CHAPTER-3

REVIEW OF LITERATURE

Environment and environmental degradation have been a subject matter of research in natural sciences, physical and engineering sciences and social sciences. While most of the studies have almost exclusively concentrated on the nature and magnitude of environmental impact due to a wide-range of developmental activities undertaken by the governments in particulars and non-governmental organizations in general. Social sciences research, a late comer though, has gone in to the basic question of the causes and consequences of environmental changes and their impact on working and living condition people particularly on displacement. Humans cannot live without changing the environment in which they live. Many of the changes that occurred in their environment initially were meant to secure safety, security and productivity of food against wilderness of nature. Later changes particularly after industrial revolutions have seriously disturbed and disrupted inherent balance in nature. The debate between environments versus development has become front area of inter-disciplinary and multidisciplinary research.

Sociological research has concentrated on both kind of organized and unorganized activities which have produced adverse environmental changes and thus pushing the human civilization on brink of disaster and. These studies have come to suggest ways and means of reorientation of human behaviour re-organization of so-called developmental activities in order to preserve and protect the planet earth.
Protecting environment for future generation has been the primary motive of almost all social scientists and environmental activists. Naturally they have come to confront almost head-on the so-called ‘vested-interests’ who are out to destroy nature for accumulating wealth and comforts. These vested-interests are politically economically and culturally powerful. They are powerful enough to thwart any attempts by all the concerned to check their illegal and immoral activities. The present century is characterized by war-like situation centering around the ownership, control and use of natural resources be it oil, coal, water and even land and minerals.

Sociological research has been closely linked to the rise and maturity of the environmental movement. One might distinguish between two waves of environmentalism: an earlier period of pioneering and prophecy, and a more recent phase when intellectual concern has been allied to a popular social movement. The first wave peaked in the inter-war years, when an array of writers published a series of now forgotten studies which fore grounded the ecological infrastructure of Indian society. After the attainment of political independence in August 1947, began an age of ecological innocence, when the urge to industrialize and ‘catch up’ with the developed world relegated environmental concerns to the background. It was only from the early 1970s that this concern re-emerged in the form of vocal and articulate social movements. In this second wave of environmentalism the groundswell of public support, rather than developments within the academy, has created the conditions for the elaboration of an ecologically informed social science. (Ramachandra Guha- 1992).

Vohra B.B. (1973) drew attention to the extent of erosion, water logging and other forms of land degradation in the country. He called for the formulation of an effective policy to deal with these problems, and also for the creation of
government departments to monitor and manage environmentally appropriate land use. While the causes of degradation were many and varied, the state was held to be the agency most capable of initiating remedial action: ‘The centre has no option but to obtain a commanding position for itself in the field of land and soil management through financial and administrative means’. This was the first visible sign of official concern at the accumulating evidence of environmental deterioration. This was followed by the setup of a National Committee for Environmental Protection and Control (NCEPC). Later that year, Department of Environment was created 1980. A full-fledged Ministry of Environment and Forests came up five years later.

Material context to the upsurge of environmental conflict has been provided by the shortage food and struggle over natural resources. One can understand each of these conflicts sequentially, as an unfolding of the processes of degradation-shortage-protest-controversy. Applying this scheme to Chipko for instance, we note that deforestation in the hills led on the one hand to shortage of fuel, fodder and small timber for local communities and also to shortages of raw material for wood-based industry (with Himalayan timber being especially prized, as the only source of softwood in India). When the state inclined markedly in favor of one party to the conflict (industry) the other (peasants) responded through collective action. This region-specific debate led in turn to the national debate on the direction of forest policy in the country as a whole.

This framework can be usefully applied to other nature-based conflicts in contemporary India. These conflicts have sparked a lively, nationwide debate on the state of the environment, on the sustainability of different technologies, ideologies and social systems. The conflicts and the debate constitute, so to speak, the ‘private’ and the ‘public’ faces of the environmental movement. Ramachandra
Guha 1988 distinguishes three major and competing ideological trends in the environmental movement: Crusading Gandhian, who turn their back on modernization altogether, looking towards a revival of a pre-colonial village-centered order: Ecological Marxists, who see social redistribution as logically prior to ecological sustainability: and Appropriate Technology, the most practice-oriented of the three, which seeks to develop and apply technical and institutional alternatives to the centralizing, iniquitous, and environmentally destructive process of development in independent India.

Indira Munshi (2000) observed that ‘contemporary forms of environmental degradation present one of the most, if not the most, complex and catastrophic dilemmas of modernity’. There is a general agreement that the economic expansion of a century and half has had alarming consequences for the global environment. Depletion of the ozone layer, air pollutions, loss of marine life, soil and water pollutions, loss of forests and bio-diversity, extinction of plant and animal species, have occurred at an alarming rate. In the recent decades, however, we have witnessed the growth of environmental movements, of environmental politics, which may play an important role in checking the deterioration of our environment at the local and global levels.

A.K.Sinha, Pankaj Srivastava (2000) reported that Mining activities, no debt, modify the environmental conditions in form of land degradation, deforestation atmosphere and water pollution. A major problem related with the mining activities is the solid waste disposal. The problem is more aggravated in case of radioactive minerals. Traditionally mines have been the sole source of the supply of minerals without much attention either to sustainability or recycling.
Environmental degradation in all its forms is the most pervasive phenomena of modern society. Drawing attention to this Giddens (1990) and Beck (1992) highlight the catastrophic character of the society. The hitherto neglected area of the relation between human beings and nature and the deleterious effect of human action upon the latter, especially in the last century and a half, has emerged as a major issue. Another important issue in contemporary theory is the growth of environmental politics/movements which offer a challenge to the modern industrial/capitalist mode of production and consumption which are essentially environmentally destructive, in Gidden’s view, the debate about whether capitalism or industrialism has been the prime mover in shaping the modern world, until relatively recently ignored the destructive effects that modern production systems have upon the environment (1987). Gidden’s argues that capitalism combined with industrialism is responsible for the environmental crisis. In his later works, in particular, he attributes environmental problems to the modern industrial societies and to the industrial sectors in the developing countries. Whatever the origins of the crisis the modern industry shaped by the combination of science and technology, he believed is responsible for the greatest transformation of the world of nature than ever before (Gidden, 1990). Much of these changes have been a threat to a secure and sustainable living beings on the planet earth.

Ulrich Beck distinguishes the modern society from the earlier ones as the risk-society, characterized by its catastrophic potential resulting from environmental deterioration. In the pre-industrial societies, risks resulting from natural hazards occurred, and by their very character could not be attributed to voluntary decision-making. The nature of risk changed in the industrial societies. Industrial risks and accidents at work sites, or dangers of unemployment resulting from the changes in the economic cycles could no longer be attributed to nature. Theses societies also
developed institutions and methods to cope with the dangers and risks, in the form of insurance, compensation; safety etc. in fact, Beck sees the welfare state as ‘a collective and institutionalized response to the nature of industrialized risks…’ The risk societies are characterized by increasing degradation and environmental hazards. ‘At the centre lie the risks and consequences of modernization, which are revealed as irresistible threats to the life of plants, animals, and human beings. Unlike the factory related or occupational hazards of the 19th and first half of the 20th centuries, these can no longer be limited to certain localities or groups, but rather exhibit a tendency to globalization… (Beck, 1992).

According to Anthony Gidden environmental politics: is a response to the ecological threats and thus ‘a politics mobilized by interests’ in self-preservation and a response to the normative emptiness of modern urbanism and thus ‘a politics mobilized by ideal values and moral imperatives’, Ecological movements, he observes, compel us to confront those dimensions of modernity which have been hitherto neglected. Furthermore, they sensitize us to subtleties in the relation between nature and human beings that would otherwise remain unexplored (Gidden, 1987). Habermas sees the ecology movements as a response of the life-world; to its colonialisation. Since they are an expression of the communicative order of the life-world: further economic development or technical improvements in the administrative apparatus of government cannot alleviate these tensions. The new conflicts/movements reflect problems that can only be resolved through a ‘recon- quest of the life-world by communicative reason and by concomitant transmutations in the normative order of daily life’ (Ibid). According to Habermas capitalism is the primary cause of environmental degradation.

Goldblatt, David (1996) suggests that degradation, perception and protest must be viewed in the context of new kinds of knowledge by which the environmental
problems are revealed and made available to the people. Louie and Morrison highlight the role of mass media in spreading the new kinds of knowledge. Thus, ideas of quality of life, body and health, aesthetic and even spiritual attitudes to nature have acquired a salience in environmental politics. The environmental problems, according to Goldblatt, have stretched the time horizon of the political discourse to include intergenerational justice and sustainability into the political moral vocabulary. Similarly, the environmental degradation and threats faced by the developing world have been traced to the economic and political activities of the west, stretching the geographical horizon of the contemporary concerns (Goldblatt, David, 1996).

Since the seventies a huge body of information on the nature and extent of environmental degradation has become available. The publication of the State of India’s Environment Reports in 1982 and 1985 by Delhi-based Centre for Science (CSE) and Environment marked an important beginning. A large number of journalists have been reporting on a variety of issues related to environmental degradation, people’s protests and major controversies surrounding development projects of the government. Social activist groups have organized local and national level struggles against the increasing control over natural resources by the state to the exclusion of local communities from the resource bases.

Guha (Ibid) (1997) suggests that a pioneering effort in conducting studies of village ecosystems was made by the centre for Appropriate Science and Technology for Rural Areas (ASTRA) in Bangalore. A.K.N. Reddy, a professor of chemistry, the prime mover of ASTRA, was an early exponent of environmentally sound development. In an essay of 1978, he identified the goals of ‘eco-development’ as the satisfaction of basic needs of the poor; endogenous self-
reliance in terms of using local raw materials and through social participation and control; and harmony with the environment.

There has also been a spurt in social science research in the last two decades. A number of scholars turned to the colonial period to understand the ecological changes over time. There is a general agreement among the scholars that colonial period was an important watershed in the ecological history of India. Although it was neither the first nor the worst phase of environmental disruption, as Pouchapadass (1995) observes, ‘it undeniably set in motion processes (economic, demographic, social, administrative, and legal) that stimulated the overuse of natural resources and have proved difficult to reverse’. Several studies have focused on the social and environmental consequences of colonial state intervention, its effect on the indigenous social, cultural institutions and practices of resource management; and social protests over control of resources (Guha 1989; Rangarajan 1996; Arnold and Guha 1994; Munshi 1993; Whitcombe 1972; Sengupta 1980; Tucker 1979; Grove 1995).

The depletion of natural resources in the contemporary world has changed used and management of these resources and their effect on local communities, and the need for an alternative system of resource management there have been the subjects of many studies conducted by social scientist in general (Jodha 1986; Chopra 1989; Fernandes and Menon 1987; Nadkarni 1989; Agarwal 1986). There has been some discussion on gender and environment and on the notion of eco-feminization in recent times (Shiva 1988; Agarwal 1991, 1997; Venkateswaran 1995).

Discussions among the activists and the social scientist have also centered on the environmental and social costs of development planning in India, the latter
invariably being borne by the poor. Several studies, including those of Rao (1995) and Sharma (1996) have underlined it. Although it is recognized that environmental degradation threatens all, irrespective of people’s wealth, privilege, status or class, the fact nonetheless remains, especially in the developing countries like India, the weak, the poor and the underprivileged are the worst victims of it. Displacement, marginalization and deterioration of the quality of life of large sections of the population the tribal’s-nomadic communities, craftsmen, the urban and the rural poor and women. As a result, the economic policies of the government have concerned both social scientists and activists alike. The aim is to work out an alternative framework of development which would combine sustainability with equity and social justice. It can hardly be overstated that everywhere in the developing countries, as in India, protests and struggles by rural and urban communities for control, access and management of natural resources upon which their lives and livelihood depend, are taking place and gaining worldwide recognition. Friedman and Rangarajan call it ‘Environmental action’ (1993:4), Thorn Bury (1989) puts it that as physical process of evolution of land forms surface process either natural or manmade etc. Mining being an important man-made surface process which has become an integral part of developmental trends in any country. As the mining process are being a source of material supply for various industries and other process of human endeavor. Rapid growth of human population has led to meet the growing needs and demands of this population human have begun to exploit the natural resources sufficiently. This state of affairs inevitably raised the importance of geographical and physical issues in making the wasteland created by mining and quarrying into ecological suitable for life.
Howley and Dymond (1988) reported increasing land slide by removal of forest. He has presented a method for calculating the effectiveness of tress in reducing the incidence of shallow landslides in hill slopes. Mining activity essentially takes part in removal of overburden and above ground vegetation. Due attention in such loss has been hinted.

Rama Rao (1964, 1967, and 1968) has extensively documented about the various mineral resources of different districts of then Mysore State. The entire deposits offers a great deal of opencast mining in the area which has been further documented by Gadgil(1987). When the ore is extracted it leaves behind a substantial quantities of tailing which gets into waterways and lead to serious problems of siltation and it covers farmland of downhill and destroy their fertility with vegetation.

E.N.Ashok Kumar has written an article (2005) ‘A study of Korachos bamboo-weavers and the forests’. The study was carried out in Dharmapur village in Shimoga district, Karnataka examining the lives and struggles of Korachas for survival. He observes that the Korachas and the bamboo forests have a symbiotic relationship which needs to be strengthened. While bamboo forests should be protected on the one hand and on the other hand, raw material should be ensured to the Koracha enterprise. He notes that under the liberalized economic policies, the government is opening all sectors to economy to private sector. At the same time, it has the obligation to protect the interests of the marginal groups. The issue is how to achieve these conflicting objectives. He points out that forest as a common property resource should be made accessible to the common man. But these are siphoned off by the rich and politically influential lobby. Not only has this led to degradation of forests but also marginalization of the forest-dependent indigenous communities.
B.L.Chavan, S.A.Pujari and S.H.Pawar in their article ‘Environmental pollution and remedial measure (2005) pointed out that, the nature of various types of environmental pollution and their casual factors; they have suggested some remedial measures. In relation to mass, the environment constitutes of air, land, water, flora and fauna. Contamination of environment with impurities making it unfit for its intended use is known as pollution. Pollution is deterioration of the quality of environment by the production of impurities. In this article authors have focused their attention on some of the problems that are related to our day to day life. The problems with which the paper deals with include air pollution, land pollution, water pollution, noise pollution and radiation pollution. These problems are resulting into the polluted atmosphere and posing hazards not only to the human beings but also to the living and non living entities on this globe.

The author noted that development of society is dependent on available resource base. It has been also recognized that energy resources are depleting at an alarming rate. Especially, there is large scale exploitation of finite conventional energy resources such as coal, oil and natural gas. Because, energy supply to the domestic, industrial and agricultural sectors at a reasonable cost can boost the economic development of the nation. Utilization of cheap raw material available in the form of biomass in an efficient way with a suitable technology offers a sustainable route for alternative energy generation.

V.Ramaswamy in his paper (2005) deals with ‘Socio-economic and environmental impacts of large dams”. He has used data of few villages submerged and submergible town of Bagalkote in the upper Krishna project in Bijapur district of Karnataka State. There was ignorance of the people regarding proceedings and benefits of the rehabilitation programme, corrupt administration, involvement of the middlemen, and delay in release of compensation, too many installments, and
eleventh hour evacuation of the old village and use of compensation for counter-productive purposes.

The author therefore suggests that a pre-rehabilitation study should be undertaken. The planners have concentrated on physical structures and budget but underestimated proper rehabilitation and allocated inadequate sums. He points out that though many evaluation studies were conducted by the government, research institutes and NGOs about the impact of displacement and rehabilitation, the government has not learned much from them. He recommends government to formulate uniform guidelines for all states, benchmark survey prior to project, alternative land for the ousters, compensation in one installment and to curtail misutilization of monetary compensation.

Jyostna Bapat has presented a case study of people’s participation through conservation education. She points out that protecting species can best be done by protecting habitats, National parks and other categories of reserves which are means of preserving corrective action is taken against natural resources like trees, animals or birds that have degraded. Mention may be made of two problems for conservation in India there are: inadequacy of trained conservation staff and inadequate resource allocation by the government. Successful management of protected areas depends mainly on the co-operation and support of the local people. The present crisis in conservation of natural habitat is due to increase in human population, accompanied by more intensive natural resource exploitation as a result of industrialization.

Through the ‘conservation education project’ an experiment to inculcate the values of conservation of wildlife in the personality of children living on the periphery of the conservation reserves was carried out by Bombay Natural History
Society. Three wildlife reserves selected for the baseline survey were: Keoladev National Park, Bharatpur Sanjay Gandhi National Park, Mumbai and Muradamalai Wild Life Sanctuary, Gudulur (an elephant reserve). It was found that a very small proportion of the people were positive in their attitude towards reserve management functions. The awareness about ecological linkages, protected area and rules related to reserves was limited. Successful management of protected areas will depend ultimately on the co-operation and support of the local people and the experiment is a beginning towards that kind of capacity building.

B.L.Teli reported that environmental degradation and resource utilization (2002) the population explosion and technological development has upset the man-resource balance. Environmental pollution and degradation is the main issue. Due to adoption of modern means of science and technology, man is modifying the environment according to his own needs and requirements. With the result the ecological system has mostly been jeopardized. The existence of life has been put into danger. Both the natural and cultural hazards have forced the large scale environmental degradation and ultimately ecological imbalances. The natural hazards included floods, droughts, desertification, water erosion and atmosphere pollution while cultural hazards include over-population, slums, poverty, deforestation and pollution. The environmental degradation can be observed in the form of soil erosion, decreasing productivity of agricultural land, climatic changes, lack of forests and forests products decreasing capacity of pastures etc.

M.L.Jhanwar (2002) reported the open caste mining is most devastating to the environment increasing the opencast mining adversely impacts social environment. It is reflected in increased corruption, drinking habits and crime rates. Thus environmental economics of open caste mining is negative mining deposition especially surface mining has become almost synonymous with
environmental degradation. The mining activity has increased air and water pollution manifold leading to health hazards to the mine workers. So much so that they suffer from various lung and liver related diseases and consequently become invalid or die by the time they attain the age of 40 or 50. Social environment has been affected by way of increase in crime rate and disrupting social harmony. An analysis of the interrelationship between human activity and the physical environment clearly brings out the adverse impacts due to unscientific approach towards exploitation of natural resource purely for profit motives and call for scientific management plan.

Motoyuki Suzuki in his “water in our future” (2003) points out that water use during the twentieth century grew at more than twice the rate of population increase, and a number of regions in different parts of the world are currently suffering chronic water stress. Accordingly he observes, Water scarcity and water stress, this rapid growth in water demand is due to the increasing reliance on irrigation to achieve food security, the growth of industrial uses, and the increasing use per capita for domestic purposes. Water quality and human health issues. Health-related microbiological contamination.

Inadequately treated contaminated water is one of the major causes of human illness. Micro-organisms found in human and animal wastes such as bacteria, viruses and protozoa are the cause of many waterborne diseases. These are present in virtually all wastes discharged, even those from most sewage treatment plants. It is essential to treat drinking water properly to prevent illness.

A.K.Sinha, Pankaj Srivastava (2000) reported mining activities; no doubt modify the environmental conditions in form of land degradation, deforestation, atmospheric and water pollution. A major problem related with the mining
activities is the solid waste disposal. The problem is more aggravated in case of radioactive minerals.

Arvind Kumar and Manish.C.Varma (2004) put it as the developing process profoundly alters the delicate environmental fabric with concurrent beneficial and adverse impact on status of the environment. So, the gradual and continuous deterioration in the environmental health lands compelling weight to the need to find a balance between human development and exploitation of natural resources. During the course of time population driven development has increased as well as technically mediated interference as a part of our way of living, but human solidarity may have decreased somewhat. Our aspirations for greater material wealth have made many individuals more isolated, living wasteful lives, which has imposed strain on the eco-health, good eco-health has, more or less, come to be regarded as something unchangeable and obvious. The continuous degradation of environmental resources has made people more aware of the susceptibility of the biosphere to the human interventions.

Arvind Kumar & M.C.Varma reported there is a growing awareness that environmental health is as much a question of life styles as of agricultural or individual activity. Therefore, it is necessary to change people’s attitudes with regard to the environment. So new eco-friendly behaviour is necessary in which quantitative demands and confrontations must be replaced by the qualitative appreciations and co-ordination. Development is the crying need of the hour, no doubt, but should not be at the cost of environmental health. This will hopefully lead us into a new era of sweet harmony between human and environment where all care for the well being of life on earth will be automatically fulfilled. Since the environment in which we live is of special interest and importance to us, there is an
urgent need to know the status of the environmental health and to develop appropriate strategy for proper eco-restoration.

R.N. Trivedi in his Environmental impact of mineral resource development in India selected case-studies (2001) pointed out the dimensions of environmental problems related to mining and related operations have to be viewed and analyzed in the context of the facts highlighted above. Large-scale and new deep opencast mining all along the coal outcrops in northern part of the coal field has virtually destroyed large tracts of agricultural lands, apart from adversely affecting the water regime of the area. The solid and liquid waste produced by surface and underground mining operations and atmospheric pollution caused dust-generating operations and also coke-making in open grounds entail continual environmental degradation of the coal fields. Besides, the problems of water pollution, noise pollution, ground vibration etc, are on the increase direct & indirect impact of all these factors bear heavily upon the well-being health and longevity of workers and habitants of the mine areas.

He also has pointed out that mining activities being an important man made surface process which has become an integral part of developmental trends in any country. Having reviewed the environmental impact of mining and related operations in few selected cases, Mining activity is directly or indirectly creating some problems like air pollution, water pollution, noise pollution, soil erosion, land degradation, occupational health hazards and socio-economic problems.

Smitha Senagupta (2001) has reported that environmental pollution problems are becoming more and more serious due to rapid but unplanned urbanization and industrialization in developing countries. Air, water, and land are the most important components of the environment or which the very survival of human life
is dependent. So, the human life will be affected adversely by the pollution of these environmental components. Author has also points out that Mining of minerals is a process of fighting against nature for the benefit of mankind. The process of mining either by open excavation method or by underground mining technology creates impact on human being, site and adjoining area and properties. Some of the negative impacts sometimes pose threat to living being in-habiting in that particular locality. In the coal mining industry the water table is reduced due to the extraction of water by underground methods. The water retention capacity of the soil has became poor, the land do not support vegetation and thereby causes damages to the elements of environment. Accordingly attempts have been made to focus attention to the impact of mining on the natural landscape and consequent degradation of valuable land resource in Raniganj Coalfield belt is quite significant. The long continued mining also has wide raging impacts on the water and air quality affecting the plant and animal life. It is necessary to have a time bound comprehensive environmental management plan for Raniganj Coalfield. Hence, there is great practical importance of socio-psychological thinking by environment conscious planners and managers. In general, people are aware of the deleterious effects of mining and coal conversion processes, but with proper planning and adequate precaution these can be kept to a minimum or in some cases bad effects can be altogether avoided. The local people strongly voice for reclamation of land, restoration of original landform and rehabilitation of disturbed population.

The present scale of activity in this mining belt has significant impact on natural landscape. Due to lack of realization of the degradation of the valuable land resource little effort has so far been made for rectification. The coal mining industry will continue to grow very fast. The vastly enlarged activity, particularly
in the opencast sector, is likely to cause more serious degradation of the natural environment. So, environmental safeguards are required through implementation of appropriate environmental management plans. This should be achieved as early as possible because not only this mining belt but the adjoining area is also facing critical environmental problems due to unplanned urban and industrial growth.

Environmental degradation is inevitable under the operation of natural geographic process. The resultant scenario is in equilibrium state within a given time frame. As long as this equilibrium state is maintained the environment can be harnessed as a renewable resource. However, serious imbalances come into a play when man disturbs this fragile equilibrium thus turning the environment to non-renewable resource. The indiscriminating and unscientific harnessing of life supporting environment has been redemption.

R.K.Rai pointed out. Meghalaya is one of the seven states of the North-Eastern Region. It has an area of 22,429 sq.km with a population density of 79 persons per sq.km as per 1991 census. The state is at present under the process of development with its vast untapped natural resources, at the same time it is highly prone and vulnerable to over-exploitation of its natural resources and causing serious ecological imbalances. Most of the developmental schemes in the state are aimed to exploit natural resources and have ignored the attendant environmental degradation. The emphasis has been on exploitation of resources without any environmental impact assessment. A very stunning situation exists in the form of embryonic environmental crisis if further neglected, may be difficult to contain.

The two of the main degradation processes operative in the state can be linked up to the
Indiscriminate deforestation and prolonged ‘Jhum’ activity on steep slopes producing barren landscape. Such terrains are invariably prone to soil erosion, land degradation and landslides.

The increasing pressure of population, ongoing development and mining activities are conspicuously adding to environmental degradation on large scale.

These two processes are the chief contributors to the bulk of upland soil erosion. It is observed that landslides are more frequent where construction of roads and settlements has modified slope profiles of the landscape. ‘Jhum’ activity or shifting cultivation has continuously over period of years removed the topsoil from the slopes due to which many areas have become unfit for any economic agricultural use. With the increase of population and due to decline of production potentiality of land, more and more areas are being brought under shifting cultivation and the period of fallowing has decreased gradually. Today the ‘Jhum’ cycle has been reduced to 2-6 years (Borthakur et.al.1997, Rai, 1987). Due to the lack of adequate low land plain areas for agricultural purposes, the low productivity ‘Jhum’ cultivation is still continuing in the state without any modification. Such practice is causing serious ecological imbalances.

B.L.Teli reported that today the control of environmental pollution and/or degradation is the main issue. Due to adoption of modern means of science and technology, the man is modifying the environment according to his own need and requirements. With the result the ecological system has mostly been jeopardized. The existence of life has been put into danger. Both the natural and cultural hazards have forced the large scale environmental degradation and ultimately ecological imbalances. The natural hazards included floods, droughts, desertification, water, soil erosion and atmosphere pollution while cultural hazards include overpopulation slums, poverty deforestation and pollution; the
environmental degradation is increasing the trends in desertification and waste land and deteriorating the agricultural products even in such areas where once the flourishing lands were found.

The global environment is facing a number of problems due to increasing biotic pressure, deforestation, over-exploitation of land resources and pollution. The environmental degradation can be observed in the form of soil erosion decreasing productivity of agricultural land, climatic changes, lack of forests and forest products, decreasing capacity of pastures etc. Not only these but the pollution is at the all time high, has not only polluted the earth but affected the upper strata as well by creating a hole in the ozone (O\textsubscript{3}) layer. It may have serious implications on the human health, his activities and plants. It may also reduce crop yields significantly.

The study of environment and human interaction has been generally referred to as social ecology and recently it has also been named as ‘environmental’ sociology (Baviskar.1997). In India when we look at the interconnection between ecology and development, it appears that these concerns have emerged in opposition to general priorities of economic development. A glance at environmental issues like ‘chipko’ and ‘silent’ valley indicates that the ‘development camp’ and ‘environment camp’ appear to be committed to conflicting priorities, one is committed to accelerating industrialization and production, while the other is concerned with preservation of ecosystems and endangered species and maintenance of an overall ecological balance. The construction of dams, displacement of people and deforestation etc, while resulting in apparent environmental imbalance have further attracted the attention not only of the activists and social workers but also of the sociologists. Whether realized or not these projects, labeled as development projects, are part of a wider and more
gradual process of change. So, in addition to several studies of social and ecological consequences of displacement due to dams and other development projects, the gradual process of social change has also started attracting attention of sociologists. These studies have also got accelerated due to other factors including the role of international aid giving organizations who have also emphasized among their priorities, the environmental concerns.

Aurora (1996) pointed out that environmental sociologists in India have largely ignored the macro frame work of development in the form of industrialization and urbanization; they have produced several studies in the impact of these development projects. The impetus for these came, as mentioned above, from popular resistance in the form of movements like ‘Chipko’ and ‘Narmada Bachao Andolan’, ‘aquaculture lake of Chilka’ and so on and in part from aid giving international organizations like the World Bank. Further, the facts of common knowledge which appear to have been changing the scenario of ecological balance and affecting the society, have also given rise to the concerns of study of environment and society interactions. Some of these facts which have been considered more glaring and have been paid attention to by environmental sociologists may be listed briefly as follows.

The forest cover got reduced from nearly 30% in 1950 to around 12.5% in 1985 during which the Nehruvian model dominated the development praxis. The urban population marginally increased from less than or around 20% to around 30%. This increase of urban population has been accompanied by large-scale growth of unauthorized construction of housing and commercial complexes, without caring for proper environmental considerations.

Further disempowerment and displacement of tribal and backward area populations and their pauperization as a consequence of such development
activities as mining (e.g. in Karnataka, Rajasthan, Orissa, Madhya Pradesh and Andhra Pradesh) and construction of irrigation dams (all over India) etc.

Almost total poisoning of major river systems such as Ganga, Mahanadi, Krishna, Thunga Bhadra, Kaveri and, to a somewhat lesser extent, Brahmaputra. Serious environmental damage to urban localities through little controlled motor transport system.

The regulatory system such as pollution control boards and metropolitan development authorities, forest departments etc., have been largely ineffective and even willing partners in the destruction of natural resources such as air, water, forests and rivers.

Sociologists have also started taking initiatives in terms of research of the problems, and of initiatives of environmental conservation etc. A full section of the XXIII All India Sociological Conference held at Kolhapur in 1996 was devoted to the studies being carried on the environment related issues. A brief resume of the researches and writings presented in the conference is presented here to indicate, at least for the time being, the emerging concerns of ‘society, culture and environment’. From a bunch of researches completed and ongoing, what emerges out is as follows.

The environmental awareness is still a luxury of the educated urban middle class and large masses are unaware of the multifaceted hazards of environmental problems and necessity of its conversation as they are largely concerned with the economic problems and economic well being.

Among the causes of environmental degradation, population growth has been acknowledged as an important factor along with urbanization. How can a balance be maintained between population growth, urbanization and environment? What should be the nature of this balance for the social order facilitating equity in
exchange, control and distribution of urban resources? These issues are debated and alternatives presented in a variety of ways: some realistic, some hypothetical and some metaphysical.

The depletion of forests and its consequences in terms of soil erosion, flood etc. are observed as threatening problems and awareness of theses disasters is facilitating general awareness and realization of need for conservation of environment in many areas and regions in India.

Women have been found working both ways: in degrading the environment and conserving the environment in different situations at different times in different areas.

Dams constructed in the name of development have really been observed as production inducing, and also devastating, displacing people ruining their culture and creating a cultural flux. Thus dams are altering environment on the one hand and enforcing culture change on the other, though for other areas there are increasing provisions for drinking water, irrigation facilities, and production. The initiatives of conservation of environment have been taken up by the state and are observable in the names of pollution control boards, forest management initiatives, enacting laws etc. despite large investments and bureaucratization of their implementation, very less success has been achieved so far.

Largely initiatives of conservation of environment have been picked up, and spearheaded by voluntary groups NGOs etc. rather than the government itself.

The conservation issues in several areas like watershed management, wasteland development, waste-disposal, pollution control etc., have brought in more awareness and remedial measures appear to have started at different levels.

The green revolution has achieved its aim of more production of food grains for society. But its otherwise consequences like effects of fertilizers and pesticides, ground water level going down etc. are observed as ‘not environment friendly, and
giving rise to imbalance in environment. This needs to be tackled. These and such other areas with variations require urgent attention.

It is realized that action by state, by non-governmental organizations, by people themselves, their representative bodies like Panchayat, municipal committees and individuals themselves is required.

People individually and collectively need to be aware of the gravity and act in a manner so as to overcome the imbalance of environment. Last but not the least, we are in a situation, ‘we have more water than we require, but we have least water or – face scarcity of even drinking water when we need’. This type of imbalance needs to be seriously worked upon and it is the most common challenge that we face at present in India. The growing awareness on the one hand shows that many factors are responsible for degrading the environment and the situation is very alarming. On the other we also observe that many efforts are also on to maintain the environment, e.g. several small village level projects are succeeding, many individuals even maintaining the gardens, an emerging social fact is observable in some parts of India that land under social forestry and fruit gardening has been growing considerable though under the compelling circumstances of development. This growth, of course out of compelling circumstances, is giving rise to a better cover of trees, a step in the desired direction.

James Gustav Speth in his book “Global Environmental Challenges Transition to a Sustainable world”-2004 has argued that organized human societies economic activities have caused environmental damage and pollution. He has analyzed the causes for this also. As the population increased in the 21st Century economic growth also increased. Industrial development has got a close relationship with the economic development. Industrial gases contain Sulphur oxide, Nitrogen oxide, Carbon dioxide etc., too much. In 1950 it was threefold whereas in 2004 it was fivefold. Thus green house gas has increased causing
pollution and environmental damage. They have also caused climate change. Apart from this world temperature has also increased. Human Economic Activity is not good for the environment. Industrialists and industries are concerned with profit making and they are least concerned with environmental protection.

Cortner and Moote 1999; Gibson 2000; Friedman n 1998; Wondolleck and Yaffee 2000). As Samuel and Thanikachalam (2003) argued, NGOs have played and continue to play an important role in organizing mass movements by creating awareness about the negative impact of the projects on the environment, and the people’s responsibility.

Turnock (2004), discussed that Environmental NGOs are playing an important role in environmental education in South-eastern Europe and their efforts are often welcomed by governments. But, as Carter and Turnock (2002) argued, despite their useful work in debating ecological issues, working on environmental projects and increasing public awareness, it has to be said that ENGOs still have few rights over consultation and can easily be ignored. Knowledge creation and dissemination is a crucial dimension of these activities (Hendriks, 2002).

According to Jaix (1992), NGOs have a more accurate and practical knowledge of local environmental problems than would be possible for government organizations to attain. Despite the increase in the scale of NGO efforts, their contributions to development have, with some exceptions, not been well documented or analyzed (Bebbington, 2004). Lernar (1964) has emphasized as important the relationship between participation, and level of studies, socioeconomic standings, age and news and publications’ being easily at one’s disposal.
Munshi (1986) states four factors of “establishment of a spirit of self dependence among people”, “provision of sufficient information with regard to public participation” as well as” having the technical and financial resources at one’s disposal” as important in this context. Goulding (1990) found that, factors of information, education, organization, as well as mutual understanding between individuals and organizations as effective factors in public participation, particularly in environmental activities. Brandon and Wells (1992) demonstrated the link between participation and the political and socioeconomic factors.

Ryan et al. (2002), have named the steps in decision making, being informed of people’s needs and co-working with them in the administration of affairs, as well as a mixing together of public and specialists’ views as effective in public participation in environmental affairs. Connor (1997) realizes following factors as effective in the participation of individuals in a society: participation techniques, access to means of communication and information sources, feedback, the societal structure, as well as history and culture of a society.

Keough (1998) introduced eight stages in achieving participatory development. Among them are: sincere communication with people, an understanding of the indigenous knowledge, concern for individuals’ freedom, offering varied educational courses to promote learning.

Brich (2001) has conducted the study of three important factors affecting environmental conservation as related to nongovernmental organizations. He has listed the followings as important and effective: the relation between governmental and public organizations, peculiarities of a society (precedence, an individual’s experience in problem solving, and interaction between local organizations and institutions), and socioeconomic interests of users and of other beneficiaries of participation.
Akabayashi (2003) concluded that individual characteristics, such as: sex, maturity, idea development, one’s familiarity with participation, being alert of the prevailing problems, information concerning the precedent pertinent activities (by governments and individuals) are some of the important factors of participation. Vari (2004) views the financial support, allocation of budget to participation planning, incentives, type of function and activities of social institution, as well as individuals’ characteristics as important and effective factors in participation.

Shobeiri (2007) found significant differences between Indian and Iranian students in their level of environmental awareness. The purpose of this study is to understand factors affecting participation of NGOs’ members in environmental conservation. The specific objectives are to analyze relationships between participation in environmental activities and factors such as individual, cultural, informational, managerial, social, economical, and Motivational characteristics.
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