

ENVIRONMENT AND SOCIETY

VI SEMESTER

CORE COURSE

BA SOCIOLOGY

(2011 Admission)



UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

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SCHOOL OF DISTANCE EDUCATION

STUDY MATERIAL

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BA SOCIOLOGY

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ENVIRONMENT AND SOCIETY

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Layout: *Computer Section, SDE*

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MODULE 1

ENVIRONMENTAL SOCIOLOGY

Meaning, Definition ,Emergence and Development of Environmental Sociology

Environmental sociology is typically defined as the sociological study of societal-environmental interactions. Environmental sociology is a sub discipline within the field of sociology that studies of the interactions between the physical environment, social organization, and social behavior. Environmental sociologists typically place special emphasis on studying the social factors that cause environmental problems, the societal impacts of those problems, and efforts to solve the problems. They also look at the social processes by which certain environmental conditions become socially defined as problems.

Environmental sociologists aim to understand environmentalism as a [social movement](#), the ways in which members of society perceive environmental problems, and the origins of human-induced environmental decline and unequal distribution of environmental hazards. Since the end of world war 1, the study of the relationship between nature and human societies has gone through 3 main stages in sociology: human and urban ecology was developed by Chicago school sociologists during the 1920's and 30's. Environmental sociology emerged mostly in the United states during the 1970 and early 80's and since the late 1980's the third phase, "Eco sociology" has arisen.

Modern thought surrounding human-environment relations can be traced back to [Charles Darwin](#). Darwin's concept of [natural selection](#) suggested that certain social characteristics played a key role in the survivability of groups in the natural environment. Although typically taken at the micro-level, evolutionary principles, particularly adaptability, serve as a microcosm of [human ecology](#). Work by [Craig Humphrey](#) and [Frederick Buttel](#) (2002) traces the linkages between Darwin's work on natural selection, human ecological sociology, and environmental sociology.

[Sociology](#) developed as a [scholarly discipline](#) in the mid- and late-19th and early 20th centuries, in a context where [biological determinism](#) had failed to fully explain key features of social change, including the evolving relationship between humans and their natural environments. In its foundational years, classical sociology thus saw social and cultural factors as the dominant, if not exclusive, cause of social and cultural conditions. This lens down-played interactive factors in the relationship between humans and their [biophysical environments](#).

Classical sociology had relatively little to say about the natural environment. The three acknowledged founders of the discipline of sociology-Durkheim, Weber and Marx- addressed some aspect of nature and society. Montesquieu and Malthus wrote about the relationship between human societies and the natural environment. Critical theory's assessment of the Enlightenment and modern, industrial societies was the first attempt to systematically analyse the natural environment and its relation to human social practices. Recent theorists Habermas- the problems of nature in Modernity and Giddens-consequences of Modernity- work focused on the reciprocal relationship between human societies and natural environments.

Environmental sociology emerged as a coherent subfield of inquiry after the [environmental movement](#) of the 1960s and early 1970. The works of William R. Catton and [Riley Dunlap](#)- New Ecological Paradigm(NEP)Ulrich Becks-Risk Society-, [Allan Schnaiberg](#)-The Environment from Surplus to Scarcity. have been the most influential contributors at the theoretical core of environmental sociology. In the late 1970s, they called for a new holistic, or systems perspective. There is a general agreement that the first explicit use of 'environmental sociology was by Samuel Klausner in his 1971 book on Man in His Environment. Since the 1970s, general sociology has noticeably transformed to include environmental forces in social explanations. Environmental sociology has now solidified as a respected, [interdisciplinary](#) field of study in [academia](#).

Scope, Importance, Need for public awareness, Multidisciplinary nature of environmental Studies

The technical definition of environmental sociology is the sociological study of how humans interact with the various aspects of the environment. In other words; how people treat the various aspects of the environment such as pollution, conservation and recycling. This type of study is one that is vital when it comes to helping find better ways for both nature and mankind to interact, propagate and thrive.

There are two schools of thought when it comes to environmental sociology; constructivism and realism. The constructivist's tend to be those individuals who develop ways that will help to improve the environment, however, they do tend to be on the more extremist side in their methods. The realists are those who want to help find the solutions needed to improve the environment.

The association between societal well-being and environmental quality is an important topic of Sociological inquiry. Environmental Sociology as a sub discipline within Sociology explores the various forms of interaction between human society and the environment. Catton and Dunlap A New Ecological Paradigm made them present Environmental Sociology as the study of interaction between society and its biophysical environment with a certain insistence given to the idea that every human society is dependent on the ecosystems in which it exists.

The environmental sociology of the 70's centers its attention on the study of green movement, energy issues, risks of catastrophes, public attitudes towards environmental questions, environmental policies and the quality of environment as a social problem.

Environmental sociology is also interested in a more general manner in human causes and social factors of environmental pollution, as well as in the social impacts of this pollution and of diminishing natural resources that is in the reciprocal relations between human societies and their biophysical environment.

Environmental sociology has different dimensions to it that their own research foci, environmental attitudes and the environmental movement, social impact analysis, risk assessment, responses to toxic siting and discovery natural hazards, research and so forth.. The inequitable social distribution of environmental hazards is another central area of Environmental Sociological research, with scholars examining the processes by which socially disadvantaged populations come

to experience greater exposures to myriad environmental hazards including natural disasters and unequal distribution of natural resources..It also helps to formulate equitable strategies to drive environmental degradation and also to build sustainable relationship between humans and the environment. Public opinion about environmental issues and environmental policies and the influence of the Green movement on these policies.

Environmental Sociologists seek to understand a variety of topics, including agrifood systems, the origins of human-induced environmental decline, the relationship between population dynamics, health, and the environment, and the role that elites play in harming the environment, environmental regulatory agency dynamics.

Need for Public Awareness

Environmental protection is a practice of protecting the [natural environment](#) on individual, organizational or governmental levels, for the benefit of both the natural environment and humans. Due to the pressures of population and technology, the [biophysical environment](#) is being degraded, It is essential to make the public aware of the formidable consequences of the Environmental Degradation, if not retorted and reformative measures undertaken, would result in the extinction of life. It is the prevention of environmental degradation that must become a part of all our lives. This has been recognized, and governments have begun placing restraints on activities that cause [environmental degradation](#) and ways to increase awareness of environmental issues worldwide.

Many actions can be employed to educate and raise environmental awareness in the community. These actions will empower people to participate effectively in democratic change towards a Better environment for all. Recognition on the complexity of environmental issues will be realized and the need to develop solutions collectively accepted. In environmental education everyone has something to learn and something to contribute.

Environmental protection is influenced by three interwoven factors: environmental legislation, ethics and education. Each of these factors plays its part in influencing national-level environmental decisions and personal-level environmental values and behaviors. For environmental protection to become a reality, it is important for societies to develop each of these areas that, together, will inform and drive environmental decisions.

Awareness of climate change and other environmental concerns has increased in the last few decades. Day celebrations like Environmental day. Population Day Ozone Day, Earth Day etc and practicing 3Rs Principle promoted awareness among people.. However, there is still a lot of work to be done to increase public awareness, particularly in underdeveloped countries.

The United Nations Environment Programme (UNEP) has outlined several important programmes for environmental awareness.such as, environmental awareness campaigns awareness through medias,Environmental education etc

In developed countries and urban areas, the use of print, broadcast, and Internet media can be a great way to increase education and awareness. By working with the media, government agencies and nonprofit organizations can help spread their message, either by holding press briefings, issuing printed press releases, or even setting up online databases that can be used as information centers. Information centers can be useful tools to educate both the public and journalists about environmental concerns

Thirty percent of the world's population is under the age of eighteen, according to UNEP, which is why educating children and young adults about environmental problems is crucial to long-term success. This will help them foster a sense of responsibility and "proactive citizenship," so that when they become adults they will make choices that help the environment rather than harm it.

Many schools, however, do not currently teach their students about environmental issues. Integrating environmental education into current science classes or teaching environmental science as a separate discipline is one of the best ways to educate children and teens about environmental problems, particularly if the classes involve some sort of "hands-on" learning, like starting a garden .developing healthy eco-friendly behavior, making manure from Domestic waste, proper and healthy disposal behavior, minimize e-waste and practice green computing etc. which promote value based sustainable development.

There have been several Government and Non-Government Organisations that are working towards environmental protection in our country. They have led to a growing interest in environmental protection and conservation of nature and natural resources. Among the large number of institutions that deal with environmental protection and conservation, a few well-known organizations are BSI(Botanical Survy of India) and ZSI(Zoological survy of india.), and NGOs like the BNHS-M(Bombay Natural History Society), WWF-1(World Wide Fund for Nature – India(WWF-1),CSE(Center for Science and Environment-New Delhi),CEE-(Centre for Environment Education-Ahmedabad) ,EEC(Environment Education Centre-Madras, BVIEER (Bharat Vidyapeeth Institute of Environment Education and Research-Pune),UKSN (Uttarkhand Seva Nidhi),SACON(Salim All Center for Ornithology and Natural History –Coimbatore,WLL (Wildlife Institute of India-Dehradun),MCBT(Madras Crocodile Bank Trust-Madras)etc.

There are several internationally known environmental thinkers. They looked at the environment from a completely different perspective.Charls Darwin.Ralph Emerson,HenryThoreau, John Muir,Aldo Leopoid.Rachel Carson,Riley Dunlap and William Michelson,Allen Schnaiberg,Ulrich Beck,E.O Wilson are few among them, There have been a number of environmentalists, Administraters, Legal experts, Educationalists, Journalists, Scientists who have been instrumental in shaping the environmental history in our country such as. S.P.Godrej, M.S Swaminathan, MadhavGadgil, M.C.Mehta,Anil, Agarwal, Sunderlal Bahuna etc.

The UNESCO and the Government of Greece, organized International Conference on Environment and Society:primarily to highlight the role of education and public awareness for sustainability. Progress in this direction is thus critically dependent on education and public awareness.

ENVIRONMENT

The sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage.

The word environment is derived from the French verb 'environer' which means to 'encircle or surround.' Thus our environment can be defined as the physical, chemical and biological world that surround as well as the complex of social and cultural affecting an individual or community. This broad definition includes the natural world and the technological environment as well as the cultural and social context that shape human lives. It includes all factors living and non living that affect an individual organism or population at any point in the life cycle. Set of circumstances surrounding a particular occurrence and all the things that surround us.

It is essentially a multidisciplinary approach and its components include biology, geology, chemistry, physics, engineering, sociology, health sciences, anthropology, economics, statistics and philosophy. Environmental science is a Interdisciplinary subject which deals with each and every aspect of life i.e. related with us. It requires the knowledge of various other subjects like biology, chemistry, physics, statistics, micro-biology, bio-chemistry, geology, economics, law, sociology etc

Environmental science integrates physical and biological sciences, to the study of the environment, and the solution of environmental problems. Environmental science provides an integrated, quantitative, and interdisciplinary approach to the study of environmental systems. Related areas of study include environmental studies and environmental engineering. Environmental studies incorporates more of the social sciences for understanding human relationships, perceptions and policies towards the environment. Environmental engineering focuses on design and technology for improving environmental quality in every aspect. Environmental scientists work on subjects like the understanding of earth processes, evaluating alternative energy systems, pollution control and mitigation, natural resource management, and the effects of global climate change. Environmental issues almost always include an interaction of physical, chemical, biological and socio-cultural processes. Environmental scientists bring a systems approach to the analysis of environmental problems.

Environmental science came alive as a substantive, active field of scientific investigation in the 1960s and 1970s driven by (a) the need for a multi-disciplinary approach to analyze complex environmental problems, (b) the arrival of substantive environmental laws requiring specific environmental protocols of investigation and (c) the growing public awareness of a need for action in addressing environmental problems. . It is a relatively new field of study which has evolved from integrated use of many disciplines.. It creates awareness and understanding of environmental concepts which may be scientific, social and ecological systems thereby providing a platform for solution to various environmental problems

MODULE II

THEORETICAL FOUNDATIONS

Emile Durkheim

Of the three founding figures in sociology, Durkheim is probably the least likely to be recognized as an environmental commentator. In large part, this reflects his deliberate decision to elevate social facts over 'facts of a lower order'. (that is, psychological, biological)

For Durkheim, a social fact is 'any way of acting, whether fixed or not, capable of exerting over the individual an external constraint'. This constraint is normally manifested in the form of law, morality, beliefs, customs and even fashions.

To Durkheim, men were creatures whose desires were unlimited. Unlike other animals, they are not satiated when their biological needs are fulfilled. "The more one has, the more one wants, since satisfactions received only stimulate instead of filling needs." It follows from this natural insatiability of the human animal that his desires can only be held in check by external controls, that is, by societal control. Society imposes limits on human desires and constitutes "a regulative force [which] must play the same role for moral needs which the organism plays for physical needs." In well-regulated societies, social controls set limits on individual propensities so that each individual knows the eventual limit to his/her activity. Durkheim did distinguish the social realm from the psychic, biological and mineral realms, yet he saw society as a phenomenon of nature. This can be witnessed in many plant or animal settings, where associations are formed which enable the species to survive or flourish. Of the traditional approaches, Durkheim's does lend credence to the idea that environmental problems can be understood within the context of cultural production and reproduction. Durkheim's positivism and constructivism gave us the legacy of examining environmental problems as a science with observable consequences and socially constructed causes.

Although Durkheim formulated an organismic theory of society where each organism must function in its own place and time in order for the whole to remain healthy, he neglected to bring the environment in which that work is being done into the picture. He did not however insist as his contemporaries did that nature was "socially produced". Durkheim introduced the notions of agency and structure to sociological theory; agency is defined as the power that humans have to operate independently of the constraining social structure. The structure itself is dependent on agency for its existence, it is comprised of such things as laws, conventions, taboos and so on. An interesting result of Durkheim's theories of agency structure is that they can be subversively used to undermine the traditional lack of attention paid to environmental problems. Agency would seemingly allow us to either neglect or care for the environment as we so choose, but the social structure could dictate certain modes of action which can be oriented towards a conservationist perspective. Further, if the environment itself were to be seen as the governing structure within which humans must operate, with the laws of nature guiding human agency, it seems against (human) nature to destroy the very structure which supports our meagre selves.

Max Weber

Ecologically relevant component or some environmental connection has been located in two entirely different corners of Weber's work (Patrick West and Raymond Murphy).

West (1984) draws mostly on Weber's historical Sociology of Religion and his comparative research on ancient societies. He emphasizes that Weber analyzed concrete examples of struggles over natural resources, for example, the control of irrigation system.

By contrast, Murphy's more extensively drawn discussion of neo-Weberian environmental sociology is based primarily on Weber's book *Economy and Society* (1978). For Murphy, the key concept to be extracted here is formal rationalization. Rationalization is composed of several dynamic institutional components, increased scientific and technical knowledge brings with it a fresh orientation in which nature exists only to be mastered and manipulated by humans.

An expanding capitalist market economy leaves little room for anything beyond the calculating, self-interested pursuit of market domination. Industry and government are controlled by a bureaucratic apparatus, the purpose of which is to attain a high level of efficiency. The legal system operates like a technically rational machine. Together, these components promote a pervasive logic whereby efficiency reigns supreme, on occasion even superseding a sensible choice of goals or alternatives, what Weber called substantive rationality. Formal rationality thus dictates that the most efficient action is to clear-cut an old growth forest, even if this is in no way substantively rational from an ecological point of view.

Murphy (1994) identified two interrelated processes highlighted by Weber: the intensification of rationality and the magnification of rationality. The more we try to run things according to the principle of dispassionate calculation the more we open the door to a swarm of unwanted and negative effects. When applied to the case of nature, this is called ecological irrationality. It is manifested in a wide range of destructive consequences from sensational technological disasters such as nuclear accidents to routine pollution events such as industrial dumping into urban storm sewers.

Max Weber would probably have rejected the idea of the environment as a determining structure; he was concerned primarily with humans as a system unto themselves, their being constituted the only social reality. He did not believe that sociologists could discover some overarching structure that was universal to humankind. Ironically, Weber devoted much of his academic life to describing the alienation of the capitalist worker, where human agency was largely overruled by the hierarchical structures of instrumental rationality and bureaucracy. This disenchantment stems from the separation of the workers not from their capabilities for the use of agency, but from their implicit rejection of nature in favor of capitalist business practices. The bureaucratic structure may stifle the workers, but the true distance is between the surrounding environment and their desk jobs. Some may posit that this separation of humans from their environment is a product of the technology that is being employed in these workplaces, as if technology were something alien or unnatural. We must remember however, that humans are inherently both a part of and a product of nature; how then can human constructs be unnatural?

They are simply an extension of our natural ability to use tools and to communicate with one another. Weberian disenchantment is quite different, for it is the arbitrary construction of limits, punishments and rewards that make up the bureaucratic authority system. Is this really unlike the structure that we deploy against nature? Both are arbitrary, both possess too narrow a scope to assess all the complexities of a system and both impose control in a manner that tends to be destructive to the subject of the control. The worker becomes disenchanted; the environment becomes polluted.

Karl Marx

Of the three main sociological traditions, it is that associated with Karl Marx that has provoked the most extensive response from present-day environmental interpreters. Marxist thought usually sees any society as a system of societal relations. This allows for an understanding that social production of goods depends on relations between individuals as well as between people and nature.. Marx saw science and society in rational terms, believing that science was a progressive and liberating force, one that would enable humankind to gain control over nature and therefore to better control their chosen path in life. According to Marx, the appropriation of natural resources in this manner were only possible in a specific social setting.. The interactions between humans and their environment cannot provide a source of change in society; this can only occur between groups of people. Marxist ideology relies heavily on the idea that economic development under capitalism involves the creation of value as resources are transformed into commodities. The problem is, there cannot be creation without destruction. In order to create value, we must destroy and sully valuable natural resources; not valuable as commodities, but as a life sustaining matrix upon which we all rely. The value of natural resources must always be weighed against the long term consequences of their use.

Marxist social theory and the environment

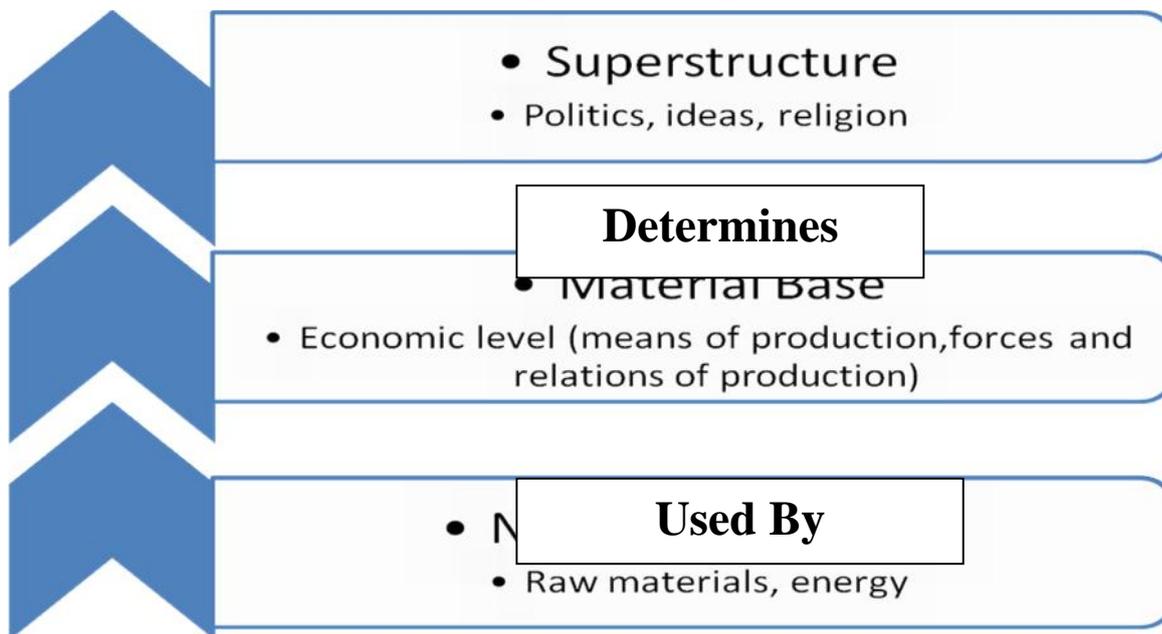
Karl Marx (1818-83) and Friedrich Engels (1820-95) and their political and social theory of Marxism is the next significant body of nineteenth-century social theory in which the environment played a particular (through ambiguous) role. Marx and Engels believed that social conflict between the two principle classes in the society, that is capitalist and the proletariat(workers)not only alienates ordinary people from their jobs but also leads to their estrangement from nature itself. In their famous work *The Communist Manifesto* (first published in Germany in 1848), after stating that the bourgeoisie (the owners of capital, the ruling class in Marxist terms) has subjected ‘the country to the rule of the towns’ and ‘rescued a considerable part of the population from the idiocy of rural life’ (1967:84), Marx and Engels go on to recognize the great achievements of industrial capitalism.

It is fair to say that historically classical Marxism, being a product of its time, did not address the range and significance of ecological issues that have come to play such an important part in late twentieth-century political and ethical discourse

As Marx and Engels said, nature’s forces had to be subjected to man. Those who objected to this domination and purely instrumental view of the nonhuman natural world were either simple-

minded sentimentalists (poets such as Wordsworth) or reactionaries who were really motivated by a defence of a feudal, aristocratic social order based on a 'pre-industrial' and 'pre-modern' system of land ownership .

The starting point for Marx is the brute fact that humans have to produce their own means of subsistence. What he means by this is that humans have to use their labour power, skills and creativity to transform the nonhuman world into the things, goods and services they need to survive. This, according to Marx and Engels, is what distinguishes humans from the nonhuman world. As they put it, 'Men can be distinguished from animals by consciousness, by religion or anything else you like. They themselves begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence.... The nature of individuals thus depends on the material conditions determining their production' (Parsons, 1977:137). Although, like all other species, humans are dependent upon their environment for resources in order to survive, Marx held that humans were different from the rest of nature because they did not simply take from nature whatever their natural environment afforded. Except in the 'primitive' hunter-gatherer stage of human evolution, the story of humanity was one where by their collective actions they transformed their environment, and by their labour power transformed the 'raw materials' of the nonhuman environment into usable and valuable artefacts; such as dwellings from simple huts to large cities, clothing from animal furs to designed fashions, and a whole range of goods, things and commodities



Marxist social theory was premised on the idea that the nonhuman world if left to itself, unused and untouched by human hands, was 'valueless'. Whatever was of value in the world was the product of human labour and creativity. This was the essence of the Marxist labour theory of value. The problem with the capitalist organization of industrial society for Marxists was that the social organization of this society was such that the vast majority of the people were denied the full fruits of their labour.

Because under capitalism, those who owned the capital, the factories, the machinery and so on were in a stronger economic position than those who had simply their labour power to sell, the latter were, according to Marx, exploited. Thus, while the industrial mode of production (including the factory system, the extensive use of science and technology, and a complex division of labour), was premised on the intensive exploitation of the nonhuman world, its capitalist character also meant that the workers or the proletariat in Marxist terminology were also exploited.

Marxism expresses the thoroughly ‘modern’ view that human social progress (and in this case ‘liberation’ from a capitalist exploitative social order) is dependent upon the exploitation and domination of the nonhuman environment.

Marx’s basic critique of capitalist industrial society was that its relations of production (particularly those relating to private property) were holding back what he called the forces of production (technology, science, the division of labour) from producing even greater levels of material wealth and affluence. In other words, capitalists was not exploiting the nonhuman world efficiently enough to the fullest extent possible; nor did it distribute the wealth created in a just manner. For Marxists, it is one of the great contradictions of capitalism that the social order which has put a man on the moon is unable to eradicate poverty, homelessness and many other socio-economic problems. Marx’s vision of a post capitalist society is premised on the existence of ‘material abundance’: that is, communist society is one which has transcended material scarcity. Unlike all previous human society in which there have never been enough material goods for everyone, and hence every social order has to have some principles or institutions for distributing what goods are available, Marx communist society was one in which the principle of distribution was ‘to each according to their needs’. In other words Marx was envisaging that under communism the exploitation of nature and the production of wealth, goods and services would be so efficient and productive that all human material needs would be met. Where as under capitalism only a few can afford expensive things. Free of constraining, inefficient as well as illegitimate capitalist property relations, human beings would be in a position to use the world around them as they saw fit and to meet their material needs and wants. Nobody would go hungry or homeless in this vision of a future post capitalist society and more than this, getting rid of capitalist relations of production would enable a more rational, planned, intensive and ultimately more productive exploitation of the non human environment. Human liberation and emancipation were to be achieved at the price of the greater exploitation and intensification of the instrumental use of nature.

A more ‘environmentally sensitive’ interpretation of Marxism may be found in some of the works of Engels, though the emphasize is on the urban environment rather than the natural one. In his “The Condition of The Working Class in England” Engels described the degrading, filthy and unhealthy urban and working environments of the emerging urban working class, and suggested that the coming communist society would create less unhealthy, unsafe and more aesthetically pleasing urban, leaving and working environments.

Marx may be seen as wanting to intensify the exploitation of the natural environment which capitalism had begun, but to end the exploitation of humans by humans and to distribute the fruits of the exploitation of the environment more equally than under capitalism, as well as viewing his

vision of a socialist society as motivated, in part by a desire to overcome the alienation between humanity and nature. Marxian thought contains the potential for a more sustainable relationship between human society and nature.

Talcott Parson

According to Parsons (1967 and 1970), the aim of social theory is to develop a meta-theoretical complex that would eventually be applicable to any given social phenomena. In the course of pursuing this aim, his own work sought inspiration in such different traditions as Freud's psychoanalysis, Malinowski's anthropology, Durkheim's functionalism and Weber's comparative institutionalism. Aiming for its universal application, the desired wide-scope and multi-informed analytical approach to social theorization led him to a considerable level of abstraction. Building on the continuum from acts to action to action system to social system, Parsons' AGIL conceptual model constitutes an analytical instrument based on the premise that any given system incorporates four functions — adaptation, goal-attainment, integration and latency. In social systems, these are assigned to specific sub-systems, respectively economy, polity, societal community and socialization. Adaptation refers to the need to manage the relation between the system's needs and the resources it can access; economic actors such as business would be the contemporary institutional correlative. Each system exists in an environment, and must be able to adapt to this environment. In the process of adaptation, the environment is also affected and may be adapted to the society. For larger social systems, the economy is the system which allows the system to survive, grow, and change. The major institutions in the economic sphere, such as agriculture, industry and services provided through the market are the means by which adaptation takes place. These serve the function of allowing the system to survive and provide the goods and services required for society to operate. As economists describe the economy, there are many equilibrating mechanisms within the economy that produce order. The market mechanism itself can be regarded as a system that has some tendencies in the direction of stable equilibria. Some of the government institutions relating to the economy also help serve this function. Note also how the economy as a system modifies the natural environment. . Goal-attainment relates to the need to set a common direction for the system and to manage priorities; governments fulfil this function in present societies. Integration mediates conflict and ensures conformity to social norms; institutions like law, regulations and courts play this role. This is the means by which social relationships, and interrelationships among units or groups, are regulated. "By integration Parsons means the need to coordinate, adjust, and regulate relationships among various actors or units within the system ... in order to keep the system functioning".

Latency relates to the need of perpetuating values and basic adaptational dynamics take form, generically, in new strategies, new production models and new markets (A). However, one can unveil the exact opposite direction of flow by perspective with that of power systems. "All institutionalization involves common moral as well as other values. Collectivity obligations are, therefore, an aspect of every institutionalized role. But in certain contexts of orientation-choice, these obligations may be latent.

As Parsons points out, economic power is systemically prevented from «undue influence» over political power. But since social structure entails dysfunction and conflict, in situations of diminished community power, economic interests (A) are able to contaminate the polity system (G) by influencing the original set of common goals. In turn, this rearrangement eventually leads to more or less extensive institutionalization of cognate normative frames (I). Ultimately, the combination of the three media of interchange — money (as marketing strategies), power (as political decisions) and influence (as norms of conduct) will carry changes to the fourth media — value commitment(L).

Parsons' multi-level multi-factor analytical complex, namely the AGIL frame - theory of power intersection, represents a useful tool to address contemporary political and social issues, such as the environment and sustainable development, which rest to a large extent in the sphere of contention between economic and political power.

The AGIL functions must exist at all levels, in society as a whole, and in each subsystem. These may not be consciously worked out functions, and roles and functions can be shared among organizations or individuals respectively economy, polity, societal community

In this perspective, socially responsible investing is considered as directly controlling the economic system through environmental ethics. It seems that environmental ethics require or even order the economic system to realize some cultural values, that is, substantial rationality. But we should ask whether environmental values are superior to all other human values, or whether all the human values can be completely integrated. Socially responsible investing might be a better alternative to the conventional investing, but we cannot foresee all the side effects inside and outside of the economic system. It follows that we cannot foresee and manage future risks perfectly. In this sense we should not underestimate the significance of socially responsible investing, but at the same time we had better hope not so much that socially responsible investing will solve the environmental problems in the future.

This conception would be realized more perfectly. Ecological thought might provide better ethics and realize a “good society”.

Anthony Giddens

Anthony Giddens is a British [sociologist](#) who is known for his [theory of structuration](#) and his [holistic](#) view of modern societies. Anthony Giddens' work is concerned with modernity and its effects. He has paid more attention to environmental issues and the place of nature within his social theory. Giddens' engagements with the environmental issues begins from an awareness of the lack of attention to ecological issues within sociology.

Giddens explicit concerned with space and time also means that he is more sensitive than other social theorists to ecological concerns, which clearly have spatial or geographical and temporal dimensions and import for human societies. This geographical dimension of Giddens' work is central to his theory of globalization refers to the historical processes which for the past 4 or 5 centuries have been connecting and bring various parts of the world together into one system

of cultural, political and above all, economic relations. As a result of various developments, politically, culturally, in communications and transport, and in the establishing of a global capitalist market, the creation of an international division of labour, the rising prominent of transnational co-operations, the world today is a smaller place.

Giddens' sensitivity to how central environmental issues are to modern social inquiry may be seen in his analysis of globalization where he writes that "the diffusion of industrialism has created one world in a more negative and threatening sense...a world in which there are actual or potential ecological changes of harmful sort that affect everyone on the planet". The modern world is a global world in the sense that there is a link between the local and the global as a result of space-time compression, such that changes in one part of the world can have potentially devastating effects on another part. While in Giddens' theory of globalization these effects range from economic, financial and cultural consequences, one of the most tangible experiences of globalization are global ecological problems- most salient amongst which is climate change – and localized ecological problems as a result of the global economic system and the uneven biophysical and socioeconomic consequences of 'bio-sphere – eco-sphere' and colonial dynamics. In particular, pollution problems, species and habitat loss and climate change transcendent territorial boundaries of nation- states and are global in their scope. Thus for Giddens', the spread of global – ecological problems is a specific consequence of globalization, the transmission and spread of industrial capitalism to their entire globe, the creation of a global market, and the development of various communication, political and cultural institutions and connections bringing distant societies together within a single globalised world system.

There are three different explanations of environmental politics within Giddens'. The first is what we can call a conservative view of environmentalism in that for him environmental movements are associated with recovery, the recovering of traditional ways of relating to the environment. Second explanation Giddens' has for environmental politics is as a response to perceived ecological treats. A third explanation is that environmental politics is a "lifestyle politics" associated with new social movements. Green environmental politics is concerned with how one should live and issues of personal identity, rather than the typical issues which dominate mainstream politics, such as income levels employment and economic growth. Giddens' sees the increasing concern with environmental issues and the rise of environmental politics as developments which are explicitly moral, in raising moral questions about the modern social order, its institutions and principles. Giddens' follows a tradition within social theory in which urbanization, cities, buildings and a creation of human made artificial spaces and places are significant because they represent or express the difference between 'modern' and 'pre-modern society'.

Central to Giddens' is the idea of the 'end of nature' which he claims has occurred in two ways. First, there is the spread of built environments meaning that humans are increasingly separated from nature, increasingly living in created locals. Second, the created environmental thesis of naturally occurring events – such as the seasons, producing food – ceases to exist as more and more of them are influenced by social activities.

This does not mean that the created environment is a humanly controlled environment. Giddens is aware that while modern societies have attempted to control nature, in doing so they have created new problems. The end of nature happened when we began to worry about what we have done to nature rather than what it can do to us. The difference between 'natural nature' and created environment is another reason why Giddens argues that modernity involves a qualitative break from the past. Furthermore it fits with his thesis of the change in risk from 'external' to manufactured risk, similar to that advocated by Ulrich Beck.

It may be argued that Giddens overstates the case as regards the end of nature and that we live in a created environment., "urbanism" is the mediator of a new modern relationship to the natural world: 'modern urbanism is the point at which the culturally transformed experience of the natural world is most acutely felt... capitalist urbanism is the physical site of the wholesale transformation of the natural into wholly manufactured space'. Thus the spread of urban life in modern societies marks a profound cultural shift in how the natural environment is experienced, viewed and valued. Urbanisation removes the natural environment from the everyday lives of people, replacing it with an artificial, human – made one.

At the same time that individuals are removed from the reality of modern productive interactions with the natural world, people do not know exactly how the food, energy and other commodities they consume are produced, where they are from, who produced them, under what conditions and so on. In this sense, modern urbanism complements another ecologically harmful feature of contemporary global capitalism: the increase in distance between production and consumption. Thus while globalization compresses space and time, it can also by the same token increase distances between production and consumption.

Giddens' account of urbanism needs to be extended beyond a concern with manufactured space to include how urbanism can remove the natural environment from centre stage, as the immediate environment of day-to-day life, diminish its role as the permanent backdrop for human action, push it backstage as it were, and create the impression that humans do not depend upon the natural world.

For Giddens, faced with the alienation and the insecurity of the modern, mobile world, environmental politics represents an attempt to establish some substantive moral content and normative security in people's life.

On the one hand, the increase severity and public awareness of environmental problem are motivated largely by collective and individual interests in survival; that is they are protective and reactive measures against (human-cost) environmental dangers. On the other hand the moral content of environmental politics has to do with defending a particular meaning of the natural environment. While this particular meaning of the natural environment may be detected in many aspects of the environment, it is perhaps most obvious in the dominant meanings attached to the country side as opposed to the town. Giddens suggest that late modernity brings with it a new form of politics, what he calls 'life politics', which is distinguished from emancipatory politics

associated with early modernity. Emancipatory politics is all about the promotion of individual or collective autonomy; for emancipatory politics there is always an asymmetry, an 'other'. Life politics is unique to late modernity and requires a certain level of emancipation to have been achieved. Life politics confronts the question of how we should live without the guidance of tradition. Life politics confronts ethical and existential questions suppressed by modernity and its abstract systems, and one of the key questions here is our relationship with nature. In this way, Giddens does seem to consider question of rethinking a good life in the light of ecological concerns.

Giddens sees environmental movements as lamenting the end of nature and trying to defend nature in the natural way; i.e, defending nature because it has always existed without realizing that we now live in a created environment, and that nature depends on us rather than other way around. Giddens sees the environmental movement in large part as a reaction to the invasion of modernity's abstract system into nature, thus ending 'natural nature' and replacing it with a created nature.

To see the environmental movement as a manifestation of life politics as Giddens does is very useful but not as a reaction to the ending of nature. As nature still exists and human societies still depend on and are vulnerable to it, the environmental movement is not a lament for the ending of nature. There are many positive aspects to the ways in which Giddens deals with ecological issues. Giddens argued that whilst humans have always been subjected to a level of risk - such as [natural disasters](#) - these have usually been perceived as produced by non-human forces. Modern societies, however, are exposed to risks such as pollution, newly discovered illnesses, crime, that are the result of the [modernization](#) process itself. Giddens defines these two types of risks as [external risks](#) and [manufactured risks](#). [Manufactured risks](#) are marked by a high level of [human agency](#) involved in both producing, and mitigating such risks. As [manufactured risks](#) are the product of human activity, Giddens argue that it is possible for societies to assess the level of risk that is being produced, or that is about to be produced. Social concerns led to increased regulation of the nuclear power industry and to the abandonment of some expansion plans, altering the course of modernization itself. This increased critique of modern industrial practices is said to have resulted in a state of [reflexive modernization](#), illustrated by concepts such as [sustainability](#) and the [precautionary principle](#) that focus on preventative measures to decrease levels of risk.

He mentions that the changed nature of risk means that we now have a responsibility for future generations and this must infuse decision making, thus integrating international justice into this social theory. As risks are now potentially of high consequence and global, future generations must be in cooperated into decision making to make sure that decisions are made in such a way as to prevent displacement of problems into the future. Science and technological development may have created many of the risk we now face but science remains a key partner in managing and reintroducing nature and that, as nature cannot be disentangled from the effects of social systems any ideas regarding basing policy on a 'nature knows best' attitude is deeply flawed and regressive, not progressive. He mentions the potential of environmental policies in generating solidarity as most ecological benefits are benefits to all social classes. He proposes a progressive tax on consumption and a system of eco-taxation based on incentives for good behavior. His argument

is that ecological risk can not to be normalized or managed by applying the precautionary principle 'because in many situations we no longer have the option of 'staying close to nature', or because the balance of benefits and dangers from scientific advance are imponderable. We may need quite often to be bold rather than cautious in supporting scientific and technological innovation. He also says that the precautionary principles limiting of innovation rather than embracing it is not applicable to all situations. To make science and technology more responsible, innovators should be obliged by law to be liable for the consequences; this will act as a break on irresponsibility. However, somewhat contradicting himself, he states that the precautionary principle may be used to reintroduce responsibility and gives the example that firms should think through the whole product cycle, including disposal after expiry, before introducing new products.

MODULE III

ENVIRONMENTAL ISSUES

Water pollution

Water pollution is emerging as a threat to all mankind. The term “water quality” is intimately related to water pollution. Water quality refers to the physical, chemical and biological characteristics of water. Water is indispensable for our life. Water is said to be polluted, when it is changed in its quality and composition directly or indirectly by man’s activity so that it becomes less suitable for drinking, domestic, agricultural or any other purpose. Soil erosion, digging of minerals from rocks, decaying of organic matter are natural sources of water pollution. Water pollution is the contamination of water bodies (e.g. lakes, rivers, oceans, aquifers and groundwater), very often by human activities. **Water pollution** occurs when pollutants (particles, chemicals or substances that make water contaminated) are discharged directly or indirectly into water bodies without enough treatment to get rid of harmful compounds. Pollutants get into water mainly by human causes or factors.

Water pollution is the second most imperative environmental concern along with air pollution. Any change or modification in the physical, chemical and biological properties of water that will have a detrimental consequence on living things is water pollution.

The water pollution problem covers over 70% of the Earth’s surface. It is a very important resource for people and the environment. Water pollution affects drinking water, rivers, lakes and oceans all over the world. In many developing countries, it is usually a leading cause of death, by people drinking from polluted water sources.

Water pollution can be studied under the following heads:

1. Medium in which it occurs (ground water, surface water)
2. Habitat (lakes, open seas)
3. Type of pollutants (bacterial, metallic, thermal and radioactive)

Water pollution can be defined in a number of ways,

1. Water pollution is the presence of any foreign substance (organic, inorganic, biological and radiological) in water which tends to degrade the quality so as to constitute a hazard, or impairs the usefulness of water
2. Courts of law define water pollution as “any impairment of water quality that makes unsuitable for beneficial use.

Sources of water pollution

There are two main sources of water pollution in a water body:

- i. Point sources
- ii. Non- point sources

The total waste load in a water body is represented by the sum of all point and non- point sources. Pollution of water resources can be caused by one or more of the sources : i) atmospheric dissolved gases ii) weathering of soil and rock minerals iii) decomposition of animals and vegetable materials.

ISSUES PERTAINING TO AIR

Air pollution occurs when gases, dust particles, fumes (or smoke) or odour are introduced into the atmosphere in a way that makes it harmful to humans, animals and plant. This is because the air becomes dirty (contaminated or unclean). The Earth is surrounded by a blanket of air (made up of various gases) called the atmosphere. The atmosphere helps protect the Earth and allow life to exist. Without it, we would be burned by the intense heat of the sun during the day or frozen by the very low temperatures at night.

Anything additional gas, particles or odours that are introduced into the air (either by nature or human activity) to destroy this natural balance can be called air pollution. Things that pollute the air are called pollutants. Examples of pollutants include nitrogen oxides, carbon monoxides, hydrocarbons, sulphur oxides (usually from factories), sand or dust particles, and organic compounds that can evaporate and enter the atmosphere.

There are two types of pollutants:

Primary pollutants are those gases or particles that are pumped into the air to make it unclean. They include carbon monoxide from automobile (cars) exhausts and sulfur dioxide from the combustion of coal.

Secondary pollutants: When pollutants in the air mix up in a chemical reaction, they form an even more dangerous chemical. Photochemical smog is an example of this, and is a secondary pollutant.

Air pollution can result from both human and natural actions. Natural events that pollute the air include forest fires, volcanic eruptions, wind erosion, pollen dispersal, evaporation of organic compounds and natural radioactivity. Pollution from natural occurrences are not very often. Emissions from industries and manufacturing activities. There are long tubes (called chimneys) erected high into the air, with lots of smoke and fumes coming out of it. Waste incinerators, manufacturing industries and power plants emit high levels of carbon monoxide, organic compounds, and chemicals into the air. This happens almost everywhere that people live. Petroleum refineries also release lots of hydrocarbons into the air. After the industrial age, transportation has become a key part of our lives. Cars and heavy duty trucks, trains, shipping vessels and airplanes are all burn lots of fossil fuels to work. Emissions from automobile engines contain both primary and secondary pollutants. This is a major cause of pollution, and one that is very difficult to manage. This is because humans rely heavily on vehicles and engines for transporting people, good and services.

Fumes from car exhausts contain dangerous gases such as carbon monoxide, oxides of nitrogen, hydrocarbons and particulates. On their own, they cause great harm to people who breathe them. Additionally, they react with environmental gases to create further toxic gases. Crop dusting, fumigating homes, household cleaning products or painting supplies, over the counter insect/pest killers, fertilizer dust emit harmful chemicals into the air and cause pollution. The major impacts of the air pollution are;

Acidification:

Chemical reactions involving air pollutants can create acidic compounds which can cause harm to vegetation and buildings. Sometimes, when an air pollutant, such as sulfuric acid combines with the water droplets that make up clouds, the water droplets become acidic, forming acid rain. When acid rain falls over an area, it can kill trees and harm animals, fish, and other wildlife. Acid rain destroys the leaves of plants. When acid rain infiltrates into soils, it changes the chemistry of the soil making it unfit for many living things that rely on soil as a habitat or for nutrition. Acid rain also changes the chemistry of the lakes and streams that the rainwater flows into, harming fish and other aquatic life.

Eutrophication:

Rain can carry and deposit the Nitrogen in some pollutants on rivers and soils. This will adversely affect the nutrients in the soil and water bodies. This can result in a large growth in lakes and water bodies, and make conditions for other living organism harmful.

Ground-level ozone:

Chemical reactions involving air pollutants create a poisonous gas ozone (O₃). Gas Ozone can affect people's health and can damage vegetation types and some animal life too.

Particulate

matter:

Air pollutants can be in the form of particulate matter which can be very harmful to our health. The level of effect usually depends on the length of time of exposure, as well the kind and concentration of chemicals and particles exposed to. Short-term effects include irritation to the eyes, nose and throat, and upper respiratory infections such as bronchitis and pneumonia. Others include headaches, nausea, and allergic reactions. Short-term air pollution can aggravate the medical conditions of individuals with asthma and emphysema. Long-term health effects can include chronic respiratory disease, [lung cancer](#), heart disease, and even damage to the brain, nerves, liver, or kidneys. Continual exposure to air pollution affects the lungs of growing children and may aggravate or complicate medical conditions in the elderly.

ISSUES PERTAINING TO SOIL

The basis of agriculture is soil. All crops for human food and animal food depend upon it. Soil is the recipient of enormous quantities of man-made waste products. In proximities of cities, it is regarded as future recipient of sludge and other products from new waste treatment plants. Polluted water also causes soil pollution. Soil pollution is usually a consequence of insanitary habits. Various agricultural practices and incorrect methods of disposal of solid and liquid wastes

but can also result from fallout from atmospheric pollution. Soil pollution is associated with (a) the use of chemicals, such as fertilizers and growth resulting agents in agriculture. (b) Dumping on land of large masses of waste materials from the mining of coal and minerals and the smelting of metals. Toxic and harmful substances can be leached out of such materials and enter the soil. (c) the dumping on land of domestic refuse and solid resulting from the treatment of sewage and industrial wastes.

Sources of pollution can be divided basically into two groups: natural and cultural. The sources can be further classified as either (i) point or (ii) non-point or diffuse source of pollution. The major point sources include effluent from industrial and sewage plants, and effluent from farm buildings. Pollution from diffuse sources can be related to weathering of minerals, erosion of virgin lands and forests.

ISSUES PERTAINING TO SOLID WASTE

Solid waste can be classified into different types depending on their source. Municipal solid waste is not collected at all. 70% of the Indian cities lack adequate capacity to transport it and there are no sanitary landfills to dispose of the waste. The existing landfills are neither well equipped nor well managed and are not lined properly to protect against contamination of soil and groundwater. (a) Household waste that is normally termed as municipal solid waste. This type of waste mostly consists of household waste, sanitation waste, waste from streets, and demolition waste from construction work. (b) Industrial waste which in majority of cases is termed as a Hazardous waste. This type of waste is a waste that is quite dangerous as they consist of toxic substances that are of chemical nature. This type of waste is highly dangerous to human, plants, animals and the overall environment. (C) Hospital waste or biomedical waste that quiet infectious. It is generated from hospitals, clinics, research centers and health care centers. This type of waste is most infectious and can spread diseases and other types of viral and bacterial infections among humans and animals.

ISSUES PERTAINING TO SANITATION

Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage wastewater. Hazards can be physical, microbiological, biological or chemical agent of disease. Sanitation generally refers to the provisions of facilities and services for the safe disposal of human urine. Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities. The world sanitation also refers to the maintenance of hygienic conditions, through services such as garbage collection and waste water disposal. The sanitation technology in urban areas is the collection of waste water in rivers; its treatment is wastewater treatment plant for reuse or disposal in rivers, lakes or the sea. The poor sanitation lead to many diseases such as trachoma and soil transmitted Helminthiases, diarrhea. Children suffering for diarrhea are more vulnerable to become underweight. Sanitation is a serious issue that is affecting most parts of the world especially the developing countries. On the global scale, the most affected are children who in most cases lose their line due to diseases caused by poor sanitation.

In many suburban and rural areas households are not connected to sewers. They discharge their water waste into septic tanks or other type of on-site sanitation. On-site systems include drain fields which require significant area of land. The reuse of untreated waste water in irrigated agriculture is common in developing countries. Ecological sanitation is sometimes presented as a radical alternative to conventional sanitation systems. Ecological sanitation is based on composting or vermin composting toilets where an extra separation of urine and feces at the source for sanitation and recycling has been done. The importance of the isolation of waste lies in an effort to prevent diseases which can be transmitted through human waste, which afflict both developed countries as well as developing countries to differing degrees. It is estimated that up to 5 million people die each year from preventable water-borne diseases; as result of inadequate sanitation and hygiene practices.

TECHNOLOGICAL WASTE

Industrial wastes, Electronic waste, e-waste, e-scrap or electronic-disposal, waste electrical and electronic equipment describes discarded electrical or electronic devices. Informal processing of electronic waste in developing countries may cause serious health and pollution problems, though these countries are also most likely to reuse and repair electronics. Electronic waste may be defined as discarded computers, office electronic equipment, entertainment device, electronic mobile phones, television sets and refrigerator. Rapid changes in technology changes in media, falling prices and planned obsolescence have resulted in a fast-growing surplus of electronic waste around the globe. Technical solutions are available but in most cases a legal framework; a collection logistic and other services need to be implemented before a technical solution can be applied. An estimated 50 million tons of E-waste are produced each year. The USA discards 30 million computers each year and 100 million phones are disposed of in Europe each year. The environmental protection agency estimates that only 15-20% of e-waste is recycled and rest of the technological wastes go directly into landfills and incinerators. The process of dismantling and disposing of electronic waste in the third world lead to a number of environmental impacts as illustrated in the graphic liquid and atmospheric releases and up in bodies of water, ground water, soil and air and therefore in land and sea animals both domesticated and wild in crops eaten by both animals and human and in drinking water.

IMPORTING WASTE

Importing waste means that wastes like household waste, solid waste and technological wastes are importing to India from other developed countries. These wastes are harmful to our environment and health. Especially the technological waste contains toxic and other harmful components. International waste shipments (IWS) also known as trans frontier shipments of waste are movements of waste between countries. Waste shipment control classified the waste into two main classes that are; Green list waste and Notifiable waste. Green list waste which can be imported without prior authorization from the regulatory authority. Green list waste is considered a low risk to the environment. Notifiable waste which needs authorization from the regulatory authority before it can be imported or exported. It is considered hazardous or harmful to the environment. The major green list waste for disposal is incineration without energy generation, landfill and

permanent storage of waste. While the world is marching at the technological revolution; countries like India are facing a forthcoming danger, technological waste of developed countries. Such as US disposes their waste to India and other Asian countries. The major reasons for importing of waste are cheap labour and lack of environmental standard in Asia. European community regulation is on shipments of waste 1013/2006. European legislation is that provides the framework for control on importing waste.

Hazardous wastes are sometimes shipped to or from other countries for treatment, disposal, or recycling. The vast majority of this waste trade occurs with Canada and Mexico, but the US also engages in hazardous waste trade with other countries. Importers and exporters of hazardous wastes must comply with applicable domestic laws and regulations, which include regulations under the Resource Conservation and Recovery Act (RCRA).

EXPORTING WASTE

The last few decades have seen a phenomenal increase in the development and use of electronic and all technological goods, of course with this comes an equally sensational increase in electronic waste (e-waste). The disposal of this e-waste has become a major global problem and it hasn't happened overnight. In the late 1980's the world was outraged to learn of 'toxic traders', organisations that were shipping hazardous waste to developing countries where recycling methods were unsafe and unregulated. It was off the back of this revelation that the Basel Convention (an international treaty designed to reduce the movements of hazardous waste) was drafted and adopted. Despite over 150 countries ratifying the Basel Convention, exporting e-waste to unregulated recycling centers in developing countries is still a major issue worldwide. Last year, the Basel Action Network and the Silicon Valley Toxics Coalition released the alarming report *Exporting Harm: The Techno-Trashing of Asia*. The report found that 50 to 80% of e-waste collected for recycling in the United States is exported to developing nations such as China, India and Pakistan, where the environment is being polluted and local men, women and children are being exposed to toxins.

THE ROLE OF MULTI NATIONALS

Multinational corporations can provide developing countries with critical financial infrastructure for economic and social development. However, these institutions may also bring with them relaxed codes of ethical conduct that serve to exploit the neediness of developing nations, rather than to provide the critical support necessary for countrywide economic and social development.

When a multinational invests in a host country, the scale of the investment (given the size of the firms) is likely to be significant. The possible disadvantages of a multinational investing in a country may include: **Environmental impact** - multinationals will want to produce in ways that are as efficient and as cheap as possible and this may not always be the best environmental practice. They will often lobby governments hard to try to ensure that they can benefit from regulations being as lax as possible and given their economic importance to the host country, this lobbying will often be quite effective. **Access to natural resources** - multinationals will sometimes invest in

countries just to get access to a plentiful supply of raw materials and host nations are often more concerned about the short-term economic benefits than the long-term costs to their country in terms of the depletion of natural resources. **Uncertainty** - multinational firms are increasingly 'footloose'. This means that they can move and change at very short notice and often will. This creates uncertainty for the host country. **Increased competition** - the impact the local industries can be severe, because the presence of newly arrived multinationals increases the competition in the economy and because multinationals should be able to produce at a lower cost. **Crowding out** - if overseas firms borrow in the domestic economy this may reduce access to funds and increase interest rates. **Health and safety** - multinationals have been accused of cutting corners on health and safety in countries where regulation and laws are not as rigorous. **Cultural and social impact** - large numbers of foreign businesses can dilute local customs and traditional cultures. For example, the sociologist George Ritzer coined the term *McDonaldization* to describe the process by which more and more sectors of American society as well as of the rest of the world take on the characteristics of a fast-food restaurant, such as increasing standardisation and the movement away from traditional business approaches.

GLOBAL WARMING

The term "global warming" refers to the increase in the average temperature of global surface air and oceans since about 1950, and to continuing increases in those temperatures. That is, Global Warming is the increase of Earth's average surface temperature due to effect of greenhouse gases, such as carbon dioxide emissions from burning fossil fuels or from deforestation, which trap heat that would otherwise escape from Earth. This is a type of *greenhouse effect*.

Earth's climate is mostly influenced by the first 6 miles or so of the atmosphere which contains most of the matter making up the atmosphere. Global warming is primarily a problem of too much carbon dioxide (CO₂) in the atmosphere—which acts as a blanket, trapping heat and warming the planet. As we burn fossil fuels like coal, oil and natural gas for energy or cut down and burn forests to create pastures and plantations, carbon accumulates and overloads our atmosphere. Certain waste management and agricultural practices aggravate the problem by releasing other potent global warming gases, such as methane and nitrous oxide. Carbon dioxide and other air pollution that is collecting in the atmosphere like a thickening blanket, trapping the sun's heat and causing the planet to warm up.

Over the last century, global average temperature has increased by more than 1°F (0.7°C). The 2001-2010 decade is the warmest since 1880—the earliest year for which comprehensive global temperature records were available. In fact, nine of the warmest years on record have occurred in just the last 10 years. This warming has been accompanied by a decrease in very cold days and nights and an increase in extremely hot days and warm nights. The continental United States, has seen record daily highs twice as often as record daily lows from 2000 to 2009. Of course, land and ocean temperature is only one way to measure the effects of climate change. A warming world also has the potential to change rainfall and snow patterns, increase droughts and severe storms, reduce lake ice cover, melt glaciers, increase sea levels, and change plant and animal behavior.

CLIMATE CHANGE

Climate change is a reality. Today, our world is hotter than it has been in two thousand years. By the end of the century, if current trends continue, the global temperature will likely climb higher than at any time in the past two million years. Climate change is the single biggest environmental and humanitarian crisis of our time. The Earth's atmosphere is overloaded with heat-trapping carbon dioxide, which threatens large-scale disruptions in climate with disastrous consequences. We must act now to spur the adoption of cleaner energy sources at home and abroad. Climate change is one of the most serious public health threats facing the nation, but few people are aware of how it can affect them. Children, the elderly, and communities living in poverty are the most vulnerable. Explore our interactive maps to see climate-health threats in your state, actions that are being taken to prepare communities from climate change's serious health threats, and what you can do about them.

Climate change will have a significant impact on the sustainability of water supplies in the coming decades. Climate change is changing our economy, health and communities in diverse ways. Scientists warn that if we do not aggressively curb climate change now, the results will likely be disastrous. Carbon dioxide and other global warming pollutants are collecting in the atmosphere like a thickening blanket, trapping the sun's heat and causing the planet to warm up.

[Climate change is a complex phenomenon](#), and its full-scale impacts are hard to predict far in advance. But each year scientists learn more about how climate change is affecting the planet and our communities, and most agree that [certain consequences are likely to occur if current trends continue](#). In addition to [impacting our water resources, energy supply, transportation, agriculture, and ecosystems](#), the United States Global Change Research Program concludes that climate change also poses unique challenges to human health, such as:

- Significant increases in the risk of illness and death related to extreme heat and heat waves are very likely.
- Some diseases transmitted by food, water, and insects are likely to increase.
- Certain groups, including children, the elderly, and the poor, are most vulnerable to a range of climate-related health effects.

Technologies exist today to make cars that run cleaner and burn less gas, modernize power plants and generate electricity from nonpolluting sources, and cut our electricity use through energy efficiency.

MODULE IV

ENVIRONMENT AND DEVELOPMENT

Deforestation

The term *deforestation* is often misused to describe any activity where all trees in an area are removed. Deforestation occurs for many reasons: trees are cut down to be used or sold as fuel (sometimes in the form of [charcoal](#)) or timber, while cleared land is used as [pasture](#) for livestock, plantations of commodities and settlements. The removal of trees without sufficient [reforestation](#) has resulted in damage to [habitat](#), [biodiversity](#) loss and [aridity](#). It has adverse impacts on [bio sequestration](#) of atmospheric [carbon dioxide](#). Efforts to stop or slow deforestation have been attempted for many centuries because it has long been known that deforestation can cause environmental damage sufficient in some cases to cause societies to collapse. The term is used today to refer to the destruction of forests by human beings and their replacement by agricultural systems. Deforestation is clearing Earth's forests on a massive scale, often resulting in damage to the quality of the land. Forests are cut down for many reasons, but most of them are related to money or to people's need to provide for their families. Deforestation has also been used in [war](#) to deprive an enemy of cover for its forces and also vital resources. Deforested regions typically incur significant adverse [soil erosion](#) and frequently degrade into [wasteland](#).

The biggest driver of deforestation is agriculture. Farmers cut forests to provide more room for planting crops or grazing livestock. Often many small farmers will each clear a few acres to feed their families by cutting down trees and burning them in a process known as "slash and burn" agriculture. Not all deforestation is intentional. Some is caused by a combination of human and natural factors like wildfires and subsequent overgrazing, which may prevent the growth of young trees.

Deforestation has many negative effects on the environment. The most dramatic impact is a loss of habitat for millions of species. Seventy percent of Earth's land animals and plants live in forests, and many cannot survive the deforestation that destroys their homes. Deforestation also drives climate change. Forest soils are moist, but without protection from sun-blocking tree cover they quickly dry out. Trees also help perpetuate the water cycle by returning water vapor back into the atmosphere. Without trees to fill these roles, many former forest lands can quickly become barren deserts.

Removing trees deprives the forest of portions of its canopy, which blocks the sun's rays during the day and holds in heat at night. This disruption leads to more extreme temperatures swings that can be harmful to plants and animals. Trees also play a critical role in absorbing the greenhouse gases that fuel global warming. Fewer forests means larger amounts of greenhouse gases entering the atmosphere—and increased speed and severity of global warming. The quickest solution to deforestation would be to simply stop cutting down trees. Though deforestation rates have slowed a bit in recent years, financial realities make this unlikely to occur.

A more workable solution is to carefully manage forest resources by eliminating clear-cutting to make sure that forest environments remain intact. The cutting that does occur should be balanced by the planting of enough young trees to replace the older ones felled in any given forest. The number of new tree plantations is growing each year, but their total still equals a tiny fraction of the Earth's forested land. Deforestation causes [extinction](#), changes to climatic conditions, [desertification](#), and displacement of populations as observed by current conditions and in the past through the fossil record. According to the United Nations Framework Convention on Climate Change (UNFCCC) secretariat, the overwhelming direct cause of deforestation is agriculture. [Subsistence farming](#) is responsible for 48% of deforestation; [commercial agriculture](#) is responsible for 32% of deforestation; [logging](#) is responsible for 14% of deforestation and fuel wood removals make up 5% of deforestation. Experts do not agree on whether industrial logging is an important contributor to global deforestation. Some argue that poor people are more likely to clear forest because they have no alternatives, others that the poor lack the ability to pay for the materials and labour needed to clear forest. One study found that population increases due to high fertility rates were a primary driver of tropical deforestation in only 8% of cases. Other causes of contemporary deforestation may include [corruption](#) of government institutions, the [inequitable](#) distribution of wealth and power, [population growth](#) and [overpopulation](#), and [urbanization](#). [Globalization](#) is often viewed as another root cause of deforestation, though there are cases in which the impacts of globalization (new flows of labor, capital, commodities, and ideas) have promoted localized forest recovery. Deforestation can result from "a combination of population pressure and stagnating economic, social and technological conditions." Deforestation is ongoing and is shaping [climate](#) and [geography](#). Deforestation is a contributor to [global warming](#), and is often cited as one of the major causes of the enhanced [greenhouse effect](#). Tropical deforestation is responsible for approximately 20% of world greenhouse gas emissions. According to the [Intergovernmental Panel on Climate Change](#) deforestation, mainly in tropical areas, could account for up to one-third of total [anthropogenic carbon dioxide](#) emissions. But recent calculations suggest that carbon dioxide emissions from deforestation and forest degradation (excluding [peatland](#) emissions) contribute about 12% of total anthropogenic carbon dioxide emissions with a range from 6 to 17%. Deforestation causes carbon dioxide to linger in the atmosphere. As carbon dioxide accrues, it produces a layer in the atmosphere that traps radiation from the sun. The radiation converts to heat which causes global warming, which is better known as the greenhouse effect. Plants remove [carbon](#) in the form of [carbon dioxide](#) from the [atmosphere](#) during the process of [photosynthesis](#), but release some carbon dioxide back into the atmosphere during normal respiration. Only when actively growing can a tree or forest remove carbon, by storing it in plant tissues. Deforestation may also cause carbon stores held in soil to be released. Forests can be either sinks or sources depending upon environmental circumstances. In deforested areas, the land heats up faster and reach a higher temperature, leading to localized upward motions that enhance the formation of clouds and ultimately produce more rainfall. However, according to the Geophysical Fluid Dynamics Laboratory, the models used to investigate remote responses to tropical deforestation showed a broad but mild temperature increase all through the tropical atmosphere.

The water cycle is also affected by deforestation. Trees extract groundwater through their roots and release it into the atmosphere. When part of a forest is removed, the trees no longer transpire this

water, resulting in a much drier climate. Deforestation reduces the content of water in the soil and groundwater as well as atmospheric moisture. The dry soil leads to lower water intake for the trees to extract. Deforestation reduces soil cohesion, so that [erosion](#), flooding and [landslides](#) ensue.

Shrinking forest cover lessens the landscape's capacity to intercept, retain and [transpire](#) precipitation. Instead of trapping precipitation, which then percolates to groundwater systems, deforested areas become sources of surface water runoff, which moves much faster than subsurface flows. That quicker transport of surface water can translate into [flash flooding](#) and more localized floods than would occur with the forest cover. Deforestation also contributes to decreased [evapotranspiration](#), which lessens atmospheric moisture which in some cases affects precipitation levels downwind from the deforested area, as water is not recycled to downwind forests, but is lost in runoff and returns directly to the oceans.

Deforestation generally increases rates of soil [erosion](#), by increasing the amount of [runoff](#) and reducing the protection of the soil from tree litter. This can be an advantage in excessively leached tropical rain forest soils.

Deforestation on a human scale results in decline in biodiversity, and on a natural global scale is known to cause the extinction of many species. The removal or destruction of areas of forest cover has resulted in a degraded environment with reduced [biodiversity](#). Forests support biodiversity, providing habitat for [wildlife](#); moreover, forests foster [medicinal conservation](#). With forest biotopes being irreplaceable source of new drugs (such as [taxol](#)), deforestation can destroy [genetic](#) variations (such as crop resistance) irretrievably. Rapidly growing economies also have an effect on deforestation. Then deforestation rates accelerate (HFHD, high forest cover – high deforestation rate), and forest cover is reduced (LFHD, low forest cover – high deforestation rate), before the deforestation rate slows (LFLD, low forest cover – low deforestation rate), after which forest cover stabilizes and eventually starts recovering.

Global deforestation sharply accelerated around 1852. There are multiple methods that are appropriate and reliable for reducing and monitoring deforestation. One method is the “visual interpretation of aerial photos or satellite imagery that is labor-intensive but does not require high-level training in computer image processing or extensive computational resources”. Deforestation is typically assessed by quantifying the amount of area deforested, measured at the present time. From an environmental point of view, quantifying the damage and its possible consequences is a more important task, while conservation efforts are more focused on forested land protection and development of land-use alternatives to avoid continued deforestation. Deforestation rate and total area deforested have been widely used for monitoring deforestation in many regions, including the Brazilian Amazon deforestation monitoring by INPE. Monitoring deforestation is a very complicated process, which becomes even more complicated with the increasing needs for resources.

CONSTRUCTION OF DAMS

The chariot of development is crushing millions of people under its heavy wheels; millions of small farmers, landless labourers are growingly becoming the victims of pauperization, millions

becoming homeless with their lands being taken away for constructing big dams. Large dams are no more revered unthinkingly as the temples of India's progress. Their destructive consequences are not being increasingly recognized. Even bigger and bigger investments are being made in them. All major rivers today are dammed in the process. This indicates that in the next two or three decades, dam construction is going to be a major development activity.

Construction of dams in India is not a new phenomenon, nor is scientific irrigation. The pages of history reveal that the major irrigation projects were started way back in 1700 with the jaismand tank near Udaipur in Rajasthan. Large dams were considered as technological innovations in modern era with twin objectives;

1. As a measure to control devastating flood.
2. To arrest runoff water going unnecessarily to sea.

CLEAR POLICY

The government will have to make up its mind on what its policy towards big dams should be if it does not want to confirm the impression that it is ruling in different directions. This is not a matter of public relations but hard economics. The two-fold benefits of big dams can be subjected to scrutiny. Take power, which may have camouflage the fact that electricity is not quite the general good that it is made out to be given its present use. Two-thirds of it is consumed by industry since independence on one count employment its record is abysmal. Whatever the other benefits of technological advances, increased employment is certainly not one of them. The opponents of big dams are also often barking up the wrong tree. It is the entire development process that is being debated, not just a big versus small slanging match.

Chipko movement leader Chandi Prasad Bhatt has started a campaign against the vishnuprayag hydroelectric project because of the dangers it poses the unique ecosystem of the valley of flowers and the general geographical havoc it could create. Chipko movement is capable of mobilizing strong support among the local population through a section of the workers who have found jobs on the project oppose the campaign. Another instance of intervention at the highest levels resulting of a large dams is Lalpur in Gujarat. It raised two issues- destruction of forests and displacement of tribals. Large dams are generally being constructed in areas which have so far not touched by modern development. Many people in these areas look at such projects as symbols of hope. They even accept the argument that someone has to pay the cost for the benefits to society, even if they are the ones who have to pay. As things are today, people are not likely to oppose dams construction. But they are definitely getting ready to agitate for better rehabilitation terms.

A comprehensive rehabilitation policy can be spelt out only when development is understood as a process which benefits the people. The major objectives of the rehabilitation programme are that the people displaced should get an appropriate share in the fruits of development. They should be rehabilitated by creating new settlements with their own environment. Removal of poverty should also be an objective of the rehabilitation policy and therefore some land to all. Tribal should develop along the lines of their own genius and we should avoid imposing anything on them. Resettlement should be in the neighbourhood of their own environment.

EXTINCTION OF SPECIES

In biology and ecology extinction is the end of an organism or of a group of organisms (taxon) normally a species. The moment of extinction is generally considered to be the death of the last individual of the species, although the capacity to breed and recover may have been lost before this point. Though evolution new species arise through the process of speciation where new varieties of organisms arise and thrive when they are able to find and exploit an ecological niche and species become extinct when they are no longer able to survive in changing conditions or against superior competition. A typical species become extinct within 10 million years of its first appearance. Most extinctions have occurred naturally prior to homo sapiens walking on Earth. It is estimated that 99.9% of all species that have ever existed are now extinct. Pinpointing the extinction of a species requires a clear definition of that species. If it is to be declared extinct, the species in question must be uniquely identifiable from any ancestor or daughter species, or from other closely related species. In ecology extinction is often used informally to refer to local extinction in which a species ceases to exist in the chosen area of study but still exists else-where. This phenomenon is also known as extirpation. Local extinction may be replaced by a replacement of the species taken from other locations.

Although every species has their own importance to the functionality of an ecosystem, some species are more vulnerable to extinction than others. These include:

1. Species at the top of food chains.
2. Endemic local species with a very limited distribution
3. Species with chronically small population
4. Migratory species
5. Species with exceptionally complex life cycles

Natural causes of Extinction

1. Hunting and Fishing
2. Pollution
3. Diseases

EXPLOITATION OF NATURAL RESOURCES

The modern economy is resource based economy and the development of a country or a region is based on its resources, especially natural resources. Nature has given us abundant resources in the form of water, air, heat, natural vegetation, soil, wild animals, metals, fossil fuel etc.,. Man by his technical skill and knowledge is using all these resources in some way or the other from the dawn of civilization. The Earth's natural resources are vital to the survival and

development of the human population. However, these resources are limited by the Earth's capability to renew them. Freshwater, forests and harvesting products are renewable, provided that exploitation does not exceed regeneration. Fossil fuels and metal ores are non-renewable. Although many effects of overexploitation are felt locally, the growing interdependence of nations, and international trade in natural resources, make their demand and sustainable management a global issue. Any element of our natural environment such as soil, water, forest, wildlife, minerals, that man can utilize to promote his welfare, may be identified as a natural resources. It can be classified into two categories; inexhaustible and exhaustible.

RENEWABLE RESOURCES: Food, water, forests and wildlife are all renewable resources. For resource use to be sustainable, the consumption rate should be maintained within the capacity of the natural systems to regenerate themselves. Current rates of depletion of the Earth's stocks of renewable resources and levels of pressure imposed on their regenerative capacity by means of production and consumption might already be, in some cases, beyond this threshold.

NON-RENEWABLE RESOURCES : Minerals, oil, gas and coal are non-renewable resources: their use as materials and energy sources leads to depletion of the Earth's reserves. However, the time period during which reserves can be available can be extended by recycling or improving the efficiency of use. Eventually, limitations to the extent to which more efficient processes may expand the use of non-renewable resources stocks will be reached, requiring substitution with renewable resources and restrictions on the volume of activities that can be sustained by existing stocks.

BIO-DIVERSITY CONSERVATION

Biodiversity is used to describe the variations of life forms in ecosystems, biomes or on the Earth. It can be used to measure health of biological systems. The continued health of human societies depends upon a natural environment that is productive and contains a wide diversity of plant, animal, and microbe species. Life on the earth comprises at least 10 million species of plants, animals. Biodiversity is the variety of species of plants and animals that live in a particular area (ecosystem) or the entire Earth. The higher the number of species, the more diverse the ecosystem is. Biodiversity, or biological diversity, is the variety of all species on earth. It is the different plants, animals and micro-organisms, their genes, and the terrestrial, marine and freshwater ecosystems of which they are a part. Biodiversity is both essential for our existence and intrinsically valuable in its own right. This is because biodiversity provides the fundamental building blocks for the many goods and services a healthy environment provides. These include things that are fundamental to our health, like clean air, fresh water and food products, as well as the many other products such as timber and fiber.

Other important services provided by our biodiversity include recreational, cultural and spiritual nourishment that maintain our personal and social wellbeing. Looking after our biodiversity is therefore an important task for all people. The main threats to our biodiversity are:

- loss, fragmentation and degradation of habitat
- the spread of invasive species
- unsustainable use of natural resources
- climate change
- inappropriate fire regimes
- changes to the aquatic environment and water flows

Biodiversity is the incredible, dizzying variety of life that surrounds us, including all of the earth's plants, animals, their habitats, and the natural processes that they are a part of. It has become clear that biodiversity is the cornerstone of our existence on Earth. It is also important to conserve biodiversity for the sake of our own curiosity and aesthetic appreciation. Medicines originating from wild species, including penicillin, aspirin, taxol, and quinine, have saved millions of lives and alleviated tremendous suffering. 40% of all prescriptions are for medicines that originated from plants and animals. No one knows how many more cures await discovery, hidden in Earth's poorly studied species. There are 80,000 species of edible plants known on Earth, but 90% of the world's food comes from a mere 20 of these species. Edible plant species, both those we know of and those we don't, offer a tremendous resource of possibilities that could greatly add to the security of our food. Breeding cultivars with their wild counterparts can also confer resistance to diseases and increase crop yield.

Biodiversity is the life support system of our planet- we depend on it for the air we breathe, the food we eat, and the water we drink. Wetlands filter pollutants from water, trees and plants reduce global warming by absorbing carbon, and bacteria and fungi break down organic material and fertilize the soil. It has been empirically shown that native species richness is linked to the health of ecosystems, as is the quality of life for humans. The connections between biodiversity and our sustainable future appear closer and closer the more we look. We literally need to conserve biodiversity like our lives depend on it. Life on Earth faces a crisis of historical and planetary proportions. Unsustainable consumption in many northern countries and crushing poverty in the tropics are destroying wild nature. Biodiversity is besieged. Extinction is the gravest aspect of the biodiversity crisis: it is irreversible. While extinction is a natural process, human impacts have elevated the rate of extinction by at least a thousand, possibly several thousand, times the natural rate. Mass extinctions of this magnitude have only occurred five times in the history of our planet; the last brought the end of the dinosaur age.

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