

**Perspectives on Environment and their Implications for
Health and Environment in India**

Dissertation submitted to the Jawaharlal Nehru University
in partial fulfilment of the requirements
for the award of the Degree of
MASTER OF PHILOSOPHY

GUNJAN CHATURVEDI

CENTRE FOR SOCIAL MEDICINE AND COMMUNITY HEALTH
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI-110067, INDIA

1991

TO

CHACHA & YOU.



CENTRE OF SOCIAL MEDICINE & COMMUNITY HEALTH
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY


New Delhi-110067

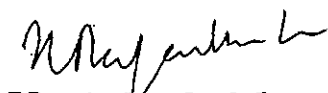
15th July, 1991

DECLARATION

Certified that the dissertation entitled
"PERSPECTIVES ON ENVIRONMENT AND THEIR IMPLICATIONS
FOR HEALTH AND ENVIRONMENT IN INDIA", submitted by
GUNJAN CHATURVEDI, in partial fulfilment of the
requirements for the award of the degree of MASTER
OF PHILOSOPHY, has not been previously submitted for
any other degree of this or any other University and is
her own work.

We recommend that this dissertation may be
placed before the examiners for evaluation and
consideration.


DR. S.K. SAHU
(Chairperson)


DR. K.R. NAYAR
(Supervisor)

C O N T E N T S

	<u>Pages</u>
ACKNOWLEDGEMENTS	1
INTRODUCTION	1 - 8
CHAPTER 1 : DEVELOPMENT AND ENVIRONMENT: EMERGING TRENDS	9 -27
CHAPTER 2 : INTERNATIONAL WORLD VIEWS ON ENVIRONMENT	28 -53
CHAPTER 3 : ENVIRONMENTAL POLICY - PRIORITIES AND OPTIONS, A CRITICAL APPRAISAL	54-75
CHAPTER 4 : ISSUES IN HEALTH AND ENVIRONMENT - CURRENT STUDIES AND RESEARCH SUPPORT	76 -97
SUMMARY AND CONCLUSIONS	98 -105
BIBLIOGRAPHY	106 -118

A C K N O W L E D G E M E N T S

First of all, I would like to thank my teacher and supervisor Dr. K.R. Nayar for his guidance, encouragement and suggestions, which were of invaluable help in putting together this work. I also extend my gratitude to the faculty members, who provided me with necessary support and help time to time, without whom such an academic orientation was not possible.

My thanks to the Librarians and staff of the Jawaharlal Nehru University especially to the staff of the Centre for Social Medicine & Community Health. The Center's Librarian Mrs. Rastogi also deserves my thanks for her help and cooperation.

At a personal level, I would thank my father and family for being a constant source of inspiration and encouragement. My special gratitude goes to Anjan, who with his presence made these hectic moments feel lighter. Lastly, my thanks to my friends Archana and Mamta for being so nice.

NEW DELHI

18th July, 1991.

Gunjan Chaturvedi
GUNJAN CHATURVEDI

INTRODUCTION

Environmentalism as a concept has much broader implications, than what is usually understood by the term. Its changing character needs to be examined, together with an analysis how it is likely to influence public policy across a broad front. Another point of discussion which is important to be taken into account is the type of politics that emerges within the new environmentalism. The overriding global issues regarding environment focus sharply on the interconnections between poverty and environmental degradation in the underdeveloped countries. The connections also highlight the relationship between ecology and the socio-political factors, which play an important role in determining the choice of technologies.

At the turn of the century followed by the "great depression of 1920s, an environmental revolution came into being. Nature, at this point was considered to be a malleable substance capable of being transformed into economic and aesthetic wealth. Hence, there was a romantic bias attached to nature which was taken as nothing more than alternating landscapes.

More improved viewpoints regarding nature led to the emergence of ecological management. In so doing, the focus was placed mainly on regulated environmental damage

and resource depletion in the interest of capitalist enterprise. In the mid 1960's, during a period of rapid economic growth, the environmental concerns captured the world wide attention. During this period institutions of building, regulation and rise of politically articulate and legally active pressure groups came into being. The environmental ideas became institutionalised and were swallowed in interest group lobbying and political indecisions.

Environmentalism has become an unavoidable irritant to many commercial policy makers. The 'great game' of environmentalism, ensured that the environmental concerns are commercially viable and they improved managerial competence.

All over the world, there has been a growing concern regarding all ecological issues. Generally, it is taken that we are slowly progressing towards an unbearable situation or a point of no return. These problems as identified by several authors as problems relating to the rapid urbanisation; industrialisation, hazardous substances and pollutants and waste disposal etc. Population of the Ozone layer in the atmosphere is coming up as another burning issue in the environmental debate.

The major issues, that have been taken up in this analysis deal with the historical growth of economic patterns overtime. It also revolves around the emerging trends in the environmental thinking both at the global and local levels. The contribution of these worldviews to policy making has been discussed in the analysis.

In the course of development of the theoretical frameworks to understand environmentalism and to make it wider in scope, the role of science and technology as a means of social control has been taken into account. An analysis of the conflicting ideologies relating to the pressure and interest of power groups by the functionalists and pluralists have been taken up.

Generally the trends in the environmental debate have revolved around the growth and development components of demography. To make the discussion much wider in scope, it is important to include social structure and resource availability as the key factors of the total developmental process.

In India ecological concerns form a part of the development process. Talking in terms of ecological imbalances and disequilibrium, its important to understand the dynamic processes involved in the man-nature relationships. The transition from natural economies to more

widespread "commodification" of nature is an important point of analysis.

At the level of policy making, a set of guidelines are used which define the linkages within the ecosphere. It is seen as an outcome of various interacting variables. Population growth, distribution of resources and resource consumption and the choice of technology can be understood in terms of basic institutional arrangements and structural foundations of the society. Priorities are to be set to define our point of departure, keeping in mind, the inherent class structure of the society.

Policy making in India can be seen as a reflection of such international developments. Issues like pollution control, wildlife conservation, eco-development, environmental education and biosphere reserve programmes reflect the inherent bias in the policy decisions. Such priorities have failed to take into account the existing social realities, where the ecological problems are to be seen in terms of provision of basic needs.

Environment to a large extent is a product of a particular kind of production process. It is established, as Rene Dubos says, that health and disease are influenced by life situations. The solutions given to these problems are not to be simplistic in nature but, should take into account the socio-cultural determinants of disease in a society. It is to be noted here, that changing the

environment is a political problem hence, it is to be dealt with at a higher political level.

The major issues relating to health and environment revolve around the impact of concerns relating to environmental problems. It is important to find out interlinkages between environmental conditions and health. Satisfaction of basic needs and achieving self-reliance are issues in environmental balance and health. But it is a glaring fact that health and environmental balance are rooted in the fundamental issues like class relationships in the countries themselves and the imbalance in the world economic order.

Development activity in India has proceeded on a resource - intensive path. To a certain extent it has disrupted ecological stability of life support systems due to the excessive resource demands. Such demands have created severe ecological instability, hence, several environmental groups have emerged. Such movements enable us to assess the impact of development process on natural resources and how the costs and benefits are distributed among different societal groups.

On the basis of these issues the major areas of study as taken up in this analysis have been classified in 4 major chapters.

The basic idea is to find out the change and growth of the various concepts of ecology at both international and national levels. The first chapter includes the role of technology, growth patterns, resource availability, land reforms etc. Since ecological concerns form a part of the total developmental process. The trends show direct linkages with the above mentioned areas and ecological imbalances. Here, the intensified inequalities and the economic, social and political factors behind such disparities are discussed. Role of the pressure groups is also elaborated.

Chapter two is related to the international worldviews on environment. A much wider chapter, it deals with the literature which highlights several emerging concepts in the environmental thinking. The viewpoints range from neo-classical economic models, sustainable development, eco-development concepts to more modern concepts of basic needs, quality of life and deep ecology. The impact of the socio-economic developments on the making of these concepts have also been discussed along with the political factors which play an important role in the development of particular ideological frameworks.

In the chapter three, the major area of analysis emphasizes on the studies done in the area of environment and health, environmental planning, health and housing etc.

It has been shown by this review that the areas of importance as taken up by these studies are technical factors in air and water pollution. Some of the studies are based on pollution and water contamination and also the working conditions, safety hazards etc. A very important trend as seen in these studies is, that to some extent they have pointed out at the key social factors which influence environmental surroundings. Though these studies sensitize us to the social and structural factors which determine our environment they have not been able to provide us with substantial solutions to these problems.

Chapter four, deals with the kind of policies and legislations the government has made regarding environmental issues. Here, the policy issues are discussed which take into account the rational choice paradigm and the implication of the political will in solving environmental problems. Such, policy issue are discussed and elaborated in terms of the priorities. The fundamentals of Indian planning has also been discussed, their relevance has been evaluated in this chapter. It is important to notice that the legislations and policies mainly look into the matters of protection and conservation of wildlife, setting up air and water pollution boards and laws relating to the waste disposal etc. The overall analysis of these laws and legislations shows that, they are laws just for the sake of laws which are not able to check the deteriorating ecological system.

The last chapter deals with the summary and conclusions based on the literature survey. This chapter gives an overview of the total discussion.

CHAPTER 1

DEVELOPMENT AND ENVIRONMENT: EMERGING TRENDS

Introduction:

Since the late 1960's there has been considerable discussion of development, both as a concept and in concrete historical settings. In exploring the relationship between development and the environment, one has to make a historical account of the social processes involved in choosing definite means which may oblige us to alter the ends themselves. The dangers implied in the means - end dichotomy are further accentuated by the very range of possible consequences of intended or unintended adoption of certain kinds of technologies. Specifically from the ecological point of view, the prime concerns revolve around whatever is taking place due to an increasing control over nature and the use of resources which lead to a particular form of production. This form of production reflects the ideologies behind the use of resources in a certain way and it has as its very basis certain commitments involved with the existing socio-economic order.

The environment is transformed by economic growth in a material sense but it is also continually transformed existentially. The understanding of environmental change as a social process has to be inextricably linked with the expansion and contraction of the economic system. Radcliff

(1984)¹ argued that political economy and environmentalism each stood to gain from sharing an analytical perspective. The environmental 'crisis' in the South was an outcome of an economic, structural crisis. At the same time it was argued that the political economy of development needed to incorporate environmental concerns in a more systematic way. Though political economy specifically relates the outcome of economic forces to the behaviour of social classes and the role of capitalist accumulation, yet, the concept of development needs to be redefined since it is impossible for accumulation to take place within the global economic system without unacceptable environmental costs. It is now widely accepted that while technical solutions to specific problems may either be available or potentially actualisable through research, the problems themselves have a systematic character necessitating for long-term solution, systemic transformations locally as well as globally. It follows that these radical, qualitative changes are required both in relationship to nature and its products - i.e., in production and production relations - and in values and attitude regarding nature i.e., ideology.²

1. Radcliff, M.R. (1984) Development and Environmental Crisis: Red or Green Alternatives? London, Methuen.

2. Raghunandan, D. (1987), Ecology and Consciousness, EPW, Vol. XXII, No.13, March 28, 1987.

The view of 'development' as taken in the developing social theory over time can be seen as a result of the total historical process which was partly an attempt to fill the void left by the development of economics on the one hand and the unsatisfactory eighteenth century legacy of biologically related social theory. The typical Marxian analysis emphasized on scarcity in Malthusian thought which focused on the increasing demographic pressures resulting in overuse of land and resources.³ The Marxist tradition emphasized the capacity of social action to transcend the individual and it emphasized that the Malthusian argument of the 'limits of nature' was propounded for ideological reasons - which justified them in the view that nothing could be done about poverty.

The application of Malthusian perspectives in the Third world has remained central to the analysis of environmental degradation. This view has been sharply criticised by the contemporary authors because of its lack of attention to the social and historical factors underlying the increasing demographic pressures on the resource base. This goes beyond the simplistic analysis which has been put forward in such writings.⁴

3. Radcliff, M. (1987), Sustainable Development: Exploring the Contradictions. LONDON METHUEN, pp. 7-8.

4. Hecht, Susanna B., Environment, Development and Politics: Capital Accumulation and Livestock Sector in Eastern Amazonia World Dev., Vol. 13, No.6, pp. 663, 1985.

The problem in much of the application of Malthusian framework is due to the strong correlation of population increase with poverty and environmental degradation but their weak powers to explain such phenomena. Thus, as a 'theory' Malthusian perspective merely seeks out generalized relations among various empirical objects and events themselves, and not abstractions about what produced them.

Another intellectual approach which has gained widespread intellectual support can be described as 'Neo-Malthusian', which rests on the Malthusian principle that population cannot exceed resources without natural disasters or disease which provide natural checks on population growth. Such a view when applied to reduce the mortality rates dramatically in many Third world countries, places great importance to the Malthusian edict. Hardin (1968) in his influential 'tragedy of the commons' argued that people are incapable of putting 'collective' interests before 'private' ones, hence, a pre-emptive even coercive action is needed to control population and conserve resources.⁵

Neo-Malthusian approach also meets objections from a geopolitical stand-point. Its emphasis on population and 'global' solutions looks suspiciously like an attempt to

5. Hardin, G. (1968), The tragedy of the Commons, Science 162, 1243-8.

evade the issue of the role of international economy in structural under development, which has much less interest in the fundamental restructuring of economies which could result in relieving many of the resource pressures experienced by societies in the South.

The 'limits to growth' discussion of the 1970's⁵ argued that the problem is not the balance between population and resource but the end to which resources are put in the pursuit of economic growth. It focuses on the goal of development which should be to meet the basic minimum needs of the population. At the same time the minimum environmental resources needed to achieve development were termed by the authors as 'Inner Limits'. The concept of 'Outer Limits' on the other hand, was used in a global context to suggest fragility of the major planetary life-supporting systems and processes. Hence, the outer limit was thought to be influenced by the resource availability and the way they are used.

Two major obstacles were identified by the approach in meeting the basic needs of the population at large -

- (1) a social system characterized by injustice privilege and maldistribution, and,

5. Meadows, D.H., Meadows D.L., Randers, J. and Behrens, W. (1972), The Limits to Growth, LONDON Pan.

- (ii) the ecological system whose productive potential is low, or which has been driven beyond its carrying capacity.

Though assessing such environmental impacts generating out of the imprudent use of resources is not an easy task, yet, adding a social and political dimension, makes it much more dynamic in nature, which gives us a perspective to take up issues with the objectives of development as well as the means.

The Environment and Capitalist Development:

Ecological imbalances in the modern times have threatened the very survival of vast sections of people especially those societies which are characterized by essentially subsistence levels of existence. The beginning of settled agriculture and the generation of surpluses in agrarian societies resulted in the drastic imbalances in ecology, which finally led to the commodification of nature and its transformation into products.⁶ The economies no longer remained restricted to subsistence, but went much beyond it for a variety of non-local uses, which were much more commercial in nature.

6. Raghunandan, D., Ecology and Consciousness, EPW, Vol. XXII, No.13, March, 28, 1987, pp. 545.

The basic ideology governing such a production process has as its core propelling factor, the ideas of accumulation, profit making and surplus generation. Hence, production and distribution of products is unequal and controlled by the dominant classes for their own interests. Such a transition from natural to commercial economies widened the gap between the different classes in the society, which evolved as a major characteristic of capitalist class based society.⁷

The penetration of the South by new agricultural production technologies, marketing and contract farming, have shifted the Third world from traditional environmentally sustainable systems towards greater specialization and economic dependency. The emergence of European colonialism and later Industrial capitalism transformed these cultures from a distance as well as directly.

Environmental degradation in developing countries is often perceived as a function of faulty property relations centered around the question of common resources. Hardin's view of 'commons' can be roughly summarized by the idea that in the use of common resources, each economic actor seeks to maximize his individual utility.

7. Ibid, p. 545.

The benefits of additional exploitation go to individuals but the costs are shared by over all users, or society as whole. Several critiques of this stance suggest that resources perceived as 'commons' reflect a variety of relations that were overlooked by Hardin. Such a model rests on the 'neo classical' ideas which assumes that markets are always the best means of allocating natural resources and the competition necessarily leads to appropriate management.

Unlike the 'tragedy of commons' approach which essentially argues that the penetration of capitalist way of development is necessary for proper natural resource management, the analysis of 'externalities' reduces the scope of the commons issues from a historical - economic argument to a technical question which emphasizes the role of state machinery through regulation. This pushes such issues into a political realm. Most writers on Third world environmental issues point out at such externalities.⁸

As a result of the Stockholm conference, the concept of development came into being which tried to find out linkages between ecological balance, self reliance and international power structure. The problems faced by the

8. Redcliff, M.R. (1984), Development and the Environmental 'crisis: Red or Green Alternatives, LONDON, Methuen, World Bank, (1979), Environment and Development, Washington D. C.

developing and developed nations were distinctively charted out. But what came out of these deliberations was micro self-reliance in the form of piecemeal projects with no linkages identified with macro dependency.⁹

Increasing concern with environmental problems in developing countries and the failure to relate these problems to development issues led to the establishment of the United Nations Commission on Environment and Development in November 1983. Popularly known as the Brundtland Commission, this report focused on the limitations of the stance that the free market principles which are thought to govern international economic relations are inappropriate and prejudicial to the interests of better environmental management in the South.¹⁰

Environment, Market & Politics in the
Third World - Class Position & Resource
Allocation:

The crisis of ecology is not a question of mere externalities, but is inherent in the very logic of profit making. Technology in itself is severely constrained by fundamental ideologies governing it. Hence recycling technologies and zero growth divert one's attention from fundamental questions of acute and intensifying

9. World Bank, 1979, Environment and Development, Washington D. C.

10. Redcliff, M., (1987), Sustainable Development, Exploring The Contradictions, London, Methuen.

inequalities which characterize today's world economy. The divisions are not only in terms of the rich and the poor countries but, the rich and the poor sections of society in each country. The focus has been on finite and non renewable resources, but there has not been much emphasis on having a system which does not sustain the prevailing order that validates the status quo.

The inherent nature of the prevailing world order, forced the world from the very beginning into a hierarchical mould which had a few metropolises towards the top and the multitude of the colonies and subcolonies underneath.¹¹ The environmental and developmental crisis as it stands today in the Third world countries enables us to argue against the total development process which has led to unhindered rise in poverty, inequality and unemployment on the one hand and to increased environmental degradation on the other.¹² While highly capital-intensive pollution control technologies in the west, enables such countries to control pollution, the total economic growth has worsened the situation in the third world.

The major environmental problems in the west and the third world also differ. Problems arising out of waste

11. Singh, N., Economics and The Crisis of Ecology, Oxford Press

12. Agarwal, Anil, Ecological Destruction and the Emerging Patterns of Poverty and People's Protest in Rural India, Social Action, Vol.35, 1985, pp. 54-80.

disposal, air and water pollution and acid rains are the growing concerns of industrialised societies, while the third world, though it has its own share of these problems has other more important ones which relate to the misuse of natural resource base such as soils, water, and forests on the one hand and growing poverty and illhealth on the other. A large chunk of these problems arise out of the growing demand to produce more and more raw materials both for its own industries and also for the western markets.

Modern industrialisation and a general penetration of cash economy tried to transform the natural resources in high yielding mono-cultures, destroying the ecological space and benefitting more powerful groups in the society. The growing misuse of common resources in private hands poses severe distributional problems. Factors underlying such problems go much beyond them the simplistic demographic explanation. Allocation in this context is not only mediated by the market forces but by class position also.

The so called 'common' resources often just appear to be so. Access to these resources is controlled by high entry costs where the resource is theoretically 'public', but the ability to use them is severely limited. Control of common resources has historically been mitigated

by a wide array of social mechanisms with complex distributional functions such as changing market structure and the hierarchical allocation of different class positions.

However, the political resolution of these questions can be seen as profoundly problematic due to the structure and control of state power and the power of the elite in the third world countries. Such a society with a particular set of political institutions has as its ideological apparatus, an apparatus of coercion which legitimizes a hierarchy of socio-political power.¹³

The Indian Scene: Development and Environment:

The entire range of the growing concerns regarding a holistic understanding of the relationship between environment and the development automatically goes to seek the historical roots of the total developmental process in India.

Colonialism in India led to a distinct gap between the forces of production. It favoured certain powergroups and ruled out those forms of transmission which were contrary to its interests. Thus colonialism resulted in the retardation of forces of production by inhibiting technical changes by coercive labour process which required

13. Bagchi, A.K., Colonialism and The Nature of 'Capitalist' Enterprise in India - EPW, July 30th, 1988.

a regular waste of a considerable amount of human and non-human resources.¹⁴ To understand this capitalist enterprise it is essential to understand the contemporary changes in ideologies. The landlords were a group of people favoured by the rulers and they were used to carry out the task of revenue collection. The coercive modes of social organisation and lack of literacy amongst people led to a retarded macroeconomic and macrosocial development. This helped in the mechanism of extraction and transfer of surpluses from colonial India to other metropolitan countries. The transition from the earlier natural economies changed the utilization of the products of nature radically¹⁵ and this took place in such a way "that the inequality of distribution among the individuals and therefore, the opposition between rich and poor became more and more pronounced."¹⁶ Hence under colonialism the environmental damage assumed increasingly serious proportions giving rise to a new order of disequilibrium. This situation furthered, the exploitation of both nature and those who worked on it.

The technological advancements led to increased consumerism and the interests of the ruling classes

14. Ibid.,

15. Raghunandan D., Ecology and Consciousness, EPW, Vol. XXII, No.13, March 28, 1987, p. 545.

16. F. Engels, "Anti-Durhing", Progress Publishers, Moscow, 1978, p. 171.

DISS

363.700954

C3928 Pe



TH3668



TH-3668

became the driving factor of production. Hence, the coercion brought in this process was not necessarily outside a total colonial labour process.

The ideological and institutional aspects of the working of colonialism has to be understood in the terms of the thwarting of the growth of modern industry - the destruction of artisanal industry and draining of surplus to invest it in other areas of the globe. All this can be seen as one process of colonial exploitation. The role of the state in India was of a receiver and remitter of the tribute of India through fiscal apparatus which patronized private enterprise in the areas of plantation and resource use. Such a fiscal extraction in the late nineteenth and early twentieth century led to an enormous hinderence put in the process of development in terms of regional variations and class differentiations.

In the agricultural sector the unequal distribution of land led to the extreme rural proletarianization. As a result of disparities between population growth vs. land and water base and the push - pull factors due to regional disparities, the ex-artisans and tenants were displaced from the depressed and deforested regions.¹⁷ Agrarian

17. Bardhan, Kalpana, Poverty, Growth and Rural Labour Markets in India - EPW, Vol. XXIV, No. 12, March 25th. 1989.

structural changes also took place with the population growth which led to a subsistence crisis giving rise to circular migration of the village folks to towns. The labour saving mechanization through the innovation of modern technologies has now led to massive unemployment. The unorganized labour which migrated to the cities is highly exploited and such growing populations in the cities give rise to the hazards related to the poor living conditions.

Rapid growth of industrialisation played an important role in keeping alive a strong process of capital transformation of agriculture. The capitalist development in the post-independence period has been promoted on the basis of an agrarian structure which has witnessed no significant reduction in the extent of land concentration.¹⁸ This shows the total failure of the land-reforms which with the slogan of "land to the tiller" carried out these reforms. The land reforms abolished certain kinds of intermediary tenure and eliminated the very large, often absentee landlords. This did not end the landlordism but in the process a new homogenous class of landlords was created and a large scale eviction or degradation of a number of petty-tenants took place.

18. Patnaik, Prabhat, A Perspective on the Recent Phase in India's Economic Development.

Under such circumstances, the transformation of agriculture within the overall context of capitalist development of the economy has been characterized by the development of a semi-feudal capitalism in the countryside.

The range of activities relating to the better management of natural resources has given rise to several government programmes which revolve around the afforestation programmes, control of water and air pollution etc. This entire range of activities has failed to take into account a holistic understanding of the relationship between environment and the developmental process which is taking place. The totality of development experiences, not always reflected in a linear theory of progress which equates development with economic growth and economic growth with expansion of market economy, modernity and consumerism. The interrelationship between resources and the intrinsic economic development is a complex and multidimensional phenomena.¹⁹

The ecological relationship of the growth of affluence for a few regions and some people on the one hand and the collapse of the resource base for survival for many on the other has become a characteristic of the kind of development that is taking place. In the larger

19. Bandyopadhyay, J., Shiva V., Political Economy of Ecology Movements - EPW June 11, 1988, p. 1226.

contest economic growth itself can become a source of underdevelopment because of the inherent vested interests of the pressure groups.

A vast majority of rural households meet their daily needs through biomass related products. In other words they live within a biomass subsistence economy. The indiscriminate exploitation of such resource base leads to severe ecological disequilibrium. Increased privatisation of land and forest resources has rendered such societies to become landless labourers or urban migrants.

The continuous struggles of the people belonging to the hilly regions or the people from the coastal areas are struggles for survival on the face of expropriation and destruction of natural resources on which their lives depend. The problem of mechanized fishing in the coastal areas and the emergence of a movement like 'Chipko' in the hills are an outcome of the severe threats posed to the lives of these people. The marginalisation of communities has been done by propertied oppressor classes and it relates to their interests appropriating and protecting surpluses generated.

Relationship to the struggles on environmental issues themselves integral with struggles for radical

social transformation forms a part of the ideological struggle, which resists the incorporation of nature in wider spheres of accumulation and market-oriented resource use.

The process of deprivation in terms of economic development and natural resource utilization has led to different ecological movements. Basically, such movements have come into being with the responsibility of basic needs satisfaction. Along with industrial development, the problems related to local "natural economy" came into existence. This led to an alternate thinking in terms of resource management and allocation. This kind of thinking, mainly as evident in the Gandhian philosophy, warned against the future problems as a product of the classical path of resource intensive development.²⁰

The emergence of a new thinking in Indian environmentalism, can be seen as an outcome of such economic development. They are based on many visible and invisible externalities. To a certain extent, they have contributed to the evaluation of the elite oriented development process.

The ecology movements in India are the expression of protests against the destruction of the two vital

20. Bandopadhyay, J., Shiva, V., Political Economy of Ecology Movements, EPW, June 11, 1988.

economies of natural processes and survival from the anarchy of development based on market economy.

The logic of the market and the concept of development as an ideology has created a need for foreign aid and global market domination. The present development priorities have helped to privatize the natural resource to a large extent. Hence, the majority of population is left with depleting resource base with shrinking access.

There is need for a development process which helps to improve the standard of living and creates ecological stability. For this, one has to go beyond finding out simplified answers in imported technologies and foreign aid. The answers to these problems lie in the structural reforms, and a stronger political will.

CHAPTER 2

INTERNATIONAL WORLD VIEWS ON ENVIRONMENT

The environmental movement or the growth of environmentalism grew out of the spasmodic but notable reactions against environmental consequences of urban and technological changes, especially during the upheavals in the nineteenth century as many of the advanced countries made their first uneasy steps towards industrialization.

In the 1960's many of the reactions came under the banner of environmentalism. The term has been interpreted in various ways: a social movement, a set of ideas based upon ecology, a 'back to nature' philosophy or just as a greater interest in environmental affairs.¹ There was also a close tie between environmentalism and the anti-science movement of the 1960's, both being connected with holistic and anti-mechanistic tendencies.

Different approaches are taken to make distinctions in categorizing the very concept of environmentalism. In Sandbach's (1980) analysis one can find two major categories - one, which is an ecological or scientific brand of environmentalism which takes environment as an important concept sustaining a viable physical and biological surroundings which determine any technological or economic

1. Sandbach, P., (1980) Human Ecology: Environment, Ideology and Policy, Basil Blackwell, Oxford, 1980, pp.21.

changes, the second type of environmentalism is less concerned with the environmental systems, but more with whether or not science and technology are compatible with humanistic principles. This latter standpoint has been more influenced by the New Left and the counter-culture.

The emphasis on traditional hierarchy and authority and its essentially conservative character is closely associated with the dominant theme of analysis which explains environmental and social problems in terms of natural laws and physical factors, has been a major feature of such an analysis.

Other views on environmentalism per se, take into account the fragility of the life support systems which have enriched our planet.² It takes into account the ecological disturbances caused by development. It goes into a detailed analysis of the history of the developmental process and has tried to discover why development has taken the course that it has and what can we do about it.³

The conservationist ideas on ecology placed much greater emphasis on the man made damages inflicted on nature and how the natural resources can be saved from getting totally depleted. A great deal of such writings have as

2. Redclift, M., (1987), Sustainable Development, Exploring the Contradiction, London, Methuen, pp.2.

3. Ibid, pp.2.

their core issue the preservation of nature and its beauty. Such a man - nature relationship brings in a concept of duality where man is not seen as a part of nature.

The historical development of social processes and the ideological trends involved in the analysis of the expansion and growth of the ideas regarding nature goes back to the classical writers in particular Smith and Marx, who saw the history of societies as a passage through historical stages characterized by -

- (1) Modes of subsistence - Smith
- (2) Modes of production - Marx

Their analysis reflects the dynamic man - nature relationship, whereby man derived his material subsistence by working upon nature.

Smith's 'man' was a unified being in his social existence which was collective in nature and was determined by the nature of the society with relation to the production or property relations. He talks of social 'orders' and 'classes' and saw society with relation to the production processes going through four major stages of development -

- (i) Hunting
- (ii) Pasturage
- (iii) Agriculture
- (iv) Commerce.⁴

4. Bhardwaj, Krishna, - Paradigm in Development Theory, EPW, January, 1990.

Such theorizing has as its basis, a 'natural state' where the production, exchange and distribution processes of the economy were on 'natural' or 'subsistence' levels. Later, generation of 'surplus' under capitalism which involved accumulation and reproduction processes took into account components like wages, profits, rents etc. The process also involved the 'natural' levels of quantities that sustain the total process. The emphasis on this dynamic process is apparent in such theorizing, which shapes the interrelationship between output and wages, between the changes in inputs and technologies etc.

Such dynamic understanding of human societies and their resource base provides us with a view that changes in technologies and social modes of resource base and the conflicts arising out of the access to resources are important to be discussed. The linkages between agriculture, development, demographic changes and environmental deterioration are to be seen in an integrated ecological, historical and political-economy approach which also take into account the fundamental structure of the society.

Environment : The Emerging Trends

Conservationist ideas in '1960's came under the banner of 'scientific environmentalism', where conservation of natural resource base expressed the priority of sustainable environmental exploitation. Consequently, it came into

conflict with policies based upon short-term economic criteria. At the same time development of a 'holistic ecology' was an attempt to incorporate other sciences and disciplines in the understanding of ecological problems, than to reduce it to a slowly eroding reductionist biology.⁵ This 'holistic' or 'systems' approach to science became a major theme in the popular environmental literature.

The emergence of these concepts in the growth and development of environmentalism overtime can be seen as a result of the fundamental viewpoints which came into being at different points of time. These concepts include the dualistic conceptualisations of man-nature relationships as well as viewpoints which place great emphasis on values. This explanation differentiates societies which are existing and those which existed during different stages of history on the basis of these values. These value orientations do not fully explain the present capitalist over exploitation of nature. As another variation of the global capitalist system, the emergence of a cognitive explanation paved way for an upcoming view of ecological consciousness.⁶ Although this ecological consciousness need not be consciousness in the real sense of the term,

5. Sandbach, F., Environment, Ideology and Policy Basil Blackwell, Oxford, 1980, pp. 24.

6. Raghunandan, D., Ecology and Consciousness Economic and Political Weekly, Vol.12, No.13, 1987, pp. 545-49.

it is however proecological and has to be differentiated from the ideology of environmentalism which in essence is anti-ecological and which also coexists in the present world.⁷

The predominant world views have attributed technology, industrialisation, population growth, values etc. for environmental problems. The solutions offered to resolve such ecological crisis demand for significant changes in the industrialisation process, reduction in technological advancements, population control, changes in value base etc. The institutional mechanisms that contemporary societies employ to make choices and solve collective problems are also blamed for ecological degradation.⁸ The interconnectedness of nature with technological advancements and its implication were brilliantly illustrated in Rachel Carson's 'Silent Spring' (1962). The testimony, beautifully written to establish certain ideas regarding the politics behind the use of pesticides was a revolutionary step which gave way for an altogether different analysis questioning such political choices.

Considering the developmental process, one has to take into account Malthusian Approach which tends to explain environmental degradation in developing world as demographic

7. Viswanathan, Shiv, 'On Ancestors And Epigones' Sci Seminar, 330, February, 1987, p. 15.

8. Dryzek, John, Rational Ecology, Environment and Political Economy, 1987, Basil Black Well.

pressure on natural resources. This school overplayed the issues of population growth and environmental deterioration in the third world countries. The same strategy now is applied in the developed countries to explain their environmental problems by attributing it to a non-existing problem of 'over population'.⁹ An extension of the same approach suggests that adoption of more intensive production system through innovations in technologies can increase the output. The critique of this approach came from diverse perspectives. These viewpoints emphasized that gross correlations between population and poverty should not form the frame of analysis, on the other hand one has to go into historical and political economic contexts that influence reproductive choices. The Marxist stand on this issue puts a great emphasis on the rationale behind making priorities in a certain manner regarding social problems and their relationship with the underlying economic organization of the society, i.e., the analysis in terms of the degree of autonomy and the type of relationship that exists between the economic base and superstructure.

This position also emphasizes the importance of economic interests in supporting ideologies serving their own interests, where the poor are most likely to feel the

9. Ehrlich Paul R. and Ehrlich, Anne H., Population, Resources Environment : Issues in Human Ecology 1970, Freeman.

extra cost of ecological degradation. The social consequences of planned scarcity and demands as brought in a capitalist system can account for characteristically diverse responses to environmental problems from the rich and poor in the Third world countries. Hence, it is argued that the differential control and concern 'within' the nation is the crucial level for changes brought forth to solve the ecological problems.

Neo-Classical Approach

The neo-classical economic model which emphasized on the well functioning markets treated environment in two ways. On the one hand it saw environment as an externality which puts either positive or negative impact on the individual and on the other the 'social costs' borne by the society at large for the given industrial activities taking place in a society.¹⁰ Another approach within neo-classical model treated environment as a commodity. Here, the focus was on well functioning markets which were taken as the best means of allocating natural resources. Environment according to this approach was a 'bottomless pit' with unlimited capacity to withstand the stresses imposed on it.¹¹ According to this perspective solutions to environmental degradation

10. Dasgupta, Biplab, The Environment Debate. Some Issues and Trends EPW Annual No. February, 1978, pp.386.

11. Ibid, pp.386.

are based on modifying the internal organization of production through the privatization of landholdings. The critique of this approach points out at the importance of external factors such as government policies, class position and land tenure to the mobilization of resources.

The neo-classical framework, thus, assumes that environment impact is marginal and temporary in duration, that it can be isolated into small bits for which specific policy decisions are to be made and the market mechanisms can be fully relied upon to correct deviations from such.

The Structuralist Position

The structuralist approach, felt that a growth process that benefited a small wealthy minority and widened the gap between the rich and the poor cannot be equated with development. According to this position the major objectives of development and growth should be more oriented towards eradication of poverty, satisfaction of basic needs and provision of employment by changing the basic structure of the society. As whole, development was no longer seen as an economic goal but as multidimensional concept encompassing economic, as well as political, social and cultural aspects of life Environment was taken as an objective and also as an indicator of development.

Though the structuralist approach ranged from conservative - conservationists, reformist Marxists to sheer propaganda, it had as its significant progressive features, the expansion of the indicators pointing at development at large. This approach talked about the social indicators of growth and economic progress which went beyond the accepted indicators like GNP which was considered as having dubious assumptions regarding economic activities, population size and resource allocation. Environment entered the fray as an indicator of the total development process which included both 'physical' and 'social' environment. Hence, unequal income distribution, nutritional status, housing conditions, sickness and mortality rates were taken as the best indicators of socio-economic health of a nation by the structuralists.

The Ecological School

A concern with the physical environment led to the emergence of the Ecological School. The propounders of this viewpoint saw environment as a constraint on development. They also emphasized on the environmental costs as the consequence of disequilibrium in the ecological sphere. They saw man and his natural world as dependent for well being and ultimate survival, upon the maintenance of a "moving equilibrium" or dynamic balance,

among the elements of the environment.¹² From this viewpoint, administration based upon verifiable facts appears to be the principle mechanism of the control of resources and their distribution. These facts are based upon the political fiat, which tend towards the idealistic concept of "good" for people.

Whereas the structuralists raised the question whether development of the type manifested in the developed societies is desirable or not, the ecologist approach, further elaborated by the 'Club of Rome' questioned the sustainability in the long run. The solution offered by the approach was a 'zero growth policy' and an appropriate life style which could consume less. This approach came under severe criticisms. The major arguments were that it under-estimated the importance of technology and resources available. The report was termed as simplistic and based on dubious assumptions. Like Hardin's analysis of the population environment linkages, which finds the "freedom to breed" unbearable and calls it the "tragedy of the commons", Eric P. Ekholm¹³ puts the focus on some important ways in which the poor are damaging the environment even more than rich. He talks of redistribution of power, land and

12. Caldwell, Lynten K., Environment: A Challenge to Modern Society, Anchor Book, NY, 1970, pp.11.

13. Ekholm Eric, P., Losing Ground: Environmental Stress and World Food Prospects, 1976, WW Norton & Co., p.24.

social services to benefit the poor and pull down the birth rates. The approach made a desperate attempt to provide a solution for the ecological problems by analysing the population-food-environment crisis in terms of population pressures and exhaustion of natural resources particularly the non-renewable ones. The major contribution of this analysis was that it made the environmental issues become an integral part of the development thinking.

The Club of Rome

A negative relationship between environment and development was emphasized by the Club of Rome. This systematic analysis came through a series of reports and world models. It demands a state of global equilibrium to save the planet from doom. According to the approach, a change in 'human values', 'moral resources or commitment' of the people is necessary to bring about substantial modifications in their approach towards environment. The point that was missed by the Club of Rome, was that it did not consider the divergent sociopolitical systems of the world and assumed that the world is homogenous. Other models also failed to notice this particular point. To prevent the impending danger of the collapse of the existing system, human values or psyche have been emphasized. In the process the implications of a particular kind of socio-political system has been neglected which influences the ideological set up of a society.

The neo-classical school embodied the vision of capitalist exploitation of nature. The vision also encompasses the dualistic conceptualisation of man and nature relationship. Similarly, the ecological school overplayed the issues of population growth. This approach states that "there is no technological panacea for the complex of problems composing population-food-environment crisis, although technology properly applied in such areas as pollution abatement, communication and fertility control can provide massive assistance". Like the Club of Rome they also call for "dramatic and rapid changes in human attitudes", in those problem areas related to reproductive behaviour, economic growth, technology etc., towards 'ecological psyche' or "ecological consciousness".¹⁴

Barry Commoner, approaches the problem by focussing on the predominant role of technology in the deterioration of environment. According to him "the stress of rising human population on the environment is especially intense in a country such as United States, which has an advanced technology..... it can be argued that in so far as such technologies are intended to meet human needs - for food, clothing, shelter transportation and the amenities of life - the more people there are and the more active they are, the more pollution."¹⁵

14. Paul R. Ehrlich & Anne H. Ehrlich, Population Resources Environment: Issues in Human Ecology, 1970 Freeman, p.3.

15. Commoner, Barry, "The Relationship Between Population and Environment: A Debate in Marden & Hodgson, (eds.), Op.Cit., pp. 57-126, The Closing Circle 1971.

The ecological school and the 'anti-technologists' do not raise any fundamental questions. They restrict themselves to population growth and the depletion of natural resources. Thus, by keeping away from any discussion on the social, political and economic basis of environmental problems they give an impression of an orchestrated propaganda of the apologists of capitalism by spreading the "myth of people, polluting". Hardin's ideas about 'tribalism' and 'freedom to breed' are like insults inflicted upon the poor.

Similarly, anti-technologists' ideas that all environmental problems are due to hypertechnology suffers from irrational conceptualisations. The argument that goes against such opinions is that even before the advent of hypertechnology in modern society, the impact of exploitative and disruptive human action has always had some negative impact on the environment of the class based societies.

Ecodevelopment

The eco-development approach is one of the byproducts of Stockholm conference. The major focus of this approach was on the fulfillment of the basic needs and an environmentally sound production system.¹⁶ It talks of the carrying capacity of the different regions and provides a technical

16. Nayar K.R., Environment and International Worldviews: Two Steps Backward, EPW March, 3, 1990, pp. 457.

style. The approach strongly emphasized on the linkages between the ecological balance and international power hierarchy. Two international gatherings held under the aegis of United Nations strongly underlined the role of international power and resource imbalances.

The Founex Consensus which was made of a group of experts from various countries and disciplines, evolved a report. The report emphasized that though the roots of most of the current environmental problems are found in the activities of the industrialized countries they are of equally vital concern for the Third world countries as well. It also emphasized on the social or human environment and the major focus was on the institutional solution to the problems through government machinery. It also focused on the piecemeal approach in ecodevelopment which was more localized in nature. Though this kind of a point of view lacked a structural analysis, yet it was the first time when they talked of concerns more dynamic than population growth. This was a multisectoral approach which was more interested in the equality of existing resources and their utilization.

The "Founex Consensus" focused sharply on the distinction that can be made between the problems faced by the developing and developed countries. The problem of poverty, social participation and unequal access to resources an

their distribution were some of the major issues to be discussed. Poverty was considered as a major factor and form of pollution. Later, in Cooyoc declaration it was recognized that the evils of economic dependency on the market system flows from the affluent countries while perceiving the existence of an international power structure and their role in perpetuating poverty and environmental problems in the underdeveloped countries. It calls for a 'new life style' and modest pattern of consumption among the rich.

The radical stand taken by the UNEP in its primary years intermingled with the later developments taking place in environmental thought in the shape of eco-development strategies which posed a severe threat to the multinational corporations. The localized piecemeal projects emphasized on the micro self-reliance and it failed to build linkages with the macro dependency.

Variants of Ecodevelopment: Basic Needs,
Eco-Societal Approach and Quality of Life

Eco-societal approach can be said to be an important variant of the ecodevelopment strategy. The approach is redistributive in nature which calls for an improvement in environmental quality. It also focuses on the more widespread, mass-based solutions meeting the local demands of the population as well as avoiding the violation of local ecological imperatives and the natural carrying

capacity of a socio-ecological region.¹⁷

The approach concluded that an unjust social order is incapable of meeting the basic needs of all the people. Yet many efforts at development in countries where social injustice, class privilege and inequitable distribution of wealth are dominant, ignore the fundamental relationship between the social system and distribution of environmental resources.

Another approach which focuses on the satisfaction of basic needs is the quality of life approach. This concept has been taken as an organizing concept which takes into account the legal doctrines and administrative procedures.¹⁸ It involves three dimensions:

- (a) maintenance of ecosystem balance i. e., the totality of the interacting entities and systems physical and social that comprise every environment, must be taken into account.
- (b) Satisfaction of basic physical needs for human development.
- (c) Satisfaction of basic social needs.

The approach consists of putting forth alternate models to the existing techno-cultural beliefs related

17. The Interaction of Ecological and Social Systems, M. Tachi Farvar.

18. Caldwell, Lyton K., Environment: A Challenge to Modern Society, Anchor Books, Doubleday & Co., Inc. NY-1970.

to cultural development and resort to systems analysis to understand the causal path ways and inter-relationship that link the problem of basic needs, increasing disruption of eco-system balance and destabilisation of economic systems.¹⁹ The eco-system approach has an inherent assumption regarding the ultimate structure and dynamics of society which finally leads to other assumptions relating to the 'steady state society' in which dynamism is largely internalised and controlled by the authority of knowledge.

The basic need orientation cannot be said to be absolutely free from any political underpinings. To a certain extent it delimits the positive aspects of the existing welfare programme which helps the agencies like World Bank to have a powerful basis for organising analysis and policy making. It is seen as "not a developmental strategy but an adjunct to; and a modification of, existing development strategies". The methods of implementation consists of a 'count, cost and deliver' approach raising the earning opportunities of the poor, a change in the organizational and institutional requirements mobilising the social and political power of the poor etc. All these, according to the World Bank report can be achieved only by 'aid from international agencies'.²⁰

19. Nayar, K.R., Environment and International World views Two Steps Backwards, EPW, March 5, 1990, pp.459.

20. Tisdell, Clem, Cost benefit Analysis. The Environment & International Constraints in LDC's. Jr. of Economic Development, Vol.11, 1986, pp. 63-81.

All these approaches expect the decision makers to play a vital role in the redistribution principle undermining the issues of conflict between different socio-economic groups. The role of the power structure in the underdeveloped countries along with class basis of institutions responsible for implementation and the institutional resistance are other important aspects which ignore the priorities. This approach also minimizes conflicts, either between decision-makers on the quality of sound environment or between environment and development goals or even between different individual environmental goals.²¹

Sustainable Development and Other Emerging Concepts

The world conservation strategy, (1980) suggests that people should aim to have a sustainable society. The focus on the major issues relating to the sustainable development has been put on the economic transformation by the ecologists currently whereas the economists still pay much less attention to this characteristic.²² The world conservation strategy (1980) defines development as "the modification of the biosphere and the application of human, financial living and non-living resources to satisfy

21. Tisdell, Clem, Sustainable Development: Differing Perspectives of Ecologists and Economists and Relevance to LDC's. World Dev. vol.16, No.3, 1988, pp. 373-384.

22. Ibid, pp. 459.

human needs and improve the quality of life", and conservation as "the management of the human use of the biosphere so that it may yield the greatest sustainable development to present generations while maintaining its potential to meet the needs and aspirations of the future generations."

Such definition pose pertinent questions -

- (i) Development to what extent? and
- (ii) What trade offs, if any are acceptable between current and future needs?

Conservational pressure groups strongly advocate a sustainable society²³ and promote policies to this end. According to them, "In a world where the economy's environmental support system are deteriorating supplants economics with its overriding emphasis on production and near blind faith in the market forces - will lead to severe problems".

Thus, the latest propaganda is that if economic development is to be sustainable, the ecological system on which economic production ultimately relies also need to be sustainable. Sustainable developmental patterns of economic exchange therefore, are a precondition for sustainable development. The emphasis on zero population growth and restrained per capita consumption has been the

23. Brown, Lester and Shaw, Pamela, Report of the World Watch Inctt. (1982, pp. 6-12-13).

major focal point of this argument. The confusion arises out of the fact that such arguments do not give us a clear idea whether they call for maximum sustainable yield or maximum economic yield. The basic assumptions of this approach follow the premise that in less developed countries (LDCs) sustainable development is essential because -

- (i) Population increase leading to considerable welfare problems,
- (ii) lack of proper social security system, employment etc., hence, resources are necessary,
- (iii) LDC's depend more on the environmentally based living resource production and,
- (iv) there is a great uncertainty about the effect of new technologies in these countries.

It is difficult to understand what these recommendations 'precisely' amount to. It is not to be overlooked that in these countries, in certain circumstances, the state desires to sustain or to see sustained particular productive systems because political support for it comes from those involved in these systems.

Along with a great emphasis on sustainability two new concepts, enablement and self help show a latest trend in the environmental thinking. The concepts were greatly used in the policy making of the third world countries.

The problem of poor housing gave rise to the concept of enablement with a specific purpose of providing a better environment, health and social services to the poor. Such concepts reflect the international deliberations where the responsibilities are shifted from the governments to the people to remove such environmental hazards. The assumption here is, that it will lead to an enabling environment where people will help themselves to solve their own problems.

The United Nations Commission on Human Settlement issued a global shelter strategy for this purpose.²⁴ It showed that the responsibilities for shelter production are to be left, though not totally to the beneficiaries without putting much pressure on the government resources. The new strategy also provides subsidy schemes meant for the poorest of the poor by arguing that they impose unacceptable social costs on the people and the government.

This approach presumes that the scarcity of resources is the major factor for solving ecological problems. The funding and welfare measures taken by the governments to provide housing facilities are questioned and it is argued that it reflects the inefficiency of the public sector institutions to provide such facilities to the masses.

24. UNITED Nations, General Assembly, 43rd Session Official Records. Report of the Commission on Human Settlements on the Works its Eleventh Session. Addendum, Global Shelter Strategy to the year 2000, 1988.

Though the World Commission on Environment and Development (WCED), along with the UN "Environmental Perspective to the year 2000 and Beyond", have put great emphasis on sustainable development, it is not free from the neo-Malthusian views on population-environment linkages. It also reduces the government's responsibility by putting pressures on the masses to seek help from their own resources. The perspective also seeks help from institutional mechanisms like government machinery, non-government organizations and private industries, which to a large extent makes the solutions to ecological problems, vulnerable to the aid from international agencies and dominant powers.

Deep Ecology: A Contemporary Argument Field

The Deep Ecology Movement began in the mid 80's providing a contemporary argument. The distinction between the deep and the shallow is ideologically loaded.²⁵ The deep ecologists clarify the center of their programme with its revolutionary implications, from the relatively shallow variant of their much more reformist-minded colleagues. They link the relationship between human kind and nature in its deep and shallow variations. They believe that if we radically alter our relationship with nature we can alter the intellectual economic scaffoldings upon which it

25. Devall, Bill, 1980, The Deep Ecology Movement Natural Resources Journal, vol. 20, pp. 299-322.

rests. Theirs is a "piecemeal, shallow approach to environmental problems which attempts to articulate a comprehensive religious and philosophical world view".

The deep ecologists strive for holism arguing for a less fragmented world view. But, their ideas to a large extent see humans as sharply separated from their environment. The figure ground relationship is conceived such that humans are perceived as significant figures while the background only begins to assume significance in so far, as it is imbued with value usually the use value by humans. Their basic assumption rest on the ground that

- (i) world is problematic and
- (ii) the problem selection are to be objective planetary ones, and
- (iii) they call for eco-centric solutions based on biospherical egalitarianism.

The shallow ecologists argue that the deep ecologists, view humans as sharply separated from their environment. The quest for scientific vigour entered into by the shallow ecologists generates a forum in which the shallow ecologists must, if he or she is to be heard, show how their logic solves human problems.

On the one hand the deep ecologist take shelter in the more mystified philosophical solutions, on the other shallow ecologists take environmental problems in a cause-effect dimension, which overlooks the intervening socio-political factors which play an important role in deciding about the extent and implication of an environmental problem. At the same time the two arguments, extremely polarized, fail to take into account the class conflict and the role of the interest groups in environmental planning. They provide us with a very apolitical analysis, mystifying it on the basis of philosophy and religion. Similarly, the shallow ecologists' emphasis on the positivistic explanation gives us explanations based on an assumption that every environmental issue has a cause-effect dimension.

These perspectives on environment are influenced by a predominant view that population growth can be singled out as the major factor giving rise to environmental problems in the Third world countries. The Club of Rome provides the awareness of dooms day and other world views joined in to point out to the fact that environmental pollution is caused by the overcrowding poor population. In the process, some of the positive aspects of such strategies like ecodevelopment, got muted in the bureaucratic and institutional machines and micro self reliance for

solving environmental problems. Yet we notice a shift in emphasis towards the basic needs. It is still to be seen as to what extent the emphasis is practically carried out. The final analysis is to be made in terms of the existing social system, access to resources, inequalities and stratification in the society. The socio-economic and political factors which work upon the decision making and which characterize a particular kind of developmental process are to be taken into account to understand the relationship between development, environment and technology.

CHAPTER I

ENVIRONMENTAL POLICY - PRIORITIES & OPTIONS A CRITICAL APPRAISAL

Introduction:

Development policy in the Third world countries had until recently focussed exclusively on planning for economic growth, since it was assumed to be synonymous with development. Environmental concerns have frequently been projected either as the luxury of the rich or as anti-development and hence, against the interest of the poor. Increasingly, however it is being experienced that economic growth can not lead to development in the long run if it is destructive to the environment and the natural resources. 'Environment' as a jargon is thus appearing increasingly in policy documents and debates but without the understanding of the ecological processes that define the environment, the use of this term remains empty, ineffective and vacuous. In the absence of a systematic and clear analysis of the problem natural resources crisis are often simplistically blamed solely on the increase in population. Natural resource endowments are generated and maintained by some basic ecological processes, the knowledge of which is essential for understanding how the environmental crisis is generated and how economic development is threatened in the absence of ecological stability.

The ecological problems in a developing country like India range from the problems of water supply and sanitation to resource availability and management. In the absence of the basic civic amenities in the rural and urban areas a large chunk of the population lives under unfavourable ecological conditions. The root cause of these problem has been identified as the deep and extensive poverty which prevails in the country.¹ At the same time it has been asserted that such poorecological conditions are not congenial for promotion of community action to minimize at least some of the deleterious consequences of ecological deterioration. For such purposes, any action programme to be effective it is important to create situation to mobilise community efforts for better environmental conditions. This includes the formulation of appropriate policies and plan of action keeping in pace with the existing socio-cultural realities.²

In order to look inwards, searching for basic solutions to such existing problems of human existence there is need to make choices according to the needs of the people, rather than providing answers based on the borrowed concepts and technologies as emerging in the west. In this connection, the concept of eco-politics in

1. Banerji, D., Health and Family Planning Services in India, Lok Paksh, New Delhi, 1985, pp.335.

2. Ibid, pp. 337.

the Third world can be elaborated, which emerges out of the recognition that to overcome the current ecological and environmental crisis, political decisions will have to be made. It is obvious, that in such decisions some interests are favoured over others both within and between nations.³

Karl Deutsca was probably among the first to classify in these terms this new field of the social sciences, which he called 'ecosocial science' and 'ecopolitics'. According to his original definition he asks about the viability of ecological and social desirability and limits of political intervention. The approach rejects the romantic illusion that all natural ecological systems are necessarily viable.

It is time to recognize that the ecological outcomes of the way resources are used are ultimately related to the modes of relationships amongst people themselves. To understand the implications of the ecological (scarcity of resources) and environmental (scarcity of "pollutable" reservoirs) crisis, one must attempt to grasp the social processes behind it. And for the possible solutions to the current crisis, one must be within the social

3. Guimaraes, Roberto P., Bureaucracy and Ecopolitics in the Third world: Environmental Policy Formation In Brazil. International Sociology, Jr. of the International Sociological Association, Vol.6, No.1, March, 1991.

system itself. These are undoubtedly important theoretical pursuits which call for diversified analytical paths to formulate policies regarding such issues. It calls for an integrated study of public policies to the detailed exploration of the elements that make up a political system - such as social stratification, modes of interest aggregation and representation, popular participation and decision making accesses. This kind of understanding can come only after one acquires a historical perspective and how economic interests, social classes and the political and institutional structures have evolved in the past.

It is clear, that any discussion of environmental policies requires a political instead of a technical treatment. At stake in such decisions there is much more than the simple arrangement of public actions in one area. It is the concept of development itself that is being called into question. Indeed, an environmental policy that goes beyond pollution control and abatement, important as these two dimensions are, will often imply redefining or at least redirecting the process of development. The acknowledgement of this fact of ecological reality requires analysts to enquire, development of what, for whom and at what cost?

The holistic and at the same time the specific nature of ecological problems need prioritizing, in terms

of who is to be benefitted and how. One of the salient features of eco-policies throws light on the fact that the ultimate beneficiaries of these decisions do not participate in today's struggle for survival.

Ecological Modernization - Identifying Structural Environmental Effects:

Stephen Paulus (1986), speaking in the Forum of Industry and Environment, said, "Ecological modernization focuses on the prevention, on innovation and structural changes towards ecologically sound industrial development.... it relies on clean technology recycling and renewable resources.... To introduce such a concept into the economy, it is necessary to coordinate various policy areas, such as industries, fiscal, energy transport and environmental policies".⁴

This fairly broad definition was proposed to achieve better harmony among economy, technology and ecology in industrial societies. The manner in which environmental concerns may be harmonized with economic growth and technological changes, depends, largely on the direction in which the priorities are set. Such mutual harmony may come about when the interaction between the two domains becomes mutually supportive.

4. Simonis, U.E., Ecological Modernization, New Perspectives for Industrial Societies. Friedrich Ebert Foundation.

Efforts should be made to reconcile economic growth with ecological balance.

In order to establish a relationship between economic structure and ecological base, it is important for the decision makers to go beyond traditional national accounts. The way in which a particular economy undergoes changes qualitatively is not sufficiently indicated by the production values reported in such accounts. Hence, it becomes clear that it is important to select indicators which act as synonymous to the basic characteristics of the total production process.

The practice of planning has in recent years, been tempered by concerns of pollution control and environmental conservation.⁵ The rapid growth of industries has shown that the benefits of such economic development are to be weighed against its costs in terms of the rapid depletion of natural resources and hence, its effect on their distribution.

The Club of Rome (Meadow's) report and the UNEP sponsored Stockholm conference did contribute dramatically both to raising the level of consciousness as well as the quality of the debate on these issues. Such debates, have posed the issues of development vs. environment controversy.

5. Lok Sabha Debate, Eighth Series, Vol. 22, No. 11-15, 18th-24th November, 1986.

Statement RE: Enforcement of the Environment Protection Act 1986 by Mr. Bhajan Lal Minister of Environment and Forests.

Charles Perring in his book 'Economy & Environment' makes it clear that to reach to a final goal in policy making one has to look into the inherent values system imbedded in the social structure.⁶

Rational Ecology - A Social Choice Paradigm:

One of the emerging concepts in the policy making is a social choice paradigm which means that a society determines collective outcomes in a given domain. The structure of social choice becomes especially interesting under conditions of the non uniform preferences of the members of that society. Some theorists define social choice in terms of procedures for aggregating conflicting preferences. The area of this paradigm has to be extended to fit into the interpretations of the society's welfare in terms of individual preferences yet, for collective interests it has to go beyond them.⁷

Having both formal and informal components, such a mechanism in a political system proceeds in the context of constitutional rules, laws and legislations.

The focus on social choice is to be taken into account because according to some social analysts, collective choice structures are merely derivative of technical

6. Vyasulu, Vinod, Theory of the Economy-Environment System Review Article, on Charles Perrings book, Economy & Environment, EPW, July, 30th, 1988.

7. Dryzek, John. S., Rational Ecology, Environment & Political Economy, Basil Black Well - 1987.

economic or cultural arrangements eg. the Marxists see social and governmental forms as a part of the "super-structure" determined by the prevailing mode of production. According to the contemporary political scientists, the governmental forms are the products of the "political culture" of a society.

In the ecological context, the choices of the "hard" technological paths, eventually lead to authoritarian and repressive centralized social, economic and political structures. Here, the rationale behind the policy making is generally influenced by the kind of political environment that prevails at a given point of time.

The argument against the paradigm rests on the premise that it is difficult to define what actually is 'intentional' and 'strategic' i.e., 'rational'? and to what extent it is feasible to have such a concept in the society like ours where choices are a product of the expression of coercion and lack of alternatives. Preexisting social and political institutions and the way in which different interests are recognized (or not recognized) and the availability of different political channels to common people affect the rationality of alternative strategies for achieving given ends with given means.⁸

8. Moore, Mick, The Rational choice Paradigms, The Allocation of Agricultural Development Resources, Dev. & Change, Vol. 21, No. 2, April, 1990.

Such a paradigm in pursuit of ecological benefits faces substantial obstacles in the countries, where the dominant imperatives are dictated by the economic and political pressure groups.

Environment in the Third World: Need
for Fresh Thinking in Policy Making:

The ecological issues in the Third world countries can be counted as increasing demand on land for food and raw materials deforestation, rapid industrialization and urbanization which questions the compatibility of economic growth and ecological balance. The problems of these countries differ from those of the developed nations in their basic nature hence, the solutions are also to be offered keeping in account the regional and national priorities instead of being pressurised by the developed countries to adopt common measures.

In the present century environmental degradation has emerged as a major global concern. A large number of international and global organizations with collective wisdom of scientists, economists and planners have come up to settle the environmental issues confronting the nations and the physical world. The environmental crisis has convinced the world that we need technology and resources to repair the damage already done to our environment.

It can not be ignored that many of the environment effects will always remain uncertain as most studies of green-house effect and that of climate change can not be tested conclusively.⁹ Recent entry of the developed nations has been on the "global warming" and the depletion of Ozone layer in the atmosphere. The CFCs (chlorofluorocarbons) were singled out as most harmful in the depletion of the Ozone layer. However, in 1987 the United Nations agreed to hold CFCs production. Public concern over depletion of the Ozone layer initiated a conference in Montreal in September 1987 known as Montreal Protocol signed by 48 countries, it came into force since January 1, 1989. India and China opposed such strict measures because the involvement of poorer countries in the release of the CFC substances is much smaller than the industrialized nations.

The environmental issues in the Third world have been promptly encashed by the several international agencies like UNESCO, WHO, FAO and programmes and Commissions of the United Nations like UNEP, UNDP & ESCAP. Only the myopic would claim that politics does not surface in any discussion of ecological issues in international fora. Such issues are fairly complicated in nature and this is clearly shown in the fact that the Montreal Protocol aimed at buying the poor nations by supplying them with the

9. Chatterjee, Anjana, Need for Fresh Thinking on Environmental Issues, YOJANA, June, 1-15, 1990.

financial assistance for switching to benign technologies.¹⁰ The tendency to blindly follow such technologies has led to the total ignorance of the governments of the developing nations to find out the solutions of their ecological problems in the indigenous technologies and prioritising them in such a way as to make them compatible to the existing socio-economic conditions of the country. Such impractical priorities only lead to the pumping of resources in the areas which could bring in more and more international aid, for example, allocation of Rs. 60 crore in the Eighth Plan for studies of environment as a part of school education in India and the ambitious plans like Ganga Action Plan to clean up the 'critical' river stretches. These examples draw our attention to the fundamentals of planning which tend to overlook other more important and critical problems regarding ecology eg. provision of safe drinking water supply in the rural areas and provision of better sanitary conditions. The available statistics show that till March 1980, about 2,00,000 villages in the country with a population of some 160 million were yet to be provided with potable water supply facilities, irrespective of the inclusion of the drinking water facilities in the Draft Fifth Five Year Plan (1974-79), as a part of the Minimum Needs Programme.

10. D'Monte' Darryl, Environment on UN Agenda: Fissures Show Up. Ed. The Times of India, October, 30th, 1990.

This also shows that lack of clear prioritisation and motivation has led to haphazard allocation of resources which reflects the political will of the decision makers to bring in substantial changes in the existing ecological surroundings which affect the lower strata of the society most.

India's Environmental Policy:
Crisis And Responses:

The problems of human ecology in India reflect the extensive poverty condition under which a large majority of Indian population lives. Even the minimum of water supply and sanitary facilities are not available to the masses. These problems have far reaching consequences, hence there is an urgent need to formulate plans according to the felt need of the people.

In 1954 a National Water Supply Programme was launched,¹¹ successive years also saw allocation resources in this area. Later, during a period of 1951-74 the government spent approximately Rs. 8550 million over water supply, 65% of which went to the urban areas. Minimum Needs programme of the Draft Fifth Five Year Plan (1974-79), also included provision of safe drinking water to the rural masses.

With the growth of national and international concerns regarding safe drinking water supply in sustaining the process

11. Planning Commission, Govt. of India, 1981 b:397.

of economic and human resource development and improving the quality of the environment, the ixth Five Year Plan was launched, (1980-85). Similar programmes were launched on the disposal of solid wastes and housing which had special programmes on the public sector in collaboration with the organizations like Housing & Urban Development Corporation, State Housing Boards, Apex Housing Corporations, Urban Development Authorities and Cooperative Societies, to provide better living conditions to the people. The impact of these measures has not been very significant on the overall problems especially on the housing situation in rural areas and urban slums.¹² Other priority areas which have been taken into account are air and water pollution and environmental conditions in Industries with the Bhopal tragedy exposing the massive tip of the iceberg of the other environmental hazards. The hazard has also shown that the business of the government in the country is for the protection and maintenance of the status quo at the cost of the lives of the poor people.

The Indian policies on Environment mainly show the legacy of the bureaucracy and administration of the colonial India which helped to serve the powers and not the people. This legacy was maintained even in the post-colonial India. Through conscious, unconscious or habitual

12. ICSSR-ICMR, 1981, pp. 61-62.

efforts the bureaucracy and legislators have acquired numerous techniques to subvert the solutions to the problems. Demands concerning environmental resources are made on behalf of the poor or those deprived of such resources. These techniques consist of setting up various commissions, boards and departments one after another but not changing the laws or procedures which actually affect the distribution or protection of resources.¹³

In 1976 Article 48(a) was added to the Constitution of India. It stipulates "The State shall endeavour to protect and improve the environment and safe guard the forests and wildlife".

Since the beginning of 1980's the government came out with frequent statements regarding its stand on environmental issues. The government's 20 Point Programme contains goals like cautious use of resources, environmental protection and afforestation. A separate section concerning environmental policy figures in the Seventh Five Year Plan that came into effect in 1985.¹⁴ But what has been earmarked for the Ministry of Environment is a meagre sum of 430 crore rupees (0.2% of the total budget), of which Ganga Action Plan alone will take 240 crore rupees.

13. Bandopadhyaya J., Chhatrapati Singh et.al. ed. India's Environment Crisis & Responses, Natraj Pub., Dehradun, p. 152.

14. Seventh Plan Document, (1985-90).

There is no doubt that the environmental policy in India is still in its infancy. In India, as has been the case in most of the countries, it took some time before environmental policy could be given an extra portfolio. Environmental issues were tackled by the making of the "state pollution control board" or Environmental Information System (ENVIS). The Ministry of Environment came into being in 1980's and it was only in 1983 when it came to first punishment under the Water Act (Chawdhuri 1984: 453).

It was the Tiwari Committee Report (GOI 1980), which helped environmental protection to get a thrust. It had proposed a series of administrative reforms. Later an independent Ministry of Environment was created which was to be headed by the Prime Minister. In 1985 it was changed to the Ministry of Environment, Forests and Wildlife with a cabinet Minister as its head.

The Report of the Steering Group on Science and Technology and Environment (Part II) for the 7th Plan (1985-1990) focuses on the sustainable development in harmony with the environment. It was seen as an outcome of the worldwide concern about environmental issues. World conservation strategy (1980) suggested the same approach. It was taken that all future development programmes will take environmental consideration into

account. It is a glaring fact that the development as it has continued, has hardly paid any heed to the environmental degradation it has caused since then. This report also focused on the active participation of the people in decision making at all levels and it was assumed that official involvement in environmental management in India, with increased scientific, technical, and administrative backup at the Central & State level would step up environmental protection and conservation programmes.

An overview of the environmental programmes at the end of the Sixth Plan indicates that there have been more than 200 pieces of Legislation in India (Central & State) that can be of relevance to environmental management. The smoke nuisances (Bombay & Kolaba) Act 1853, is one of the representative of the earliest such legislations. Article 51(A) (Fundamental Duties), after amendment, also inserted entries "forests" & "wildlife" in the concurrent list.

The concept of 'Ecodevelopment' was also included in Indian Environmental Policy, which focused on the very localized and piecemeal projects. Again, as a reflection of international concerns, this concept failed to perceive the social stratification as it exists in India and the

solutions of the environmental problems were seen in terms of broadening of general environmental awareness of the people. In the face of existing realities where the supply of basic amenities is so much lacking, focus on environmental education could be justified only in terms of the vested interests of the power groups.

Similarly the 7th Plan dealt with the environmental problems by starting the programmes on pollution monitoring and control. With the availability of modern laboratories and environmental Impact Assessment techniques there has been an emphasis on the 'ecosystem' approach providing a Biosphere Research Programme as a part of the S & T mission of the government of India.¹⁴

The political sphere has not been totally immune to the environmental issues. Questions were raised from time to time in the Lok Sabha regarding such issues. Though the impact of such discussions has been very less, yet they focus on the environmental problems as seen in terms of the priorities given to them. These discussions mainly relate to the environmental protection and conservation. The major focus has been on very superficial analysis provided by the politicians in these debates, though few of them have tried to discuss the impact of

14. EC, Sixty First Report (1987-88) Eighth Lok Sabha, Ministry of Environment and Forests, Air & Water Pollution Prevention and Control.

international worldviews on environment on Indian policy making. In this connection the major debates can be seen as just the issues raised and forgotten with no followup what so ever.

Environmental Legislation, in India:

The laws concerning environment enacted in the colonial era are still valid and at work. The policy inherent in them is in total contradiction to the National Environmental Policy, endorsed by the Tiwari Committee and the Department of Environmental Policy. Besides the laws which are enacted by the British and which are still in operation and which are outright imperialistic and exploitative in nature, there is a whole range of post-independence laws which are a mixture of heterogenous ideologies.

The overall process of social change under colonialism has not been understood adequately. The conventional understanding of socio-legal conceptual frameworks has made the understanding of history during the colonial period difficult. Law acts are seen as regulating mechanisms through which political authority and state legitimizes certain institutions and norms of conduct.¹⁵

15. Singh, Chhatrapati, ed. Indias Environment Crisis and Responses, Natraj Publications, Dehradun.

The Indian environmental laws are different than those in west because (1) they directly reflect on the distribution of resources, and (2) the problems are also different than those of the advanced countries.

The Land Acquisition Act of 1894 and the Forest Act as well as the criminal and Penal Codes in the colonial times amounted to public nuisance. In the independent India the development of environment related legislation has been nothing but broadening the scope of these two fundamental forces of coercion, eminent domain and criminal liability. The Forest Conservation Act of (1980) shifts power from the states to the centre and similarly wildlife Act (1986) does the same. The principle of criminal liability has been expanded through the Water Prevention and Control of Pollution Act, 1974.

Environmental Protection Act 1986 was passed which was to some extent a response to the Bhopal gas tragedy. It placed great powers in the hands of the Central Government. Basically applied to all environmental issues, when examined closely, it revolves around the water and air pollution problems. It has been accused to have been implemented in a hurry and of having missed important issues.

Before this in 1977 Water Cess Act was introduced which very superficially tried to give solutions to the water pollution problems. It deals with the sewage

treatment plants in the industries, but it is to be noticed that the question whether the plant is actually in operation has been left open.

Other legislations include the wildlife Protection Act 1972, Indian Forest Act 1927, the Factories Act 1948, The Industries Development & Regulation Act 1951, and The Air Prevention & Control of Pollution Act 1981.

These laws and legislations operate on the deterrent theory of criminal justice administration, which do not take into account the analysis regarding social costs of environmental degradation. In the face of drastic difference between the intention and achievement, it becomes necessary to step back from the problems of litigations and take a deeper look at these problems relating to environmental issues. Laws are also to be seen keeping in mind the influence of the pressure groups on legislation which is also not very unbiased in nature.

It can be concluded that environmental policy and legislation can be defined as the sum of objectives and measures designed to regulate society's interaction with ecological surroundings. It comprises aspects of restoration and structural adjustments. It is to be noticed on the basis of the previous discussion that only selected parts of the interaction between society and environment become the subject of policy. So far,

environmental policy has mostly been designed as react and cure strategies concerning the control of air and water quality, waste disposal with emphasis on the restoration and conservations aspects without giving any substantial solutions to the basic ecological problems of resource allocation, distribution and access to decision making.

The environmental issues are to go beyond a preoccupation with traditional heritage as a form of conspicuous consumption and various populist manifesto. The importance of environment as a policy issue can be traced back to the colonial era. There have been a set of ideas regarding nature which reflect more of personalities rather than collective environmental movements. But beyond this set of personal styles, as an ideology, environmentalism embodies concepts like "museumization" and preservation of endangered species, objects and people as spectacles or exhibits. Also, concepts of town planning under the guise of welfare state and metaphors of health and hygiene legitimizes repression by offering to cleanse the environment by pushing the poor towards the periphery of the towns.

The policy issues fail to challenge the fact that the Indian state is an anti-ecological phenomenon. Communities displaced by the construction of big dams

or the nature of repressive forest bills express the technocratic attempts to depoliticise Indian environmentalism.¹⁶ Even the ecologically inspired groups like Chipko and Kerela Sastra Sahitya Parishad (KSSP), are tried to be rendered ineffective by the pressure groups.

For these reasons, it is important to understand the dynamics of decision making. The managerial framework fails to see the links between the green revolution and Bhopal, a choice for pesticides and the gasleak.

Theoretically speaking environmental policies should comprise aspects of restoration, conservation and structural adjustments. Figures on environmental 'protection' as given in the political statements, symbolize a serious structural deficit of industrial society. Belated, they are repairs of the process of economic growth and are signs of a curative environmental policy which reacts to damages but does not prevent them.

16. Vishwanathan, Shiv; On Ancestors and Epigones, Seminar, 1987, 330, Feb., pp. 14-24.

CHAPTER 4

ISSUES IN HEALTH AND ENVIRONMENT - CURRENT STUDIES AND RESEARCH SUPPORT

Introduction:

The health status of an individual, a community or a nation is determined by the interplay and integration of two ecological universes, the internal environment of the man himself and the external environment which surrounds him. The idea that human environment is a complex interacting web has been accepted in the biological and social sciences since long. The very use of the concept of human ecology entails the analysis of a natural phenomena in the context of their total environment though not all these holistic studies focus entirely on the issues that highlight the cardinal socio-political factors. This failure to consider the complexity of relations between people and their environments can be attributed to the use of narrow biological methods in the analysis of problems which are broadly social. Enzenberger, points out at the limitations of the biological methods and says, "In the case of man, the mediation between the whole and the part, between subsystems and global system, cannot be explained by the tools of biology. This mediation is social and its explanation requires an elaborate social theory and at the very least some basic assumptions about

the historical process."¹ The analysis of the sociology of medicine and medical care organization focuses on the proposition that disease is generated by social and economic conditions and hence reorganizing these two is extremely essential. Further expansion of this viewpoint emphasizes that such reorganization depends on the structure of the society which can assume socially beneficial roles or roles which serve the ends of private profits.

The contemporary radical and Marxist analysis, abandoned the view of a value free scientific knowledge. According to them ideological power relations in a given society cannot be denied and reflecting struggles over class, gender and racial division are important factors to be considered. The history of civilization illuminates the relations between social and biological existence.

Henry E. Sigerist in his book 'Man and Medicine (1932), made two arguments in this connection, one, which was purely physiological in nature i.e., it focused on the internal factors within the organism which lead to a particular disease and secondly he gave an epidemiological argument which reflected on disease as an environmental response. Here, the historical overtones attached to the disease phenomena were greatly emphasized. According to

1. Turshen, Meredith, The Political Ecology of Disease Health Bulletin, No.1, Health & Society Group, p. 8.

him disease is just another life under altered circumstances, it is a result of the effect upon the organism of stimuli which exceed the limits of adaptability.²

Such an analysis draws our attention to the fact that health issues are to be seen as embedded within the ecological, social, economic and political systems. Also, an interaction between certain aspects of the way of life of a community and its environment, determines its state of health and disease. This positive concept of health goes much beyond the purely mechanistic approach which has an implicit idea that health can be merely the absence of disease.

Health and Environment:

Satisfaction of the basic needs has been a very burning issue at the international level. The concept is a necessity, but the process involved in the realisation and the mechanisms adopted to arrive at it are not devoid of the dubious manner in which such basic needs are to be delivered.

The problem does not lie in the inaccessibility of the services provided to the community alone, though it

2. Disease in History Series: Frames and Framers. Fee, Elizabeth. Henry E. Sigerist: From the Social Production of Discare to Medical Management and Scientific Socialism - The Milbank Quarterly, Vol. 67, Suppl. 1, 1989.

does add to the burden of ill health of the deprived sections. The basic problem lies in the environmental conditions in which the majority of the population in the developing and underdeveloped nations live. The environment is constituted by the socio-economic and political factors in a given biological and physical context. This concept goes beyond ecological concerns where the emphasis is more on 'nature'. In this concept of environment, the social realities created by man acquire a very significant place as they not only influence the objective conditions i.e., the ecological patterns, but also the subjective conditions i.e., the perception and evolution of knowledge of the environment and its influence on human health. This knowledge in turn promotes and moulds specific kinds of social and technological interventions to alter or maintain a given ecological pattern of the total environment.³

Several international reports have emphasized that the developing countries need reoriented and reevaluated policies and programmes so that they are able to address themselves to the demands of their people and to provide them with better living conditions. Such conclusions reflect the inherent assumptions that the rich in the developed and developing countries are in a better position to recognize what is good for the poor. The U.N. Conference on Human Environment (1972) for the first time brought the

3. Qadeer, Imrana, Beyond Medicine: An Analysis of Health Status of Indian People, Think India, Vol.2, No.1, January - March, 1990.

developing countries against the developed with regard to an approach to the environment.⁴ Again, the Alma-Ata declaration, brought in the concept of Primary Health care which could have enabled the developing countries to tackle their health problems in a better way. The literature on basic needs and Primary Health Care, however, try to deviate from the essence of basic needs and Primary Health care.

This is an undisputed fact that in these countries the social position determines the impact of the surrounding ecological conditions on the health status of the people, the poorer and the more exploited classes being more vulnerable. Hence, understanding the influence of environment on health therefore, calls for an understanding of not only the complexities that are health and illness but also of factors that influence the perception and knowledge of illness and health in their totality.

As an offshoot of the Stockholm Conference, the eco-development strategy focused on the basic need fulfillment of the people. It was stressed that such a strategy is a must for ecological balance. Though, this nation was not totally beyond Malthusian overtones, yet it helped to formulate important links between the international power structure and ecological balance.

4. UN Resolution on Human Environment, 1972.

The solutions offered to provide such basic needs came from the international quarters, which prescribed solutions which fitted the existing system. Nothing actually came into being which could provide a new developmental strategy, at the same time minor changes in the organizational and institutional strategies favoured the existing ruling classes in the developing countries. The attention paid to the political implications of these approaches was not adequate to give a practical solution to the problems. Similarly, the enabling approach which was developed later in 1980s addressed itself to the housing problems in these countries. This was another move by the international agencies to show their responsibilities to these problems by putting added pressures on the weaker sections of the society.

The development of the concepts of sustainability⁵ enablement or ecodevelopment provide us with nothing more than solutions based on inadequate assessment of the existing problems. Hence, the solutions are given according to the convenience of those who already have some vested political interests in solving these problems.

The WHO emphasises on the sustainable use of the resources⁶ for reliable food supplies and energy for human development and to prevent environmental health risks.

Even the U.N. Agencies follow the WCED report which was

5. WCED, 1987, Our Common Future Report of the Commission on Environment & Development, N.D., Oxford University Press.

6. WHO, 1988, WHO's contribution to the International Efforts Towards Sustainable Development, Executive Board, 83rd session.

adopted by the U.N. General Assembly as the environmental perspective for the year 2000 and beyond.⁷ It focuses on the achievement of satisfactory level of education and health and also on the basic needs, carrying the emphasis beyond the earlier approaches for conservation of nature and natural resources.

WHO has made the priorities keeping in view the WCED report which takes into account food, water, sanitation, population vulnerable group, family health, health reproduction, worker's health, the elderly, mental health, control of endemic diseases in relation to development, malaria and parasitic diseases tropical diseases, urban health care and control of environmental health risks etc. These new priorities need to be examined in the light of the Health For All 2000 strategy endorsed by the WHO at Alma-Ata conference. It appears from the new strategy that the problems of health are now visualised as those of development in its narrowest sense.⁸

It is to be noted that in a developing country like India, some of the critical elements of the environment that influence health and cause sickness have been identified as social class,⁹ housing,¹⁰ working conditions¹¹ water

7. UNO, 1973, Report of the U.N., Conference on the Human Environment Stockholm, June 1972, NY, UNO.

8. Nayar K.R., Changing International Gaze on Environment and Health Issues, Social Action, January-March, 1991, Vol. 41, No. 1, p. 57.

9. Banerji, D. & Singh, Lakhan, Bhopal Gas Tragedy, An Epidemiological and Sociological Study, JNU, New Delhi, pp. 15-19.

10. Banerji, D., Health & Family Planning Services in India, An Epidemiological Perspective, Lok Paksh, New Delhi.

11. Qadeer I, 1986, Work, Health and Health Sociology of Workers Health in India, Paper at XIth World Sociologies Conference, New Delhi, August, 20, 1986.

supply¹² etc. Social class determines both accessibility and availability of health services as well as the living and working environment of a group. Thus, other environmental factors become linked with this social variable. For example, nutritional status, which is linked with the class position and are housing, water supply and working conditions.

Variations within these environmental conditions are largely a function of social structure and organization of production that is why, even the identification of these factors is important for choosing particular technologies and promoting research which help to solve the problems. The growth of green revolution and anti-pollution technologies and the shift from Primary Health Care to Selective Primary Health Care was a reductionist move from the policy makers who did not pay adequate attention to the dynamic relationship existing between man and his social surroundings. These are some of the examples which throw light on the choices made to serve the purposes of the pressure groups.

Environmental dimensions of health were understood much before the medicine took shape.¹³ Snow's analysis in 1854 focused on the relationship between society and

12. Herbert, J.R., Effects of Water Quality and Water Quantity on Nutritional Status, Findings from a South Indian Community, Bulletin of WHO, 63(1), pp.143-155, 1985.

13. Qadeer, I, Beyond Medicine An Analysis of Health Status of Indian People, Think India, Vol.2, No.1, January-March, 1990

epidemic. Similarly Engel's classical work on the condition of the English working class was first published in 1894. Rudolf Virchow emphasized on the multiple causation of disease which was overshadowed by the unicausal germ-theory. The interests of physicians, industrialists and ruling elite were crucial in determining the growth and evolution of knowledge.¹⁴

In India the country's colonization led to the acceptance of modern medicine without much criticism. Even later developments in the pattern of colonial exploitation created adverse environmental conditions which further accentuated health problems. The increased prevalence of disease generated by disruption of the ecological balance, the break down in pre existing health services and the denial of accesses to medical care system combined to considerably worsen the situation of the masses.¹⁵

A third world country like India, faces extensive prevalence of poverty which leads to unfavourable ecological conditions. These conditions give rise to several health hazards and also influence the entire way of life and the social structure which generate the economic and political conditions which are responsible for the prevalence of poor ecological conditions and of poverty. This cyclic process continues with the social structure being the primary mover.

14. Rosen G., History of Public Health, M. D. Publications, New York.

15. Banerji, D., Health and Family Planning Services in India. An Epidemiological Perspective, Lok Paksh, New Delhi, 1986.

The nature of such a social structure in the Third world countries has been conducive enough to accept such ill-conceived and top-down health services plans and programmes like Selective Primary Health Care. This was a short-circuit to the positive elements of the Primary Health Care concept, which greatly emphasized on the primacy on people who are involved at all stages of health service development, namely problem identification, programme formulation and evaluation.¹⁶

The prevailing political interests behind the prioritization of existing problems cannot be denied. Thus, the fundamental issues relating to the class relationships in policy making and planning are to be understood in the light of existing realities.

Health & Environment - Current Research
in the Third World Countries:

The recognition of a link between poor sanitary conditions and disease formed the basis of John Snow's pioneering epidemiological work about 150 years ago. There is a growing awareness that if man is to survive as a species, serious thought must be given to better ecological surroundings. Many Third world countries are falling into extreme poverty associated with rapid

16. Banerji D., 1984, Primary Health Care: Selective or Comprehensive, World Health Forum 5, No.3 p.

population growth, poor nutrition and hygiene and low levels of education. The incidence of diseases arising out of poor living conditions can be attributed to the lack of basic facilities provided to the people of these countries.

Studies done in the area of environment and health in the Third World countries mainly focus on the policy formation regarding these issues, water supply, sanitation, pesticide poisoning, health hazards related to the working conditions, technology based health risks etc. These studies are basically technical in nature, yet some of them have paid much attention to the social dimensions of the environmental problems also.

The proportion of countries reporting that more than half of their population were without access to safe adequate water supplies was 30% and without adequate sanitation was 46% (compared to 45% and 47% respectively in 1980), according to a study conducted to assess the impact of inadequate sanitary conditions in developing countries.¹⁷ The same study shows that the global coverage targets for 1990 are 87% and 61% in urban and rural areas respectively. The targets are made by the WHO. This study focuses on the level of intervention, and the functioning

17. Huttly Sharon, R. A., The Impact of Inadequate Sanitary Condition Health in the Developed countries, World Health Statistics Quarterly, Vol. 43, No. 3, 1990, pp. 118-126.

and utilization of resources. It also shows that low socio-economic factor is responsible for the poor health of the people. The suggestions provided in this study relate to the improvement of basic infrastructural facilities and a multisectoral approach to bring about the desired benefits.

Briscoe (1987),¹⁸ points out at the several flaws in the analytic method used to assign low priority to the water supply and sanitation improvement. He points out that the flaws include misleading cost-benefit analysis that fails to take into account the multiple health benefits. Thus while it is clear that there are many factors to consider, a major role for improving water supplies and sanitation facilities in development seems justified.¹⁹

The global problems of acute pesticide poisoning has been confirmed as extensive by a variety of independent estimates. The latest estimate by WHO task group indicates that there may be 1 million serious unintentional poisonings every year.²⁰ It is estimated that there could be as many as 25 million agricultural workers in the developing countries suffering from acute pesticide poisoning each year (Jayaratnam, 1990).

-
18. Briscoe, J. A. Role of Water Supply and Sanitation in the Child Survival Revolution, Bulletin of the Pan American Health Organization 21(2), 93-105, (1987).
 19. Okun, D. A. The Value of Water Supply & Sanitation in Development: An Assessment, American J. of Public Health 78 (11), 1463-1467 (1988).
 20. Jayaratnam, J., Acute Pesticide Poisoning, a Major Global Health Problem, World Health Statistics Quarterly, 43, 1990, pp. 139-149.

The 'health transition' is defined as the phase of major changes in nature and extent of ill health associated with changes in economic and social development.²¹ This extends the concept beyond the more narrow health transition introduced by Caldwell,²² (Caldwell, 1989) to describe the behavioural changes related to maintaining and improving health and well being with a greater proportion of diseases being non communicable. Tord Kjellstrom and Linda Rosenstock (1990) show that, the occurrence of occupational and environmental hazards changes with economic and social development and the impact varies with different age groups in such a way that the changes in the population structure influence the overall effects of these hazards. This analysis provides a pattern of cause specific mortality and allows a framework for developing countries to prevent such hazards through economic development.

The study done by Vincente T. Covello & R. Scott Frey²³ (1990) focuses on the questions of technology based

-
21. Kjellestrom, Tord and Rosenstock, Linda; The role of Environmental And Occupational Hazards in the Adult Health Hazards, world Health, Statistics Quarterly, 43 (1990), pp. 188-189.
 22. Caldwell, J.C.; Introductory Thoughts on Health Transition, Paper presented at the Rockfeller Foundation Workshop on cultural Social and behavioural Determinants' of Health, Canberra, Australia, 1989.
 23. Cavello Vincent, T. & Frey Scott, R., Technology Based Environmental Health Risks in Developing Nations, Technological Forecasting & Social Change, No.2, Vol.37, 1990, p. 159-179.

environmental risks in developing nations. The study addresses two questions.(1)The extent of vulnerability to technology related environmental health risks and (2) to what extent does the export of hazardous technologies and products contribute to overall levels of environmental health risk in developing nations.

This study concludes that technology based environmental risks pose a significant public health problem in most developing nations, even when compared to much larger public health problems.

Problems related to the industrialisation are accentuated in these countries and the studies show that nutritional deficiencies and infectious disease caused by industrial pollution can weaken the body and make it more vulnerable to environmental insults.²⁴ A major problem identified in environment risk management has been the provision of limited financial resources to address environmental health problems.

Compounding the problem is the belief held by the officials in the Third World that the allocation of funds to environmental health problems is a luxury that can be afforded only by the industrialised nations as a

24. Michaels, David, Barrera Clara and Gacharna Manuel G.- Occupational Health & The Economic Development in Latin America, in the Export & Hazards Transnational Corporations and Environmental Control Issues, Routledge & Kegan Paul, Boston, 1985.

more important social and economic objective.²⁵ Also there is a belief that environmental protection and improvement can be achieved at the expenses of slower economic growth.²⁶

India's Environment - Current Research Status:

India's is still lagging far behind many countries in the field of environmental health. The basic problem of safe water supply and sanitary disposal are yet to be solved. Since more than 80% of the population of India live in the rural areas, the problem is one of rural water supply and sanitation alongwith slum management etc. in the urban areas.

For the development of effective policies and programmes aimed at improving the general health of a country, knowledge of prevalent health conditions in the country on one hand and the factors closely associated with poor health of the people on the other, constitutes an essential prerequisite. Hence, researches towards identification of various factors and assessment of their roles in determining the exact nature of health status form an effective basis for prevention and control programmes. In this connection attempts are to be made

25. UNEP, Industry & Environment, Nairobi, 1984.

26. Carpenter, Richard & Malthews Williams, NEPA, Environmental Innocence Abroad, East-West Perspectives, 1, 6-16 (1986).

to assess the role of environment on health and nutrition.²⁷ This study shows a direct link between poor environmental conditions and malnutrition. Charbonneau (1988)²⁸ places a great emphasis on the linkages between the ecological surroundings and the infant mortality in India. According to him the ecology is an important factor in the childrens' health, it is even more important than maternal educational levels, breast feeding or family income.

National Institute of Nutrition reported several cases of pesticide poisoning in Karnataka. The worst affected being the anti-malaria workers and agricultural labourers who spray and apply pesticides. Amita Baviskar in her paper "Pesticides or Biocides?" the pesticides problem in India (C.E.D. File K-33a) reveals that the major cause for pesticide poisoning can be attributed to the "easy availability of toxic pesticides often with little effective restriction or control".

A 1967 study of the Government of India²⁹ shows that the most fatal accidents are due to carelessness and ignorance. It also recommended stricter control on manufacture, sale and use of pesticides. Its clearly

-
27. Naidu, Nadmuni A., Vijayraghavan K., Environment - A Determinant of Health and Nutritional Status, NIN, 1986.
28. Charbonneau, R., India's Inoperable duo, Health and Environment, The IDRC Report, October, 1988, 17(4), pp.89.
29. Mankad, Dhruv, (edt.), Environmental Pollution and Human Health: An overview of the Indian Situation, 1987.

seen that policies in India regarding pesticide import, manufacture and use have shown a callous disregard for the health of the people. Only a few studies in India have shown a relationship between green revolution technologies in agriculture and physical disabilities.³⁰

Kaldata (1988)³¹ shows that an interaction between biological physiological and physical structures and psychosocial dimensions of human behaviour must be understood properly. Social dimensions of the environment is an important factor to be looked into. Vohra (1988)³² focuses on preservation of the wildlife species, provision of safe drinking water and control of pollutants and Thakral³³ (1988) questions the total development process with special attention to the construction of the large dams. He also suggests that economic, scientific and administrative issues associated with planning and implementation of the environmental parameters should be considered while adopting an integrated approach to devise such a policy. T. Narayan's (1990) study³⁴ elaborates the health impact of Bhopal disaster which he considers

-
30. Mohan, Dinesh, Food vs. Limbs, Pesticides and Physical Disability in India, EPW, Vol. XXI, No.13, March 28, 1987.
31. Kaldata, S., Social Dimensions of Environmental Pollution, IASSI Quarterly, Bulletin, April 1988, 7(1), pp-50-54.
32. Vohra, B.B., Managing The Environment, Management in Government, April-June, 1988, 20(1), 17-29.
33. Thakral, K.G., Dams: For Whose Development, Social Action July-September, 1988, 38(3), 211-30.

a an experience of a public health emergency caused by a technological disaster. The problem of such technological advancements has been high lighted in this study. Hargovind's study (1989)³⁵ talks about the pollution and environmental degradation due to poverty, deforestation and industrial development without adequate environmental safeguards.

Alongwith such indigenous research projects, several studies have been conducted in India and other developing countries by the international agencies like UNEP, United Nations Development Programme and the World Resources Institute (WRI). A critique of one of such studies conducted in collaboration by the United Nations agencies and World Resources Institute (WRI) has been brought into light by Anil Agarwal and Sunita Narain of the Center for Science and Environment, New Delhi.³⁶ This study focuses on the propaganda from the west which blatantly accuses the developing countries for the depletion of the Ozone layer in the atmosphere.

Similarly studies are done by the International Council of Scientific Unions (ICSU) on the global environmental issue, with a special focus on the problems of the

35. Govind, H., Recent Development in Environmental Protection in India - Pollution Control, AMBIO, 1989, 18(8), 429-33.

36. Agarwal, A., and Narain, S., Global Warming, U.N.-U.S. Study of India's Role Challenged, CSE, New Delhi, March, 1991.

Third world countries. These studies provide solutions which do not take into account the existing political and socio-economic factors in such countries which to a large extent affect the ecological balance.

Though the studies done in the area of Environment and Health range from technical apolitical studies on pollutants and chemical substances polluting air and water a clear trend can be seen emerging from the research which takes into account the key social factors in such an analysis. Most of these studies are related to the issues, which do not provide enough evidence of the political choices, made for ecological purposes. They give us some ideas regarding the nature of ecological problems, but do not highlight the political implications of a particular kind of social structure.

In assessing health impact it is important to understand the multifactorial nature of most of the major health indicators. The various aspects of the 'health transition' theory indicate towards the potential role of occupational and environmental factors, as the population undergoes social and economic developments. The analysis of changing patterns of cause specific mortality and hazards occurrence allows a framework for developing specific strategies to promote and accelerate the decline in avoidable causes of death. It has also been emphasized that, as countries evolve through economic development, there is a progressive change in the type of ecological

problem and exposures. This ranges from the traditional hazards of poor sanitation, indoor air pollution and agricultural accidents in the third world, to the more modern hazards of air pollution, toxic chemicals and problems of industrial waste disposal in the advanced countries.

It has been assumed by the transition theorists that an overall process of socio-economic development can lead to a considerable decrease in the disease and mortality risks related to the environment. The sooner appropriate prevention interventions are undertaken, the sooner will the resultant benefits in better health be realized.

The problems related to the rapid industrialisation poses three major types of environmental health risks in the developing nations - (1) the failure of large scale technological systems which fails to deal with the more specific health problems in these nations, (2) the use or misuse of mechanical devices, chemical substances, and (3) industrial emissions of toxic substances. In addition to these, the import of hazardous substances should be examined in the light of the political motives behind such moves. To categorize such imports we need to put them into three definite categories of (i) hazardous products (e.g. pesticides), (ii) hazardous production process and (iii) hazardous wastes.

The problem of technology related environmental risks in developing nations was raised in a dramatic fashion in 1984 when thousands of people were affected and injured as a result of toxic gas leak in Bhopal. This incident focused world attention on the problems relating to the technological advancements. Developing nations face a variety of such risks including health risks associated with the fulfillment of the very basic sanitary conditions.

The inadequacy of the government machinery to tackle these problems is evident in the major gaps and omissions that exist in the legislation aimed at protecting the public in developing nations from industrial activities and technologies. Despite the flood of environmental laws that were passed by developing nations in the wake of 1972 United Nations Conference on the Human Environment in Stockholm, most have proved ineffective.

In the light of the current research done in the area of toxic substance use and related hazards, it is evident that they do not provide us with substantial solutions. The solution if at all provided, are completely ignored by the policy makers. The studies done by the multinationals, are generally kept away from public scrutiny. They remain unpublished with the results unknown to people.

The production and use of toxic substances goes unchallenged. Within nations, the government agencies play the role of sales representatives for the expansion and growth of such production. Disasters like Bhopal, focus on the conflicts which arise out of people's right to life and survival and the involvement of profit motives. These motives backed by influential pressure groups create a good "selling point", both in terms of ideological framework and for the material goods.

SUMMARY AND CONCLUSION

To summarize the major findings of the present analysis on the basis of the trends and issues, it can be said that the historical and socio-political analysis gives us some ideas about the environmental issues. In the beginning, my analysis shows that the prime concerns which analyse the growth and development issues, revolve ^{duh} argued the use of technologies by the influential groups of the society. It is to be taken into account that the implications of the growing control of nature and its products by such groups leads to an unequal distribution of resources. Here, it is also to be noted that the ideological frameworks that reflect the fundamental structures of the society, are based on the convenience and interest of the ruling minority. In terms of resource allocation the functions of the markets and class positions are highlighted to give a full account of the governing principles of the economy. The highlights of this chapter also include the importance of the structural reforms.

As we proceed to the next chapter, the focus shifts to the changing scenario in the development of various ecological concepts. The chapter has taken into account the worldviews on ecology. The growth of these concepts

has been analysed in terms of the historical settings and their importance in resolving the ecological problem. It is seen, that these worldviews reflect the ideological networks overtime, which have a wide range of ideas and formulations. This includes the historical development of social process and the relationships between the social modes of resource base the conflicts arising out of the access of resources. Basic needs orientations, a systems analysis and the concepts of self help and enablement are discussed in this chapter. It is also noted that the structural dimensions of a society plays an important role in the formulation of the viewpoints regarding the major social issues like resources and their allocation and management.

Health and Environment are an inseperable duo. The Third chapter which deals with the health and Environment issues, takes into account the studies done in the area of air and water pollution, sanitation, living conditions and the relation that exists between the various aspects of environment and health.

The chapter also puts a great emphasis on the economic development which brings in a progressive change in the solutions provided for the ecological imbalances.

The research done in the area environment and health varies from the environment impact assessment to the studies of toxicology and waste disposal. Some of the studies focus our attention to the economic and structural reforms and their implications for environment and health.

In analysing the environmental policy in the developing countries and the countries like India, the total developmental policy has been discussed in the last chapter. The conclusion based on this chapter show that, the development policy has focused mainly on planning of decision making. The aspects of restoration, conservation and structural adjustments are discussed in the chapter. The concluding point of the chapter shows that the environmental policies and legislations in India are an outcome of the ideologies of the ruling power groups. The policies are generally curative in nature. Prevention of environmental degradation has not been taken into account. At the most, the legislations have provided some strict criminal codes which do not take into the consideration the very nature of the subsistence economies like India. The policy debates also remain restricted to the glib talk and work as the representations of the ruling classes.

On the basis of the present discussion, it is clear that an attempt to make it appear that ecological problems are aggravated directly by industrial scientific and technological developments, regardless of the socio-economic or political systems of the state, is totally wrong.

In the analysis of the character and scope of the environmental problems in the capitalist and developing countries, it is important to understand the context in which they take place. It is also to be noted that the protection of the environment usually requires not only the introduction of new technology, but also needs structural reforms.

A mass ecology movement emerges as one of the most important step which articulates the social contradictions between the closed bureaucratic "eco-system" and the rest of life beyond it. It is becoming clearer that this 'ecosystem' has proliferated and promoted its own well-being at the cost of exploiting the whole planetary environment. The ecomovements already have their own history, traditions, leaders contacts, a constructive orientation and a close tie with independent science. Finally the most fundamental importance is that these movements are for the most part oriented towards changing

the system of values, some of these also focus on the political deliberations. In this sense they are radical to all civic initiatives.

The treatment of ecological issues with the help of such movements has proven that it is practically without its own tools in terms of civic initiatives and protest of collective action which takes into account the dynamic process of social existence. Retarded scientific and technological progress in the treatment of nature brought the capitalist world inconspicuously over the decades to an ecological crisis which can be recovered only by a set of extraordinary measures.

However, without a full appreciation of the complexity of the problem of its scientific, economic, social and philosophical aspects, the movements became ardent supporters of the propaganda stereotypes and concepts that appeared during that period. The concepts like "spaceship earth", the universal recycling of raw and waste materials and demands to revise society's material needs and cardinaly alter the "way of life" and finally to switch from expanded reproduction to "zerogrowth" which also implied stringent birth control.

It is clear that technological development and the directions basic research takes, are intricately

linked to the self-perceptions and goals of a society's influential groups. Technology has been supportive of over-consumption in the North at the cost of Southern half of the world.

Studies done in the North try to use biased data to blame the Third World which has already paid the price of over-consumption in the North. Almost similarly, another view of environment as well as of the health system focuses our attention to the fact that such neo-colonialism is possible because of the vested interests of the upper classes in the Third world itself. In other words, technology which marginalises the weak has been a tool both of the rich countries ensuring their ongoing control over the poor and of the upper classes in the third world getting further control over the weak.

This situation has been discussed here through individual technical systems. The analysis is done in terms of the control of advanced technologies over the health of the poor which denies them access to proper care. At the same time, marginalisation of the subsistence economies and communities studies their resistance to such technological advancements.

Even among the marginalised themselves, stratification ensures the monopolisation of privileges by a small

elite. The concept of welfare state in the third world countries, has become a representative of the vested interest rather than a tool of change as it was intended to be.

Because of growing environmental awareness in the west, leaders of industrialised countries that pollute the world, are trying to prove themselves as environmentalists. Simultaneously, efforts are being made to divert attention from overconsumption in the rich countries, by blaming the third world for producing an excess of ~~excess of~~ carbon dioxide and methane gases, the most important contributors to global warming.

To carry out the strategy to meet people's survival needs, development strategies, in the third world will have to be eco-system-specific and holistic. It is important to plan for each component of the ecosystem and not just trees - grasslands and wildlife. To do this the third world countries need more than just ~~grab~~ world about peoples participation or waste land development. These demands ^{need} bold and imaginative steps to strengthen and deepen local democracy by decentralisation. This also means dismantling the inefficient and oppressive government apparatus and changing laws so that people can act according to the demands of the time. The oppressive laws,

which are generally coercive in nature, do not actually take into account the class disparities and stratification in the society.

After years of implementing the top-heavy, centralised, elite oriented models of growth, there have been serious concerns expressed and concerted search for an alternative. The alternative suggested is a total antithesis of the former, democratic decentralised, participatory ^{nature of analysis.} in ~~economical~~. This seeks to integrate both the preventive and curative aspects. There is a need for an overall, integrated development of society - culturally, economically, educationally, socially and politically within this framework the improvement of the environment health, nutrition and fulfilment of the basic needs are to be considered as a part of total plans.

BIBLIOGRAPHYBooks

- Bandopadhyaya J., Chhatrapati Singh et.al. ed. India's Environment Crisis & Responses. Natraj Publication, Dehradun, pp.152.
- Banerji, D., Health and Family Planning Services in India. Lok Paksh, New Delhi. 1985.
- Basu, Amitabh & Mukhopadhyay, Barun (Edt.) Human Adaptation to Environment. Indian Anthropological Society. Calcutta, 1985.
- Caldwell, Lyton, K., Environment: A Challenge to Modern Society. Anchor Books, NY 1970.
- Chen & Lagler, Growth Policy : Population Environment, & Beyond. The University of Michigan Press, 1974.
- Commoner, Barry, The Relationship Between Population and Environment. A Debate in Marden & Hodgson (Eds.) op.cit. pp.37-126. The Closing Circle, 1971.
- Djurefeldt, G and Lindberg, S., Pills Against Poverty - A Study of the Introduction of Western Medicine In a Tamil Village. Oxford & IBR Publishing Co. Ltd. 1976.
- Dryzek, John S., Rational Ecology, Environment & Political Economy. Basil Blackwell 1987.
- Dubhashi, P.R. Grammar of Planning. Indian Institute of Public Administration, Delhi.
- Ehrlich, Paul, R. & Ehrlich Anne H. Population Resources and Environment. Issues in Human Ecology 1970. Freeman.

- Shrlich, Paul, R. The Machinery of Nature. Paladin Books, pp. 118-123.
- Ekholm, Eric, P. Logging Ground : Environmental Stress & World Food Prospects, 1976. W.W. Norton & Co.
- Ekholm, Eric, P. Down to Earth - Environment & Human Needs. Pluto Press, 1982.
- Engels, F. "Anti - Düring", Progress Publishers, Moscow, 1978. pp.171.
- Farvar, M. The Interaction of Ecological & Social system, Local Outer limits in Development. In Outer limits & Human Needs Resource & Environmental Issues of Development Strategies Edt. William H. Matthews 1978, Dag Hammars Kjold Project, Uppasala.
-
- The Careless Technology Ecology & International Development. New York. Natural History Press.
- George, Susan How The Other Half Dies, The Real Reasons for World Hunger. Penguin Books. 1977.
- Glaeser, Bernhard (edt). Learning from China? Development & Environment in Third World Countries, London, Allen & Unwin, 1987.
- Khozin, G. The Biosphere & Politics. Progress Publishers. Moscow, 1976.
- Laptev, I. The World of Man in the World of Nature. Progress Publications, 1970.
- Matthews, William, H. (edt.). Outer Limits & Human Needs Resource & Environmental Issues of Development strategies. Dag Hammars Kjold Project, Uppasala, 1976.

- Meadows, D.H., Meadows D.L. Randers, J. & Behrens W.
1972, The Limits to Growth. LONDON, PAN.
- Michaels, David, Barrera Clara, et.al. Occupational Health of the Economic Development in Latin America. In the 'Exports of Hazardous Transnational Corporations & Environmental Control Issues' (edt). Ives, Jane, H. Rautledge & Kegan Paul, Boston, 1985.
- Micklin, Michaels, Population, Environment & Social Organization : Current Issue in Human Ecology. Dryden Press, Hinsdale Illinois, 1973.
- Paulus, Stephen, Economic Growth, Structural Change & Environmental Policy in India.
- Pepper, D., The Roots of Modern Environmentalism. Coombelm Beckenham, Kent, 1984, U.K.
- Redclift, M., 1987, Sustainable Development Exploring the Contradictions London, Methuen.
- Rosen, G., History of Public Health M. D. Publications, New York.
- Sandbach, F., 1980, Human Ecology : Environment, Ideology & Policy, Basil Blackwell, Oxford, 1980.
- Scambler, Graham, (Edt.). Sociological Theory & Medical Sociology. Tavistock Pub., London, NY, 1987.
- Simonis, U.E., Ecological Modernization New Perspectives for Industrial Societies. Friedrich Ebert, Foundation.
- Singh, Narinder, Economics and the Crisis of Ecology, Oxford University Press, 1976.

Singh, R.B., (edt.). Studies In Environment & Development.
Common Wealth Publishers, New Delhi.

Ward, Barbara; Dabos Rene, Only One Earth, The Case &
Maintenance of A Small Planet. Penguin, 1972.

Whorton, Clifton R. (Jr.) The Green Revolution : Commuopia
or Pandora's Box? Readings in Man The Environment
& Human Ecology. Macmillan Pub. Co. Inc., NY,
1973.

Articles and Reports

Agarwal, Anil, Ecological Destruction & the Emerging
Patterns of Poverty & People's Protest in Rural
India. Social Action, Vol.35, 1985, pp.54-80.

Agarwal, Anil & Narain Sunita, Technology Control, Global
warming & Environmental Colonialism. The WRI
Report Social Action, Jan-March, 1991, Vol.41,
No.1, pp.3.

Bagchi, A.K. Colonialism & the Nature of 'Capitalist'
Enterprise in India, EPW, July 30th, 1988.

Bandopadhyaya, J. & Shiva, V. Political Economy of Ecology
Movements. EPW, June 11th, 1988.

Banerji, D. Primary Health Care : Selective or Comprehensive ,
World Health Forum 5, No.3.

Banerji, D. & Singh Lakhan, Bhopal Gas Tragedy : An
Epidemiological & Sociological Study. JNU,
New Delhi, pp. 15-19.

Bardhan Kalpana, Poverty Growth & Rural Labour Markets in
India. EPW, Vol.XXIV, March 25th, 1989.

- Bertram, G. Sustainable Development in Pacific, Micro Economics. World Development Vol.14, No.7, (1986) pp.809-822.
- Bharadwaj, Krishna, Paradigms in Development Theory. EPW, Jan., 1990.
- Bowonder, B. Environmental Risk Assessment, Issues in the Third World. Technological Forecasting & Social Change 19, 99-127, 1981.
- Briscoe, J.A. Role of Water Supply & Sanitation in the Child Survival Revolution. Bulletin of the Pan American Health Organization. 21, 2, (93-105) 1987.
- Brown, Lester & Shaw, Pamela - Report of World Watch Institute. 1982, pp. 6-12-13.
- Caldwell, J.C. Introductory thoughts on Health Transition. Paper presented at the Rockfeller Foundation Workshop on Cultural, Social & Behavioural Determinants of Health. Canberra, Australia, 1989.
- Carpanter, Richard & Matthews, William NEPA, Environment Innocence Abroad. East-West Perspectives. 1-6-16, (1980).
- Charbonneau, R. Indias Inseperable Dip: Health & Environment. The IDRC Report, Oct., 1988, 17, (4), 8-9.
- Chatterjee, Anjana Need for Fresh Thinking on Environmental Issues. Yojana, June, 1.15.1990.
- Covello, Vincent T. & Frey Scott R. Technology Based Environmental Health Risks in Developing Nations. Technological Forecasting & Social Change. No.2, Vol.37, 1990, 159-179.

- CSE, II Citizen's Report The State of India's Environment.
Center for Science & Environment. New Delhi,
1982.
- Dasgupta, Biplab, The Environment Debate : Some Issues &
Trends EPW, Annual No. Feb., 1978, pp. 386.
- Devall, Bill, 1980 The Deep Ecology Movement, Natural
Resources Jr. Vol.20, pp.299-322.
- D' Monte, Darryl Environment on UN Agenda : Fissures Show
up. Editorial, The Times of India, Oct., 30th
1990.
- Enzenberger, H.M. A Critique of Political Ecology. New
Left Review, No.84, 1974.
- Fee, Elizabeth, Disease in History Series : Frames and
Framers, Henry E. Sigerist : From the Social
Production of Disease to Medical Management &
Scientific Socialism. The Nilbank Quarterly.
Vol.67, Suppl.1, 1989.
- Gadgil, Madhav, Towards An Ecological History of India.
EPW, Vol.XX, No.45,46,47 Special No. Nov., 1985.
- Gadgil, Madhav, Social Restraints on Exploiting Nature,
The Indian Experience Development - Jul-Dec., 1987.
- Guha, Ramchandra, Ideological Trends In Indian Environmen-
talism. EPW, Dec., 3th, 1988.
- Guimaraes, Roberto, P. Bureaucracy & Ecopolitics in Brazil.
International Sociology Jr. of the International
Sociological Association. Vol.6, No.2, March, 1991.
- Hardin, G. The Tragedy of the Commons. Science, 162,
1243-8, 1968.

- Harloe, M. & Martens, M. The Restructuring of Housing Provision in Britain & the Netherlands. Environment & Planning Vol.17, 1985, July-Dec.
- Herbert, J.R. Effects of Water Quality & Water on Nutritional Status: Findings from a South Indian Community. Bulletin of the WHO 63, (1), 143-155, (1985).
- Turshen, Meredith, The Political Ecology of Disease Health Bulletin No.1, Health & Society Group, pp.8.
- Hecht, Susanna B. Environment, Development & Politics: Capital Accumulation & Livestock Sector in Eastern Amazonia World Development. Vol.13, No.6, pp.663, 1985.
- Huttly, Sharon, R.A. Environmental Epidemiology, World Health Statistics Quarterly. Vol.43, No.3, 1990.
- Huttly, Sharon R.A. The Impact of Inadequate Sanitary Conditions Health in the Developing Countries World Health Statistics Quarterly, Vol.63, No.3, 1990, pp.118-126.
- IANITSKI, O.N. The Environmental Movement Soviet Sociology : A Jr. of Translations. Nov.-Dec., 1990.
- ICSY's Environmental Programmes, Current Literature on Science, Technology & Development Studies. Vol.19, No.2, 1990.
- Ingela, M.B. Wilman Expecting the Unexpected Some Ancient Roots & Current Perception of Nature. AMBIO, Vol.2, April, 1990.
- James, J. Growth, Technology & the Environment in LDCs - A Survey World Development. Vol.6, 1978, pp.937-965.

- Jasanoff, Sheila, Managing India's Environment.
Environment, 28, Oct., 1986, 12-16, 31-38.
- Jeyaratnam, J. Acute Pesticide Poisoning : A Major Health Problem. World Health Statistics Quarterly, 43, 1990, pp. 139-143.
- Kaldata (S). Social Dimensions of Environmental Pollution
IASI Quarterly Bulletin April, 1988, 7(1), 50-54.
- Kanan K.P. & Mody Ashok, Environment & Development in India.
EPW, April, 1983, 16-23.
- Kjellstrom, Tord & Rosenstock, Linda, The Role of Environments & Occupational Hazards. World Health Statistics Quarterly, 43, 1990, pp.188-189.
- Kothari, Rajni, New Social Order Center for the Study of
Developing Societies. New Delhi, 1988.
- Mamdani, Mahmood, The Ideology of Population Control.
EPW, Special No. August, 1976.
- Mellar, J.W. The Interminging of Environmental Problems & Poverty. Environment, Nov., 1988, 30 (9), 8-13.
- Mohan, Dinesh, Promotion of Modern Technology A New Tool for Colonialism EPW, Aug., 12th 1989.
- Moore, Mick, The Rational Choice Paradigms, The Allocation of Agricultural Development. Resources, Development & Change. Vol.21, No.2, April, 1990.
- Murthy, Dakshina, K. S. Politics of Environment. EPW, Vol.XXI, No.18, May 3rd, 1986.

- Murti, Krishna C.R. Chemical Pollution of Environment : The Indian Scene Industrial Toxicology Center Research, Lucknow, 1974.
- Naidu, Naduni A. Vijaraghavan K. Environment A Determinant of Health & Nutritional Status, NIN, 1986.
- Narayan T., Health Impact of Bhopal Disaster : An Epidemiological Perspective. EPW, 1990, 24(34), 1904-14.
- Nayar, K.R., Environment & International Worldviews : Two Steps Backwards. EPW, March, 3rd 1990, pp.457.
- Nayar, K.R., Changing International Gaze on Environment & Health Issues, Social Action, Jan.-March, 1991, Vol.41, No.1, pp.57.
- Okun, D.A., The Value of Water Supply & Sanitation, in Development, An Assessment. American Jr. of Public Health, 78 (11), 1463-1467, (1988).
- Omvedt, Gail, Ecopolitics, Left & Center. EPW, Vol.XXI, Feb., 15th, 1986, pp.295.
- O'Riordan, T., Research Policy & Review Future disections for Environmental Policy. Environment & Planning A, 1985, Vol.17, pp.1431-1446.
- Patnaik, Prabhat, A Perspective on the Recent Phase in India's Economic Development. Paper presented at Social Science Seminar, Teen Murti, 1990.
- Patnaik, Utsa, The Agrarian Question & Development of Capitalism in India. EPW, Vol.XXI, No.18, May 3rd, 1986.
- Qadeer, I. Work, Wealth, & Health Sociology of Workers Health in India, Paper at XI World Sociological Conference. N.D., Aug., 20th, 1986.

- Qadeer, Imrana, Beyond Medicine : An Analysis of Health status of Indian People. Think India, Vol.2, No.1, January-March, 1990.
- Raghuandan, D. Ecology & Consciousness Economic & Political Weekly. Vol.12, No.13, 1987, pp.545-49.
- Redclift, M.R. Development and the Environmental Crisis : Red or Green Alternatives. LONDON, Methuen World Bank, (1979), Environment & Development Washington, D. C.
- Sathyamala, C., et.al. Against All Odds : The Health Status of the Bhopal Survivors. The Center for Social Medicine & Community Health, JNU, New Delhi, 1989.
- Stonich, Susan, C. Environmental Destruction, A Central American Case Study. Population & Development Review. Vol.15, No.2, June, 1989.
- Sweezy, Paul, M. & Haggoff Harry, Meaning of Revolutionary Change. New York.
- Thakral, E.G. Dams : For Whose Development. Social Action, July-Sept., 1988, 38 (3) pp.211-30.
- Tisdell, Clem, Conserving, Living Resource in Third World Countries, Economic & Social Issues. International Jr. of Environmental studies Vol.23, (1983), pp.11-24.
- Tisdell & Fairbairn, Subsistence Economies & Unsustainable Development & Trade : Some Simple Theory. The Jr. of Development studies, Vol.20, 1984, pp.227-241.
- Tisdell, Clem, Cost benefit Analysis, The Environment & International Constraints in LDCs. Jr. of Economic Development, Vol.11, 1986, pp.63-81.

- Tisdell, Clem, Sustainable Development : Differing Perspectives of Ecologists & Economists & Relevance to LDCs. World Development, Vol.16, No.3, 1988, pp.373-384.
- UNO, 1973, Report of the UN Conference on the Human Environment. Stockholon, June,1972, NY, UNO.
- UNEP, Industry & Environment. Nairobi, 1984.
- United Nations, General Assembly, 43rd Session Official Records, Report of the Commission on Human Settlements on the Works its Eleventh Session. Addendum Global Shelter Strategy to the year 2000, 1988.
- Visvanathan, Shiv, On Ancestors & Epigones Seminar, 1987, 330, Feb., pp.14-24.
- Vyasulu, Vinod, Theory of the Economy - Environment Systems Review Article on Charles Perring's book, Economy & Environment. EPW, July, 30th, 1988.
- Warford, Jeremy, J. Eco Development & Environmental Protection Natural Resources Forum. A UN Jr. Vol.13, No.3, Aug.,1989.
- WCED, 1987, Our Common Future Report of the Commission on Environment & Development. N.D Oxfor University Press.
- WHO 1988, WHO's Contribution to the International Efforts Towards Sustainable Development. Executive Board 83rd Session.
- Zeeman, E.C. "Catastrophe Theory." Scientific American NU, 234, 479, pp.65-73.

Parliament Debates and
Government Reports:

- Bahuguna, H.N., Environment Management, Lok Sabha, 14.12.1983.
- Gaekwad, Ranjit Singh, Ecological Change and Global Imbalances, Lok Sabha, 7.3.1989.
- Government of India, 6th Plan Approach and Policy, 1969-74 Planning Commission.
- Government of India, India Cabinet Secretariat Committee on Science and Technology, Working Group, on Human Environment, 1971.
- Government of India, Blanning Commission, 1981 b, 397.
- Government of India, Report on Environment of the Steering On Science and Technology and Environment, Planning Commission, 1984, (For the 7th Plan, 1985-90).
- Government of India, The Seventh Plan Document, New Delhi, 1985-89.
- Government of India, Lok Sabha Debate Eighth Series, Vol.22, No.11-15, 18th - 24th November, 1986, Statement RE: Enforcement of the Environment Protection Act, 1986.
- Government of India, EC, Sixty First Report, (1987-88), Eighth Lok Sabha, Ministry of Environment and Forests, Air and Water Pollution Prevention and Control.
- Government of India, EC, 32nd Report of the Ministry of Urban Development, Housing for Landlords, 8th Lok Sabha.

Government of India, 96th Report PAC on National Project on Biogas Development, 8th Lok Sabha.

Government of India, 139th Report PAC, Family Welfare Programme, 8th Lok Sabha.

Lal, Bhajan, Environment Protection Act, Lok Sabha/RS, 19.11.1986, Parliament Committee on Environment and Forests.

Panigrahi, Chintamani, Environmental Hazard, Rule 377, Lok Sabha, 9.5.1984.

Pradhan, R. S., 11 letters Raised on Environment, UR-377, Lok Sabha, 29.3.1988.

Shankarananda, B., Environmental Programme HAH Disaster, Regarding Report of the UN, Lok Sabha, 6.8.1986.

Singh, Digvijay, Environmental Movement, Lok Sabha, 4.12.1986.

1270

