecological concerns gaining attention in the textiles industry, the global dye industry is undergoing a change in product mix. The recent years witnessed various dyes being banned across the globe due to environmental concerns. With the increasing demand for eco-friendly textile chemicals from textile manufacturers, companies are recognizing the need to increase R&D spending on development of innovative chemicals and dyes. Formaldehyde content in textiles is a growing issue especially in the US and Europe. In response to the growing concerns, major players such as BASF introduced formaldehyde-free Helizarin pigment printing system. Companies also offer enzyme-based technologies that are capable of replacing textile chemicals. (PRWeb)

iv) Dean of College of Engineering, Cornell University, New York
He clearly mentions that with the progress in mechanisation in any industry it is revealed that every time handi-craft men are displaced with power and skilled man. (Kimball, 1933)
2.8 Remark:

The alarming issues that are brought forth by Gandhi are as follow:

i) It is imperative to prevent the environmental degradation and pollution, before it has truly irreversible and devastating effect globally.

ii) Another major problem confronting mankind is unsustainable exploitation of resources including food, energy and raw materials.

iii) Prevention of war, which in the nuclear age will be the last war.

iv) Promoting human well-being in the widest sense.

v) Balancing advances of science and technology with human development and at the same time promoting job opportunities and quality of work and life.

The present human civilization is trying to solve these problems. Reports like "the limits to growth; Schumachers "small is beautiful", "Report of the world commission on ecology and development" and the organisation of several non-governmental associations to safeguard environment and maintain ecological balance are simply long-belated echoes of what Gandhi said in the beginning of the last century. He was dubbed as an idealist. But the idealist of yester years has become the only realist of the present age.

Gandhian way is memorable in this context. His love and concern towards conservation of nature is reflected through out his thinking. His life and action was in tune with nature. His views on nature conservation and economic thinking closely related to environmental thinking. This has been reflected in his extensive and life long mission on khadi and village reconstruction programme. Gandhi said “nature is lenient. It often does not punish us for our sins immediately. Nature has provided us with sufficient reserve for vitality. But for that man would have long ago disappeared from the face of earth because of his own mistake. (CWMG 84:43, CWMG 77: 4-5)

Nature has provided us just enough an no more for our daily need (CWMG 36:400)

Résumé:

In this chapter, an attempt has been made to highlight two dimension of environmental problems namely resource depletion and environmental pollution which includes air pollution, water pollution, soil erosion, forest depletion; threaten wildlife, energy crisis and bio-diversity. In the process, Gandhian ideas on maintaining and sustaining environment have been discussed.
The next chapter deals with Gandhian ideas of modernisation. It is the life style based on Western materialism which compels maximum production and maximum consumption. Gandhi was not against machinery, but he was opposed to the dehumanising machine culture. He was against the craze of urban revolution. The present unchecked and unplanned urbanisation has brought with it all the vices of the city life, including tremendous pressure on the environment. Hence, the present day cry for 'sustainable cities'.