Chapter: Two

THEORETICAL FRAMEWORK OF POLITICAL ECOLOGY OF DISEASE

2.1 Introduction

'Geography' attempts to study three characteristic features - the study of man-environment relationship, the characteristics of place, and the analysis of spatial relationship. All of these have been pertinent to the study of disease ecology under different conceptions. Man-environment relationship has been primary to all kinds of approaches even the biomedical one that studies disease and health. Health and disease are the products of the interaction of three key elements: the agent, the host, and the environment. Concern for ecology i.e. the impact of environment on occupants of a given spatial unit, finds mention in the earliest known traditions of health and medicine. From ancient period down to modern times, the physical environment has been the prime target of public health interventions. Place, not as geometrical space but as the product of social phenomena remained important to medicine and health until the middle of the 19th century. Though still considered important to the study of health and disease, the interest of epidemiologists and biostatisticians in “place” reduced because such analysis was dependent on quantification. The cultural aspects of place and the political interventions and decision that shape its characteristics have taken a back seat under this conception. The renewed efforts to highlight these aspects of ‘place’ have gained currency under a new approach known as political ecology.

There have been several paradigms in the study of disease and health. Each one of them makes a reference to ecology, sometimes with real concern but often as a passing reference. The concern of ecology in the study of health has been changing from physical to social to political ecology. Political ecology is a new approach rooted in political economy and cultural studies. It was rightly recognized by Mayer that the introduction of political economy to geographical studies has led to the development and integration of political ecology.\(^4\) This approach, once controversial, still paradoxical, has been applied in anthropology, psychology, agricultural studies and in other related fields to inculcate the behavioural aspects of population and their cultural lineage in understanding specific problems- in this study disease and health related problems. It does not simply add gender to class, ethnicity, race and other social variables as axes of power in investigating the politics of resources, access, control and environmental decision making. Political ecology, in our case political ecology of disease, brings into a single framework an ecological perspective of disease combined with economic, cultural and political power relations.

2.2 Towards an understanding of Disease and Health: Changing Paradigms

A conceptual understanding of disease and health is important for the policies adopted to control disease. The academic analysis of disease and health is based on a philosophical and social understanding. There are various conceptions of disease and health. In the clinical sense, health is a state when there are no physiological disorders. Kosa and Robertson present a physician’s view, where they find that

‘definition of health and illness is all too abstract’.\(^5\) Almost similar to this, the functionalist perspective of illness centres on the role of sick and the role of physicians and according to this, illness is legitimate as long as it is justified by the medical job.\(^6\) Popular perception of health is not limited to this approach and has diverse meanings for different sets of people in the ‘non-medical’ society. Engel proposed integrating the knowledge about the biological, psychological and social aspects of illness.

In a broader sense, health is not only the absence of infirmity but ‘a state of complete physical, social, and mental well being ... not merely the absence of disease or infirmity’.\(^7\) This is also a negative attitude towards the understanding of health, as it defines health as absence of certain characteristics. The ideal definition of health should rather emphasise the presence of certain positive not negative qualities. The preamble of the WHO constitution also stated that “the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being, without distinction of race, religion, political belief, economic or social condition”.\(^8\) ‘Health’ after all is simply an everyday word that is used to designate the intensity with which individuals cope with their internal status and their environmental conditions.\(^9\) However, in the narrower sense health is reduced to a clinical concept where the body should be free from any infirmity or where disease is absent. Interestingly, disease gets a mention in both the formulations of health but its contextualization is completely different in the two formulations.

\(^5\) Kosa and Robertson (1969) p.22
\(^7\) WHO (1946) quoted in “International Encyclopaedia of Social Science” (1968), Vol. 6, p. 330
A diseased state is according to McHill encyclopaedia of 1977 was "life under altered conditions" and the alteration represents a deviation from a norm and is a summation of the characteristics of the deviation from normal function and structure. After a decade in the same encyclopaedia the simplistic definition centering on 'altered conditions' was replaced by an elaborate discussion on biology and various related theories, like "cell-theory" of R.C. Virchow. This theory was applied to pathogenesis of human disease. The fundamental cause of disease was limited to the cell rather than to human body and the encyclopaedia stated that the "cause of disease is based on biochemical and biophysical responses within the cell". The earlier edition of international encyclopaedia of social science used illness as synonymous to disease and defined it as a disvalued process that impairs the functioning or appearance of a human person which may ultimately lead to death.

Disease has been defined in several ways. Philosophically, the two leading streams can be clearly identified – one commonly known as "objective approach" – closer to the later developed bio-medical explanations and another is "normative approach" that relates disease to the social context. The first i.e. objective approach tries to fit disease into an objective and theoretical structure of modern biological science. It posits that,

It is the task of empirical science to devise theories that describe and explain both the normal bodily process and states and also those deviations from them – the primary features of disease.

10 McHill Encyclopaedia (1977)
11 McHill Encyclopaedia (1987)
13 Ibid, p. 312
Reliance on the notion of biological function provides a more forceful and persuasive version of an objective view of disease and its value-neutrality. Boorse forcefully forwarded that disease judgements are value-neutral. He brought in the concept of statistical normality and the concept of function in the determination of disease. He explained:

A disease is a type of internal state which is either an impairment of normal functional ability i.e. a reduction of one or more functional abilities below typical efficiency or a limitation on functional ability caused by environmental agents.\(^\text{14}\)

The definitions, which claimed value-neutrality and defined disease in terms of functional normality were, however, rightly questioned more than once on several grounds. Most important among these is the concept and the basis of 'reference class'. Boorse has defined functional normality differently for different 'reference classes'. The choice of reference class clearly determines the statistical normality or abnormality of conditions. For example, myopia could be linked to academic achievements in the intellectual circles, while it would be a disadvantage in the society where spotting danger from a distance is required. The basis of the choice of selection of population for a particular reference class is not clear. However, only knowing the basis of demarcating reference class would not be sufficient. Even if it is known there would be hardly any neutrality ensured. The main basis of functional normality is an average of the behaviour of a certain group of population and is based on the biologist's interest. Boorse himself has admitted that diseases are indeterminate and must be determined by a biologist's interest. This makes the definition subjective as biologist's interest would decide what conditions are statistically normal and what population shall be chosen as standard reference. W.M. Brown is critical of the

increased biological interest in defining disease and notes that Boorse's conception of disease is a,

... stipulative one and correspondingly his notion of disease will not accord with common or general usages, but only with that of biologist interested in physiology.¹⁵

Quite often, biological disadvantage was considered as disease. Rudolf Virchow in 19th century tried to characterize disease as a clinical picture in terms of anatomy and physiology. This was made possible as internal diagnosis became refined with advancing technology and growing insights into the etiology of disease. At the same time the biological definition of disease came under severe criticism as Temkin points out that if bacteriological definition of the specific disease is taken as a principle then there should be as many specific diseases as are the pathogenic organisms or even strains. He further added that absence of different substances can affect the body adversely and so there should be many deficiency diseases.¹⁶

The concept of disease and health can not be considered a biological complete. Miller Brown argues that a disease could be considered 'a type of statistical variation in the history of the organism', but variations need to be specified, as every variation can not be called disease.¹⁷ Sometimes, biological disadvantages against the normative behaviour were considered as disease. Kendell extended the arguments to the impairment of the reproductive ability and regarded homosexuality as a disease. King cites the example of Chinese view that does not consider upper class women with bound feet as a disease in spite of their suffering from pain and a diminution

---

function. In due course it was recognized that only undesirable physical conditions may not be considered as disease. This argument was further extended by H.T. Engelhardt, Jr. He argued that,

The conception of disease acts not only to describe and explain but also to enjoin to action ... it is a normative concept it says what ought not to be. As such the concept incorporates criteria of evaluation designating certain states of affairs as desirable and others as not so. It delineates and establishes social relations such as being sick or being a physician.19

This brings us to the other important approach in philosophy, which admits that disease is not only a physical state or process of an organism but also that which is undesirable, disvalued or bad. It means that disease is a state, which is defined normatively and therefore is relative. Recognition of a disease is a subjective concept. The alteration in the normative condition can be due to reactivity of individual to his environment or a combination of both. In short, this conception of disease is based on descriptive as well as normative components. Under this conception:

Disease is the aggregate of those conditions which judged by the prevailing culture are deemed painful or disabling and which at the same time deviate form either the statistical norm or from some idealised status.20

Large number of scholars other than King also conceded that the concept of disease is related to our values system and social judgement.21 Margolis moved further and posited that,

...disease is whatever is judged to be a disorder or a cause to disorder, in the relevant way, the minimal integrity of body and mind relative to prudential functions.22


21 Febrega (1972), Veatch (1973) and etc., for detail discussion on undesirable physical condition see H. Merskey (1986) op. cit.

A similar argument was given by Merskey when he considered disease as something that prevents one from securing the thought of prudential expected values like avoidance of death, prolongation of life, restriction of pain, gratification of desire, insurance of security of person and body through its interface with body and mind. Merskey defines disease as,

...a state of malfunction of body or mind that is a matter of concern the patient, his doctors, and other relevant persons, subject to the qualifications that the malfunction has to be defined from case to case and that consequences of the disease for the patient’s obligations to others will be determined by the patient and his doctors with the consent of other relevant persons.23

Close to World Health Organization (WHO) definition of health, scholars like William Goosens tried to conceptualize diseases. He argued that a “disease is a physical state or condition that constitutes some threat to the well-being of some person.”24 The concept of well-being is explained as a person’s “internal physical status, the environment and their goals and aspirations”.25

It was Caroline Whitebeck who clearly claimed that the term disease is a value-laden concept in a distinct and hitherto unrecognized sense. She used the notion of ‘value-laden’ in the sense of ‘capability’ - if and only if, the concept or the definition of the term warrants the conclusion that people have an interest in being able to influence things of certain type.26 She stressed that disease is a process and can not be distinguished from its effects or its causes and from other physical states and

25 Ibid.
conditions. Her concept relates ‘social context’ or ‘group’ to time and space. Sedgwick also emphasizes the relationship between patients, doctors and environmental conditions. 27

It is quite obvious that the definition of heath and disease has been changing and with this change the paradigms in which they are analysed have also been transformed. In the recent times two divergent paradigms exists simultaneously. The dominant paradigm considers disease or illness as a disturbance, exaggeration, diminution, or cessation of a corresponding normal function of body. 28 The proponents of lesser accredited paradigm consider health as adaptability. Under this paradigm the concept of disease gets transformed from a biological entity to a measure of the maladaptive interactions among the familiar triad of population, environment, and culture – commonly understood as ‘ecology’. 29

We have discussed that there is no agreed definition of disease. Purely biological definitions are inadequate and even definitions that combine biological and social aspects are not completely satisfactory. Each culture has its own ‘characteristic perception of disease’. 30 Diseases take their features from the physicians who cast the actors into one of the available roles. 31 Most commonly, what doctors treat or what people complain is disease and it leaves people free to take leave from work. 32 It is in the power of the physician to declare people as sick. In the middle ages military

27 Sedgewick quoted in H. Merskey (1986)
service personal were relieved from service if tuberculosis was detected. This kind of example makes one believe that disease means some kind of relief from certain services, or from fulfilling certain responsibilities. This relief, however, is dependent on the laws under which people work.

2.2.1 The Ecological Conception of Disease

The term ecology has varied meanings and its connotations have changed over time in the context of medicine and disease. For about 2000 years the importance of environment and space in relation to the occurrence and prevalence of diseases has been recognized. It was as early as in the 4th century B.C. when Hippocrates tried to explain the association between various factors of environment and the occurrence of disease. He believed:

Whoever wishes to investigate medicine properly should proceed thus: in the first place to consider the seasons of the year and what effects each of them produce (for they are not like, but differ much from themselves in regard to their changes). Then the winds, the hot and cold, especially such as are common to all countries, and then such as are peculiar to each locality. We must also consider the qualities of water, for they differ from one another in taste and weight, so also do they differ much in their qualities. In the same manner, when one comes to a city to which he is a stranger, he ought to consider its situation, how it lies to the winds and the rising of sun; for its influences is not the same whether it lies to the north or south, to the rising or setting of the sun... one should consider... the mode in which the inhabitants live and what are their pursuits, whether they are fond of drinking and eating to excess and given to indolence or are fond of exercise and labour.33

This conception of disease continued in all disciplines of knowledge. It is now established that population, society and the physical and biological environments are in dynamic equilibrium. This existing relationship has remained an important principle of disease ecology. If there is a change in the existing pattern or in the

existing relationship, there ought to be a new disease or new rate of growth or decline in existing disease. The argument was substantiated by Mayer in his study on infectious diseases. He believes that,

...the human-environment relationship, if disbursed enough by major changes in land-use, migration, population pressure, or other stressors can show significant maladaptation as manifested by the appearance or diffusion of new disease. 34

With ‘victories’, ‘breakthroughs’ and ‘remarkable advances’ in medicine and development of vaccination for the common communicable and infectious disease, the social and cultural ecology tradition was relegated to an unimportant position in the medical profession. It was advocated that physicians can only diagnose the cause of disease and prescribe the treatment. Each disease has specific and distinguishable features, which are universal to human species and diagnosis is to be based on the combination and severity of these symptoms.

In the disease ecology perspective scholars have frequently adopted the first kind of ecological conception i.e. functional and structural rather than historical. They considered it important to explain the pattern of disease rather than the behaviour of an individual which is determined by various factors and which is difficult to generalize. This view-point has made the disease ecology paradigm closer to biological sciences rather than to geographical explanations. Disease ecology has often been seen as one discipline that concentrates on the biological aspects of disease. “Disease ecologists are much more concerned with the biological aspects than are the disease geographers.” 35 Barrett further argues that geographers will strengthen their own discipline by thinking in terms of geography of disease. Disease


ecology is more closely associated with epidemiology than with geography because it attempts to study the specific etiology of disease in the context of agent, its growth / maturity in the host in any specific environment.\textsuperscript{36}

The dualism between the question of objectivity and the quest for curiosity has remained somehow central to epidemiology which is the study of determinants and distribution of disease with the ultimate purpose of controlling and preventing it. The sub-discipline is not devoid of historical lineage which includes Greek maismatic theories of environmental conditioning of ‘marsh fever’ and the Roman recognition of the association between use of lead-glazed pottery for wine and symptoms of plumbism.\textsuperscript{37} This kind of understanding was replaced by the new methods and techniques of logistic regression, multi-linear analyses etc. as the earlier observations were not found always correct.\textsuperscript{38} Not less important is the observation that

... since prestige is attributed mainly to those applying new and advanced measurements in research, epidemiology may lose the grand perspective in detailed studies providing no insight into the process leading to major changes in morbidity and mortality pattern.\textsuperscript{39}

2.2.2 Bio-medical Tradition

The shift from the time of Hippocrates to that of Barrett and others can be seen in the light of the influence of the advances in biomedical tradition of health and medicine. The rise of modern science challenged and eventually overthrew explanations in the tradition of Hippocrates.\textsuperscript{40} Most members of the medical


\textsuperscript{38} Ibid.


\textsuperscript{40} D. R. Buchanan (2000) op. cit.
profession in the last two decade of 19th century (1880-1900) were primarily interested in treating their patients and improving his or her individual health. The successful works of Louis Pasteur, Robert Koch and others in bacteriological research led to the conceptualization of ‘Germ Theory of Disease’. The change in determining the cause of disease i.e. from environment to the agent has often been called the ‘first revolution’ in the field of medicine and health. The emergence of the clinical perception of disease can be traced back to the development of science of quantification spearheaded by Newton and Descartes in mathematics and mechanics. This led to the foundation of a quantitative and geometric description of the material world and of human beings.

During the era of tremendous progress in the development of internal medicine, disease was seen as an abnormal functioning of the biological setup and doctors as experts of ‘modern medicine’. Modern medicine had the ‘magic bullet’ in the form of drugs that could be shot into the body to kill or control all health disorder. Diseases were seen as natural (biological) resulting from a single key mechanism that dominated all other. The most characteristic function of a doctor lay in the diagnosis and treatment of the disease in the individual patient. McKeown eloquently described this as the most prevalent approach to medicine and called it as Flexnerianism which assumed that

... a living organism could be regarded as a machine which might be taken apart and reassembled if its structure and functions are fully understood.

With the discovery and development of immunization, sterilization, and later antibiotics, scientists were able to reduce the incidence of death due to infectious diseases. Health and medicine thus became concerned with disease and not with positive health or community medicine.

Large contradicting arguments against the role of medicine and medical research in reducing deaths were made during first two to three decades of 20th century. Dubos, Illich, Doyal, McKeown, and McKinley are some of the leading scholars that have questioned this dominant premise. They have argued that the decline in infectious diseases should be attributed to the rising standard of living of the common man rather than to the distribution of vaccines and antibodies. McKeown was not irrelevant in stating that,

The enormous increase in population and dramatic improvement in health that human have experienced over the past two centuries owe more to the changes in broad economic and social conditions than to specific medical advances or public health initiatives.

2.2.3 Epidemiological Perspective

The changing concept of disease and the resultant concept of health includes social and behavioural changes. Such changes accompany and propel the demographic transition as well as the responses of health services to the changing pattern of disease. The challenges to the dominance of medical advancements can be

49 T. McKeown (1976) op. cit.
seen in the alternative forms of explanations for the existing pattern of disease in different parts of the world. Discovery of etiology of infectious disease was thought important. Attempts were made to draw an association between social characteristics and disease etiology, but just associating a relationship between social characteristics, disease incidence and health status could not fully explain the totality of those relationships. The basis of analysis remained the ‘controlled’ and ‘uncontrolled’ experiments and techniques that could be accepted for generalization. The causal concept became important in the analysis of disease and this brought epidemiology close to bio-medical concept, which is intrinsically a reductionist and mechanical one. Epidemiology has become an inductive science and gives considerable importance to methodology.

The result obtained on the basis of use of methods and techniques came under the scanner of critiques like W. H. Holland\textsuperscript{50}, who argued that epidemiologist should concentrate on efforts to properly investigate important problems and refrain from jumping on to any popular, current bandwagon or merely report findings because they have the methods for doing a particular study.

This kind of understanding of the subject brought in more refined concepts and categories classified according to techniques used like – molecular epidemiology – which mainly uses molecular techniques to make improved or novel assessment of exposure or to define inherited susceptibility.\textsuperscript{51} Even, in these kinds of studies data on environmental factors are found necessary to assess the gene-environment interaction. These kind of sophisticated techniques too have limitations as "humans are rarely

\textsuperscript{50} W. H. Holland (1999) "What should be the Concerns of Epidemiology?", \textit{International Journal of Epidemiology}, Vol. 28, pp. s1009-s1011.

exposed to isolated chemical compound but are usually exposed to complex mixture
of hundred of different compounds in diet, air pollution, or at work place\textsuperscript{52} These
kinds of methodological advancement led to the development of microbiology that
overtook epidemiology. These processes point out towards the problems of the
glorification of so-called ‘scientific methods’ in the study of social relations – here
disease and health. The real problem is more intense as whether such scientific studies
are value-free as argued upon?

There exist consistent contradictions within epidemiology itself. One group of
scholars finds that epidemiological studies should be more concerned with the ability
to apply the findings rather than only the scientific merits or nicety of the study. It
must be concerned with knowledge of and application to social, environmental and
biological factors in the actual condition we study.\textsuperscript{53} This brings into focus the two
types of research within the subject i.e. population research and research at individual
and micro level. The population research was identified as fundamental by Pearce\textsuperscript{54}
on the ground that “it is important to use research methods that are appropriate to the
level at which interventions will eventually take place”\textsuperscript{55}. Due to a reductionist
approach, the micro-level study through the dominant bottom-up approach could be
dangerous when the outcome to such research are used for population level
intervention due to the nature of population level determinants.\textsuperscript{56}

\textsuperscript{52} ibid

\textsuperscript{53} N. Pearce (1999) “Traditional Epidemiology, Modern Epidemiology, and Public Health”,

\textsuperscript{54} ibid

\textsuperscript{55} J. B. McKinlay (1993) “The Promotion of Health through Planned Socio-political Change:

\textsuperscript{56} N. Pearce (1996) “Traditional Epidemiology, Modern Epidemiology and Public Health”, \textit{American
The population consideration in the field of health and medicine led to two simultaneous developments in terms of emergence of new sub-disciplines: 'public health' and 'political economy of health'. Some would contradict this position by arguing that public health is nothing but studying health of population through political economy perspective. However, one clear distinction can be made between the two. While, public health primarily advocates for preventive methods to the population through the measures like water-supply and sanitation, political economy of health tries to explain the differences and discrimination at the level of availability of health care facilities to the masses.

2.2.4 Public Health Dimension

The supremacy of biomedical tradition was widely criticised. It was pointed out that biomedical approach to disease is not the reality but merely one way of looking at reality and it may not be the best or most rational.\(^5\)\(^7\) Another simultaneous development, of course not parallel to the dominant biomedical tradition of medicine, in the field of health and medicine was the return of the concept of 'whole person', which objects to the reduction of human-beings from 'molar' to 'molecular' identity.\(^5\)\(^8\) The great sanitarians of Europe like Snow, Farr, Chadwick and many others carried out thorough investigations and came up with external causes like improper sanitation and poverty as the causes of major diseases.

---

Geography again became an important tool in understanding disease in the 19th century with Pattermann’s cholera map of 1852 – that showed the districts in London that were afflicted. He showed the varying proportion of deaths from cholera in London during the 1832 outbreak. According to him, “to obtain a geographical extent of the ravages of the disease... geographical delineation is of the utmost value and even indispensable.” However, it was Finke, a German Physician who produced the first world map of disease in 1792. Jarcho has identified about 36 scholars who published maps of cholera between 1820 and 1836 A.D. With the publication of John Snow’s map of cholera in London in September 1854 and its association with water pumps around, the geography and ecology again started getting importance in the study of disease. Later, the work of Snow and his concept of water pump that he showed through a map came under criticism on the ground that Snow himself was suspicious about the role of contaminated water. Snow wrote in his own work that ‘he suspected that contaminated water from the pump was spreading cholera in the area, but that samples did not reveal the water to be particularly dirty’. The role of natural and social ecology was considered important in any plan to combat disease.

Public health work spans the geographic, social and economic realms of our society. The public health tradition has the noble objective of preventing the occurrence of communicable and infectious diseases and epidemics like cholera,
plague and others. Public health under this tradition, usually refers to organized efforts made under the direction of medical experts for preventing disease and improving public health including environmental health. Environmental health is related to physical environment and includes not only water, sewage, refuge etc. but also ventilation, lighting, safety, housing, town planning and so on. The great public health scholar and philosopher C.E.A. Winslow, the editor of American Journal of Public Health, visualized expansion of the scope of public health. He visualized that:

In the half of the century yet to come, the health officer must not be interested in syphilis, Tuberculosis, or even heart disease and cancer. He must more and more concern himself with nutrition and housing. ...he should lead in the elimination of substandard dwellings and participate actively in the planning for slum clearance, urban development and low-rent housing. He must concern himself with the living wage and the provision of a due measure of social security which is essential to both physiological and psychological health.

Public health, which was an engineering science in its early days has now become a medical science and needs to be transformed to a social science. Contemporary to the debates on public health in the West Indian medical practitioners also debated its scope in India. J. B. Grant has been quoted as saying

Public health is the science and art of social utilization of scientific knowledge for medical protection by maintaining health, preventing disease and curing disease through organized community efforts for (a) the hygiene of the environment, (b) control of the community infection, (c) the education of the individual in principles of public hygiene, (d) the organization of medical and nursing service for the early diagnosis and preventive treatment of disease and (e) the development of social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health.


66 General address to Indian Science Congress by J.B. Grant (1940) quoted in Deepak Kumar (2005) op. cit.
The rhetoric did not get translated to action and the expenditures on provision of clean water and related public health and sanitary measures remained scarce in India. The experience of about one century in Britain and other European countries resulted in the understanding that provisions of public health measures are more efficient in controlling the communicable diseases than prescription of medicines. These ideas dominated the health strategies of developed and developing countries for a few decades, though developing countries could not implement these measures due to poor economic condition.

Economic justification of good health or a ‘disease free body’ has historically been the reason for advancements in the field of health and medicine. As early as in the seventeenth century Petty attempted to quantify the value of human life and expressed an individual’s value in terms of that person’s contribution to national production. He reached to the conclusion that ‘it is not in the interest of the state to leave Phisitians and patients to their own shifts’. 67 Similar arguments were advanced by Chadwick, a utilitarian, who influenced the public health legislation in the first half of the nineteenth century in Britain. 68 Chadwick advocated that treatment of human beings should at best be treated as investment in human capital. He argued that better sanitation was a good investment, and that prevention of disease could offer greater benefit than the building of hospitals to treat those diseases. However, one can find a distinction between the two positions that led to the development of public health efforts. One was the economic justification in favour of preventive efforts, which was said to be cost effective rather than curative medicines. The Keynesian conception of

demand side market acceleration put this under the category of consumption artefacts and E.P. Thompson's conception of labour found it to be an effort towards buying labour peace.

The other position that favoured investment in the preventive measures was also related to the labour-supply and the main concern was that of tackling the problem of labour shortage in different colonies. This led to the development of a new sub-discipline known as health economics broadly defined as the application of concepts and techniques of economics to the health sector. It was thus concerned with the allocation of resources between various health-promoting activities; the quantity of resources used in health delivery; the organization of health funding service institution; the efficiency with which resources are allocated and used for health purposes; and the effect of preventive and curative and rehabilitative health services on individuals and society.69

It was this utilitarian view of human body and its use as labour that promoted the improvement in the sanitation and living condition and control of many diseases worldwide. An aggregate estimate of the economic effect of malaria was done in terms of output lost even in the colonies. In India a detailed survey of five villages was conducted to investigate the effect of malaria on labour supply and earnings.70 The human capital approach i.e. estimating productive value of human life too was incorporated in the economics of health. Through out 1940s and 1950s attempts were made to analyse the economic cost of disease.

Whatever may have been the considerations behind these efforts, they definitely contributed towards the improvement of the living condition for the

69 K. Lee and A. Mill (1983) op. cit.
70 Russell and Menon (1942) quoted in K. Lee and A. Mill (1983), op. cit., p.12
common man during the first half of the twentieth century in the West and in the next half of the century in the developing countries. The situation changed when under the influence of Reaganism and Thatcherism during 1980s there was a withdrawal of state from health and education.

2.3 The Contesting Domains

The above discussion has highlighted the various positions within the intellectual discourse regarding the conception of health and disease. Two distinctive approaches can clearly be located. The first is concerned with the environment in which the people live and/or the ecology of germs. The second is related to the economic condition of society which determines the combative measures available or accessible to certain people or groups.

2.3.1 Ecological Approach

In explaining the human phenomena, the ecological approach is much older compared to any other approach. However, the changing conception of ecology has made the debate interesting, especially with regards to health and disease. The origin of the word ecology in linguistics shows that it derives from the Greek word *Oikonomia* – the root of both economy and ecology. The meaning is related to the household –its management or its science. First used by a biologist (Heckel), it became a sub-discipline of biology and focused on the study of the relationship between organisms and their environment; also known as environmental biology. In

simple terms ecology is the study of any organism in its habitat. The Oxford Dictionary defines it as,

The science of the economy of animal and plants; that branch of biology which deals with the relations of living organisms to their surroundings, their habits, and mode of life, etc.\textsuperscript{72}

Environment consists of all those external factors that affect the survival, growth/development and reproduction of an organism. A definition of ecology is relevant and necessary because any attempt at reconstruction or deconstruction of the concept will fail unless the dominant and/or subversive notions of the term are known. Two basic definitions of ecology – ‘the science of household’ or ‘environment external to the organism’ – have been used to fortify the concept under various domains, beginning from physiological/chemical to systematic and then to social/political ecology. Under the dominant stream ecology is considered a systematic analysis of the arrangement of existing things.

Ecology is a branch of knowledge concerned with the pattern of distribution and with the pattern of abundance in space and time. As a science of household, it tries to explain the factors that determine the range of environment that organism occupy. This brings ecology close to the second basic definition i.e. environment external to organism. Environment itself is not a static concept and has been changing its meaning with respect to time and space. Two broad divisions of environment i.e. natural and anthropogenic are most common. But the next big question is what is natural? Natural is that which is not touched by the effect of human activities. In modified terms this points to the notion of “not against nature”. If not untrue, then this division seems at least to be a myopic one. As environment is shaped by human acts,

the ecology that studies the habitat i.e. the environment of the organism is also not ‘natural’. This is a rather unsettling debate as on the one hand it renders the making of artificial silk as unnatural and on the other it even considers cloning as natural because here we are engaged in searching new natural laws that were unknown to us. Armstrong broadens the scope of natural as he incorporates ‘things’ and their geographical and historical characteristics into his formulation.

Natural science traditionally concerns itself with at least three tasks. The first is to discover the geography and history of universe... A second task is to discover what sorts of things and what sorts of property there are in universe...the third task is to state the laws which the things in space and time obey.

The philosophical mooring of the debate regarding ecology centres around methodology and ontology. The question is whether ecology as a discipline is ideographic or nomothetic. Ecologists have often tried to prove the discipline as ‘structural’ or ‘functional’ based on law-like generalization “...ecology is and should be primarily nomothetic or law oriented, rather than ideographic or historically oriented science”. This argument has been substantiated by the earlier work of Brown who suggests that even in the study of local communities, functional analysis of the community play a more explanatory role than their historical existence. This was further strengthened by the arguments of D. L. Hull.

75 Ideographic in general means to describe the peculiar. History and other Human sciences are thought to be ideographic, as what they describe is taken to be particular and non-recurrent. Nomothetic disciplines seek to discover general laws for indefinitely repeatable means and the processes, and are categories as Natural science. Windelband, while introducing the terms in 1894, observed that the same subject-matter can be the object of both types of inquiry.
78 For details on Functional Kind and Historical Kind, see G. M. Mikkelson (2003) op. cit.
...perhaps the only way for ecologists to discover ecological laws of sufficient generalization is by totally ignoring genealogy and concentrating solely on ecological traditions.  

Contrary to the above conceptions are the studies in the tradition of anarchic approach which place more importance on exceptions than on rule. Zimmermann's study of 'new ecology' is one such kind along with an entire range of studies in the tradition of cultural, social and political ecology. Nevertheless, political ecology is a complex and ideologically ambivalent term and it is generally considered that, as a science 'ecology' has a pretty ahistorical, uncritical, economistic base. Evernden (1992) has, however, quoted as saying that 'nature knows the best and ecology knows nature'. Mikkelson argued in favour of a constant tension within the discipline between ecological patterns and ecological laws.

These variations in the conception of ecology emphasize the disequilibria, instability and even chaotic fluctuations in bio-physical environments both natural and human leading to a new paradigm later developed as political ecology. The highlighted variation has been equally experienced in the field of disease and health. The initial conception of ecology as nature-given was used in the Hippocratic tradition to explain the occurrence of disease, while nomothetic conception of ecology was used by the epidemiologist to explain disease-etiologv. Some-how, the functional perspective of ecology has been more visible in the analysis of disease and health than the historical perspective. The conception of disease-ecology, epidemiology, and bio-

---

82 G. M. Mikkelson (2003) op. cit.
medical tradition all have used ecology in some form or the other with an eye at generalization of functions.

2.3.2 Political Economy Approach

In pre-capitalist societies, exploitation was transparent and required no specific scientific investigation. On the contrary, exploitation and oppression under capitalism are concealed under a veil of seemingly free exchange. In such an obfuscatory setting, these can only be exposed by a new science, Marxist political economy.\(^3\)

Health was considered as a consumption artefact under the influence of Keynesian policy of demand side market consolidation. Individuals were considered responsible for the maintenance of their health. Health services were considered as a marketable product which provided the capitalist – the provider of these services - avenues for profit generation. Navarro identifies this as an inherent tendency of the process of capital accumulation in contemporary capitalism. This tendency pervades all sectors of economic life, including social services such as health and education. He quotes Mandel:

The logic of late capitalism is... to convert idle capital into service capital and simultaneously to replace service capital with productive capital, in other words, services with commodities; transport services with private car; theatre and film services with private television sets; tomorrow, television programmes and educational instruction with video-cassettes.\(^4\)

Political economy, also known as social economy, is the study of the social laws governing the production and distribution of the material means which satisfy

human needs. The supremacy of economic relations in the social life is the basis for Marxist political economy. It is one of the most important scientific foundations of the progress of the working class in its struggle against capitalism whether in the form of minimum wages, housing, or providing health and education. Political economy not only investigates the general laws and perspectives of the development of the societal system, but also makes clear which actual mechanism must be set in motion in order to solve pressing practical problem.

In this respect ideology of the capitalist system, guaranteed by the nature of state interventions, is embodied in the medical institutions and in the ideology of medicine. The state in our society is the configuration of public institutions and their relationships whose primary role is the reproduction of an economic system based on private ownership of the means of production. In this conception primary role of the state is to establish the conditions for the survival and flourishing of the economic system. This aim makes the state responsible for the development of the infrastructure of production and reproduction of the capitalist system. Health being an important infrastructure is amenable for direct state’s intervention. Another important reason for state intervention is to gain legitimacy, which comes from the people under the democratic form of governance.

The dramatic growth of state intervention in the health sector can be explained through the political economy approach which is being widely used since the 1970s. In this approach the higher incidence of communicable disease is attributed to overcrowding, poor housing, and poor nutrition. Whereas, the neo-Malthusian

87 V. Navarro (1977) "Political Power, the State and Their Implications in Medicine", Review of Radical Political Economy, Vol. 9, pp. 61-80.
The neo-Malthusian view was attacked on the ground that the social condition of an individual determines mortality and morbidity especially in the marginalized groups.

The withdrawal of the state from health and education was not unexpected. The capitalists as a class will invest in anything only up to a point till it remains favourable to the production process either by accelerating production or buying labour peace. Chronic accumulation and overproduction resulted in the devaluation of consumption items and affected the built environment. The present decade has witnessed withdrawal of state finance from social production like health and education of the workers.

2.4 Two Major Traditions in the study of disease and health

The two major traditions in the study of disease and health viz. disease ecology and health services research have been mutually exclusive streams of work. The gap between the two traditions increased despite the introduction of the Marxist political economy approach in late 1960s. The other dualism in the study of disease and health has been the biological verses the ecological basis for explanation. While the first involves the interventions based on pathological research, the other i.e. ecological basis for explanation includes the environmental issues. In terms of methodology it can be grouped under (a) methodological individualism, and, (b) methodological holism.

Biological reductionism, instrumentalism and elementalism or positivism widened the gap between the patients, his environment and the doctor. The objectivism of bio-medical tradition brought a shift from a person oriented to an
object oriented philosophy, and humans were reduced from molar identity to molecular identity. Doyal argued that it is always the individual who becomes sick and it is not the social, economic or environment factors, which make him sick. Stark similarly argued,

Disease is understood as a failure in and of the individual, an isolatable 'thing' that attacks the physical machine more or less arbitrarily from 'outside' preventing it from fulfilling its essential responsibilities. Both bourgeoisie epidemiology and medical ecology...... Consider 'society' only as a relatively passive medium through which 'germs' pass en route to the individual.88

The recent recognition of individual specific cognitive responses to particular events (symbolic interaction perspective) in the analysis of illness has added a new dimension to the meaning of illness.89 It has highlighted an individual's relationship to his/her social world during illness and the individual's response to the particular situation during illness and to illness itself. This vision of scientific medicine, which itself has been labelled as subjective90 led to a victory of individualistic-mechanistic view over that of the environmentalist-structuralist91 - an approach advocated by Virchow. This all pervasive individualism has been described by Hobsbawm as:

The human world consisted of self-contained individual atoms with certain built-in passions and drives, each seeking above all to maximize his satisfactions and minimises his dissatisfactions.... In the course of pursuing this self-interest, each individual in the anarchy of equal competitors found it advantageous or unavoidable to enter into certain relations with other individuals, and this complex of useful arrangements – which were often

88 E. Stark (1977) “Introduction to the Special Issue on Health”, Review of Radical Political Economics, No. 1, spring, p. V.
90 Science is Subjective. ... A body of scientific knowledge such as medicine is systematic approximation of reality but neither equivalent to nor the same as reality itself. For detail see M. Turshen (1977) ‘The Political Ecology of Disease’, Review of Radical Political Economics, Vol. 9, p. 45.
expressed in the frankly commercial terminology of contract – constituted society and social or political groups. 92

Individualism in this respect is a political or economic theory that asserts the rights of the individual as against those of community. This approach brings us close to methodological individualism. 93 Though, apparently this theory seems more appropriate as it takes into account various levels of stress and responses at the individual level, but ultimately in most cases it ends into the ‘victim blaming’ exercise. 94

The epidemiologist’s efforts to rediscover the population perspective and move towards eco-epidemiology with the set of generic methods and multilevel analysis rather than repeated use of individual risk factors brought them closer to methodological holism. In the methodological holism (or “collectivistically oriented social philosophy”), the focus is primarily on the social constellations (age, sex, social class, and race/ethnicity) or places and social positions in the society and how these are decided. Following the views of, for example, Marx 95 and Durkheim 96, “the gestalt... is primarily the social constellations of which individuals are part”. 97 This approach advocates in favour of “go outside the body” to develop an alternative social and environmental perspective on health, where socio-economic, cultural and political

94 These concepts will be discussed in detail under the political ecology section, for detail on victim blaming and other paradigms of disease see, D. Pedersen (1996) “Disease Ecology at A Crossroads: Man-Made Environments, Human Rights and Perpetual Development Utopias”, Social Science and Medicine, Vol. 43, No. 5, pp. 745-758.
factors are imbued into the analysis of diseases and death in a society. In this tradition, in the past, a person was thought to be a unified whole, and illness and disease were regarded as the product of imbalances in the general harmony between the individual and the world, since life itself was viewed in cosmological terms, the spiritual dimensions were not excluded from the realm of concern for health.98

There is one similarity among all these and this is that they are based on broad generalizations. The population perspective of disease and health tries to generalize the conditions, which are prevailing in the society and out-side the human body but affect the well-being of the body and mind and its interaction. On the contrary, individualistic perspective generalizes the functioning of the human body and takes closer view of body, the functioning of cells and the effects of ‘germs’ on the ‘cells’, rather than the factors that led this germ to enter the human body.

2.5 Emergence of an Alternative Approach

The concept of political ecology is an outcome of the dissatisfaction with the two almost mutually exclusive approaches namely ‘political economy’ and ‘disease ecology and epidemiology’. Proponents of ecological approach were divided between two groups. One group overemphasized systemic approach while the other group opposed it. Robert McIntosh argued,

Ecologists are in a period of retrenchment, soul searching, extraordinary introspection.... This follows on nearly three decades of heady belief on the part of some ecologist... that communities are structured in an orderly predictable manner, and of others that information theory, systems analysis, and mathematical models would transform ecology into a hard science.99

A similar kind of division was highlighted in the conception of 'new ecology'. It advocated a significant reorientation that has occurred in the field of biological ecology on the one hand and emphasized the need for the analysis of non-predictable behaviour of communities on the other.\textsuperscript{100}

Marxist political economy, too, has a deterministic approach while providing the best scientific explanation of social hierarchy in the form of class structure. The concept of class – as the 'two-sector model', exploiter and exploited, entrepreneurs and workers, bourgeois and proletariat, came under cloud with the introduction of subterranean power and hegemonic power.\textsuperscript{101} There are smaller power-centres rather power-blocks at different levels of society that makes these interventions problematic. Marx and his brand of socialism have been accused of ignoring the fragility of natural environment as it believed in the existence of freely available environment which cost people nothing. It is available for appropriation and is necessary for capital accumulation. However, it may not be wise to accept this argument in totality as Marx's early writings suggest,

\begin{quote}
We know only one science, the science of history. History can be viewed from two sides: it can be divided into the history of nature and that of man.
\end{quote}


\textsuperscript{101} Gramsci developed the concept of Hegemony to explain why the exploited classes accept the existing social order while Marxist theory suggests that workers would not accept the exploitative social relations. Gramsci further suggested that dominance of a class does not depend so much on the repressive machinery of the state, but also on the fact that a prevailing mode of thinking and thought process shields the existing social order. For details see Gramsci (1996) \textit{"Selections from Prison Notebook"}, translated by Q. Hoare and G.N. Smith, Orient Longman,

Foucault while discussing the concept of power for discipline departs significantly from the traditional liberal and Marxist understanding of power. Discipline, which increase the capabilities and efficiency of humans also ensure their controllability such control is possible with the spread of disciplinary power. This kind of power has been linked with the certain kind of norms and standards that is normal behaviour for humans. Such explanation of power is interwoven with forms of knowledge and is subterranean, rather than naked. And psychologists decide what normal behaviour is for the human beings. For details, see Foucault (1989) \textit{"Power"}, Routledge,
The two sides, however, are not to be seen as independent entities. As long as man has existed, nature and man have affected each other.\textsuperscript{102}

The aim here is not to discuss the Marxist position on ecology and environment rather its understanding by the political ecologists.

2.6 Political Ecology Approach

The inadequacy of the existing social orders including socialism to attain the ideal equality in society and the resultant disillusions from the left led some concerned people to search for an alternative paradigm. It developed in due course as Political Ecology. The main objective of this approach was similar to the Marxist political economy approach but there was an obvious disillusionment from the earlier approach as Alain Lipietz puts it,

...From reformulation to renewal and revolutions within revolution, it has to be admitted that socialism is not the earthly manifestation of this dream which humanity has in its head and which only has to be experienced (and applied) for the world to possess it in reality. Human societies are more complex than socialism had believed. The dream of utopian communists in the nineteenth century, of a community of individuals in free association, delivered from the division of labour, fishermen in the morning, artesian in the afternoon, and literary critics in the evening- this dream will always ... as well.\textsuperscript{103}

Political ecology starts as an opposition to the existing scenario or it is based on a critique of the ‘order of existing things’ but remains largely rooted in political economy. Mayer in his study holds that most political ecologists have used critical and usually Marxist concepts of political economy but have not adhered to the concept as given by Marx. They believe that “political economy is a loosely defined


The concept of political economy generally used by Marxists and structuralists refers to the relations between politics and power on the one hand and to profit and revenue on the other.

Political economy believes in the consistency of historical processes and favours generalization and universalization based on quantification. It is based on the conception that, place of the individual in the society is determined by the forces of production and social relations of production. Political ecology, like Maoist versions of Marxism questions the primacy of productive forces and subordinates them to the social relationships and to the vision of the world that inspires this. This is why political ecologists do not accept division of society in only two classes: capitalists and proletariats. They rather analyse the power blocks at different levels of operation in the society.

The Dictionary of Human Geography defines political ecology as ‘an approach to but far from a coherent theory of the complex metabolism between nature and society’. The basis for this definition have been two geographical monographs (viz. Blaikie 1985 and Blaikie and Brokfield 1987) that are said to be the provider of theoretical and intellectual foundation stones for the formalization of political ecology and have been considered pioneer studies in this field. Blaikie and Brokfield (1987) hold that

The phrase political ecology combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting

dialectic between society and land-based resources and also within classes and groups within society itself.  

The concerns of ecology and political economy provided the philosophical base for political ecology as an approach. Ecology has different meanings for natural scientists and social scientists. Geography being concerned with both branches of knowledge provides better ground for political ecology approach to thrive than does anthropology or sociology. Even in anthropology political ecology has been defined as “the study of the manifold articulations of history and biology and the cultural mediations thorough which such articulations are necessarily established”. The ecological concerns of political ecology started with one study related to land degradation and soil erosion in the 1980s. However, Political ecology is more than the James Lovelock’s ‘cult of Gaia’ and has imported methods and inspirations from ‘the Red’. The core of political ecology is not ‘the environment’, but a complex totality consisting of a triangle: human-kind, its activity and nature, nature under threat and transformed by human activity, nature which is both the matrix and the basis of this activity.

The studies under political ecology were a confluence between the three theoretical approaches: cultural ecology, ecological anthropology and Marxist-inspired political economy. According to Escobar an important goal of political ecology is to understand and participate in the ensemble of forces linking social

change, environment and development. He refers to Peet and Watt (1996) who stated that:

In the 1980s and 1990s, this political-economy-driven political ecology absorbed other elements, particularly the poststructuralist analyses of knowledge, institution, development and social movements.

Walker gives a similar argument,

Early writings in political ecology focused on unequal power relations, conflict and cultural ‘modernization’ under a global capitalist political economy as key forces in reshaping and destabilizing human interactions with the physical environment.

The attempt to include the impact of cultural and social practices to understand the physical and disease ecology has led to the emergence of various critiques. Some of the critiques, however, argue that new focus of political ecology is on politics and the role of ecology has become marginalised. Notable among these critics are Pete Vadya and Brad Walters (1999) who argue:

Some political ecologists do not even deal with literally the influence of politics in effecting environmental change but rather deal only with politics, albeit politics somehow related to the environment. Indeed, it may not be an exaggeration to say that overreaction to ‘ecology without politics’ of three decades ago is resulting in a ‘politics without ecology’.

However, not including the questions of bio-physical ecology or not deeply investigating environmental change does not make a study out of political ecology approach. An ethnographic research by Richard Schroeder on the international agroforestry programme in Gambia shows the undermining of economic development of women in the reshaping of village-level politics. This study is considered under the

113 ibid
115 quoted in ibid
realm of political ecology despite the fact that the author has discussed environmental degradation only in a historical context.\textsuperscript{116} Walker has discussed some other examples of works in political ecology that focuses on power and its impact on the access and control over resources without strong emphasis on ecology or environmental changes. In response to the critique by Vayda and Walters on abstracting ecology from political ecology, Watt offers this defence:

A key question is of course what passes for the environment and what form nature takes an object of security. And here Vayda and Walters display their own parochialism... for Vayda and Walters (1999) the only expression of environment can be the biophysical events of environmental change ... But political ecology rests on the dialectical and non-linear relations between nature and society in which environment can be approached in a number of ways ... what political ecology has done obviously is 'open up the category of the environment itself and explore its multiform representations ... Another way to approach the environment to examine the knowledge of the environment and why and how particular forms of knowledge predominate \textsuperscript{117}

Political ecology is not primarily concerned with the environment \textit{per se} but the three interrelated issues of 'human kind' its 'attitude and act towards the environment' and the 'actual environment'. One can only be made responsible to the surrounding or environment (here the success of treatment) if he or she has share in the economic decision making process. Under this conceptualization political ecology stresses on the three basic issues: 'Solidarity', 'Autonomy' and 'Responsibility'. In brief, political ecology examines the historical role of economic systems, science, language and discourse, ideology, gender, property systems, social movements and resistance, and the everyday politics of the community and the household in shaping human relationships with nature.

\textsuperscript{117} ibid
The analytical scaffolding of political ecology was provided by a number of key concepts like marginalization, proletarianization and incorporation. Political ecology movement has a similarity with the labour movement. But political ecology is against any kind of dualism and against the ‘concept of us and them’. Political ecology mistrusts any growth of productive forces (where humanity is dominant over nature), and at best asserts that a different relationship between human beings would mean a better relationship between humans and nature. Another key issue within political ecology is the exploration of multi-level connections between global and local phenomena; not only in environmental functions but also in decision making and hierarchy of power.

Political ecology started as a rejection not only of economic liberalism, which though longer established was clearly based on the same premise, but also the kind of socialism that ignores the unmindful exploitation of environment and oppression of women. 118 Thus, political ecology as an approach is for the inclusive study that takes into account the ecological, social and political trajectory of human life, including the question of gender, class and power relations. Political ecology has hence become the most prominent inheritor of traditions in geography with deep historical roots in the study of both bio-physical ecology and social science. 119 The new approach of political ecology is concerned with tracing the genealogy of narratives concerning “the environment”, with identifying power relationships supported by such narratives, and, with asserting the consequences of hegemony over and within these narratives for economics and social development and particularly for constraining possibilities

for self-determinations.\textsuperscript{120} The mutual embeddedness of these hierarchies forbids the simplistic approach to study disease and health. Instead, the perspective of political ecology of disease builds on the analyses of identity and differences and of pluralities of meanings in relation to the multiplicity of sites of environmental struggle and change.\textsuperscript{121} The concept of disease, medicine and health are as important for this conceptualization as the concept of power, state and class.

The political ecology approach to study health, disease and related problems has two-fold differences with the earlier practices. The first is that it tries to intertwine ‘disease ecology’ and ‘health services research’ and the second is that it negates the ‘culture of generalization’. Generalization involves ‘scientific techniques such as observation, experimentation and generalization’ and avoids uniqueness or the facts that can not be generalized. Political ecology, though based on the understanding of the ‘order of existing things’ is different from that of the materialistic philosophy or historical materialism and is against the dualism that existed between ‘capital and labour’ or between ‘capitalism and socialism’.

2.6 Political Ecology of Disease

The existing theories in the field of health and medicine were progressively considered inadequate to explain the causes of the increasing discrimination against certain sections of society especially in the Third World. On the one hand poor people were the main victims of the deteriorating environmental conditions and the resultant diseases from the polluted surroundings that they had not created. On the other hand,


corporatization of health services was on the rise in the First World under the influence of Margaret Thatcher and Ronald Reagan and economic policies in the socialist world especially in Russia and China were going under some fundamental changes. Nancy Birdsall in her article on good heath and good government holds that,

Such politically successful leaders... have espoused an approach to government that says simply, less is better. In the same period some highly planned socialist economies, including Hungary, China and Soviet Union, have sought ways to imitate, if not duplicate, the apparent advantages of so-called market-led economies ....

The above two developments made people disbelieve even the adequacy of political economy approach to explain the existing situation in the health sector. Simultaneous developments were noticed in the world in other spheres of public life under the tag of globalization, which was considered necessary for economic growth. Navarro states about the policies of the World Health Organization (WHO), a nodal agency that promises to insure good health for all,

The only choice of the governments is to join in and facilitate the process, to open up their countries to globalization, since any resistance to doing so will be penalized.

Some of the obvious effects of globalization in the health sector were noticed as withdrawal of the state from welfare schemes so that the internationally committed reduction in the public deficits could be achieved. The reduction was achieved through a decrease in public and social expenditures. This kind of policies increased the inequalities in the world and the estimates made during late nineties show that the net worth of 328 richest people equalled the combined income of the poorest 45

percent of the world’s population i.e. of 2.3 billion people. There were people though in minority as always, who were against the increasing inequalities and deteriorating social bargaining power of the poor in the health sector as well as in other spheres of economy. The various conceptions of disease and its formulation under various paradigms namely: disease ecology, biomedical traditions, public health practices has made it clear that the approach towards health and medicine has never been completely detached from ecology. However, the appropriate theoretical association was to some extent lacking in these studies.

In spite of abstracting disease from its social framework and reducing it to the biological sphere, the tradition of ‘disease ecology’ i.e. association of disease with the prevalent environmental conditions did not die and remained functional with the works of May, Mayer, Meade, Johns, and many others against the dominant tradition of hospital medicine. The geographical pattern of disease has the potential to lead to crucial hints of disease causation at least in the case of unknown etiology. May, father of medical geography, held that there must be a coincidence in time and space of agent and host. He wrote:

Disease can not arise without the convergence at a certain point in time and space of two orders of factors: factors that take the form of an environmental stimulus and second factors that condition the responses of the tissues... These stimuli are not the same in every environment.

Role of natural ecological components like water and sun-shine, impact of basic amenities and public health facilities like sewerage, contribution of nutrition and

126 J. D. Mayer (1986) op. cit., p. 65
quality of food and their association with disease and their importance in maintaining health was given prominence. May elaborated the role of environment in the identification of disease and its regional pattern, which became the basis for the modern geographers to understand disease ecology. He stated:

... from the waters the people get their food, also their cholera, their dysenteries, their typhoid fever, their malaria; from the earth they get their hookworm; from the crowded villages they get their tuberculosis and their yaws; from the type of housing they have been forced to adopt they get their plague and typhus; and from the food which earth, temperature, and rain produce, their protein deficiencies, their beri-beri.\(^{127}\)

He was, however, criticised for being static and not being theoretical. Meade found that his work was concerned with the ecology of specific diseases and was static since he did not consider the process of change in ecological relationships.\(^{128}\)

The changes in ecological relationship, which itself is shaped by the forces of social and political establishment and is decided on the basis of different kind of social, cultural and political practices, plays an equally important role in emergence of new kind of diseases and combative measures of the existing diseases. Turshen, who was probably the first to use the concept ‘political ecology of disease’, highlighted this and argued that May has not incorporated the influences of political factors in the study of disease ecology.\(^{129}\) Meade, while advocating the use of ecological approach, suggested that health is a measure of the maladaptive interactions between population, environment, and culture. Pavlovsky, in the early 1960s, used the concept of ‘landscape epidemiology’ and studied the foci of infectious zoonotic disease by

\(^{129}\) Turshen (1977) op. cit., p. 48
analysing the association of vegetation, animal and insect life, soil type, acidity, precipitation regime, and other elements of the natural landscape.\textsuperscript{130}

Audy (1971) has defined health as adaptability and in this sense many of the environmental modifications have changed and influenced the distribution and prevalence of disease. He wrote,

\begin{quote}
Health is a continuing property that can be measured by the individual’s ability to rally from a wide range and considerable amplitude of insults, the insults being chemical, physical, infectious, psychological, and social\textsuperscript{131}
\end{quote}

Roundy has assessed the impact of altitudinal mobility on human health in Africa, while, Knight has outlined the effects of trypanosomiasis (sleeping sickness) on the whole course of African history and settlement.\textsuperscript{132} Temporal changes in the constituents of disease ecology and their knowledge has been among the major trends of associative disease ecology. Particularly for the disease of unknown etiology it is hoped that geographical studies will yield clues about causation, either directly or by suggesting further studies at the individual level – studies, which are case, controlled and in which hypothesized causal factors may by confirmed or refuted. These studies show that the clinical model of health was extended by the reintroduction of social and preventive medicine and expanded from the individual to family and to the immediate environment.

In the later part of the 1970s and through out the 1980s researchers have tried to incorporate political factors in the delivery of health care system. Rosenberg (1988) who was among the prime advocates of integration of political considerations in the

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{131} J. R. Audy (1971) cited in Meade and Earickson (2000) op. cit.
\end{itemize}
\end{footnotesize}
analysis of the health care delivery system does not consider disease ecology as an integral part of medical research within geography.\textsuperscript{133} Another scholar who argued in favour of incorporation of politics was Brownlea. He asserted that epidemiological questions are bound in politics and politics must be incorporated into epidemiology for full understanding.\textsuperscript{134} It was only in 1977 that Turshen emphasized the need of incorporation of political factors into the analysis of disease. She states:

Medical ecology thus asserts a relation between environment, disease, and man but selects only biological and socio-cultural factors as relevant ... By dismissing political and economic factors as irrelevant, it suffers from a failure to consider the relation of people to their environment in all its complexity. As with ecology and biology, the methodology of medical ecology is too limited to solve the problem of public health.\textsuperscript{135}

Earlier two important researchers have used the political influences on disease analysis. Farroff, during his work on malaria in Trinidad and Meade, during her study on land development in Malaysia\textsuperscript{136} were criticised as not adhering to the ecological tradition by none other than Mayer. He wrote:

Both the ... studies came out of ecological tradition and both implicated changing economic and political circumstances as factors which contributed to an increase in disease. Neither study developed a theoretical framework for incorporating political and economic interests into the ecological framework and into human-environment interaction.\textsuperscript{137}

The resurgence of the ecological tradition has been instrumental in the emergence of public health and its resurrection can be traced in the studies since the

\textsuperscript{133} Rosenberg (1988) Lining the Geographical, Medical and the Political in Analyzing Health Care Delivery System’, \textit{Social Science and Medicine}, Vol. 26, 179 - 186


\textsuperscript{135} Turshen (1977) op. cit.


Second World War. The ecology of disease and the adaptation of people to their environment has been identified since the 1950s and the 1960s. May was among the first who studied hookworm infestation among rice-growers and silk-worm farming people in China and interrelated it with environment in a broader sense that includes culture and work as well. The new paradigm of ecological conception got closely associated with that of public health perception.

The change in the nature of disease ecology came now with a new term called "political ecology of disease". The phrase combines the concerns of ecology and a broadly defined political economy. It is noteworthy to point out that political economy approach to health like the earlier discussed disease ecology tradition was not new at that point of time and it was widely used by sociologist and even geographers to study the distribution, pattern and inequality of the health care delivery system. Johns and Moon in their book have devoted two chapters to the political economy approach to study the health care system. Apart from them there is a galaxy of scholars like McKeown, McKinlay, Wilkinson, Blane, Navarro, etc., who discuss the role of state, public policy and political economy behind the medical advancements and charity based medical programmes.

The change political ecology brought was the incorporation of the factors like power and power blocks in society, role of state and policy, role of culture and individual responses towards the disease and the combative measures in the disease


75
ecology tradition. The most important theme that recurs in political ecology analysis includes the need to set a problem or phenomena into its broader social and economic context, and the need to relate both the phenomena and its socio-economic context to a variety of scales ranging from local to the global. Mayer considers political ecology of disease as a promising, even if yet, underdeveloped approach to understanding disease dynamics. It is potentially useful in social interpretation of emerging and resurgent disease because political ecology emphasizes the unintended human and natural consequences of individual, corporate and governmental projects, and demonstrates aptly that disease has its human-made components as well as its natural components.

The approach has been used to understand the pattern of disease and illness and the levels of health facilities and well-being of people. The political ecology framework is a powerful tool in focusing attention on the interaction between political interests, social institutions and human-environment relations. It has been rightly argued that one of the greatest hazards resulting from mismanagement of the environment and from ecological arrogance has been an increase in human illness. Meade provides examples from various parts of the world such as cancer in American population, the spread of schistosomiasis in Africa with irrigated agriculture and so on. 142

The increase in various diseases in different parts of the world and the existing magnitude of malnutrition and its consequences have shattered the entrenched prepossession of health professionals with the germ theory of disease. Tuberculosis is the 'disease of civilization'. There are evidences that the disease was present in every society and at every stage since the beginning of settled population after the initiation

142 M. Meade (1977) op. cit., p. 379.
of agriculture, yet the scale on which it destroyed the human well-being proliferated with industrialization and urbanization that led higher concentration of population in smaller areas with unhygienic living conditions. The process that began after the First World especially in Europe travelled to the Third World with increasing colonization and incorporation of new areas in the European Empires.

Even after more than a century since Robert Koch claimed to discover the cure for tuberculosis, the disease is continuing to take its toll and is responsible for the largest number of deaths. The understanding of tuberculosis as a disease has shifted with the change in technology and change in culture. Initially, it was considered a curse of God but was later attributed to poor environmental conditions until the advent of the germ theory, which established that it was caused by the presence of a bacillus in the human body or the environment in which it could grow. This explanation of the disease falls in the tradition of disease ecology. Another group of concerned professionals and even a section of the state argued that tuberculosis is a disease resulting from poverty and inadequate nutrition. However, the causes of the disease are not so simple and one wonders why certain people amongst the non-poor or rather rich succumb to it. If one sees the range of people that have been affected by the menace in India, it indicates that the rich have been equally vulnerable since antiquity. In the mythical past, king of Gods Moon was afflicted by it. It was known as Raj Yakshma. In the medieval period, the Maratha king Baji Rao Peswa died of tuberculosis, in the resent past the Daughter in-law of one to the richest family (i.e. Motilal Nehru's daughter in-law Kamla Nehru) died of tuberculosis.

This is not a complete history of the disease but only a reflection of its range of killing. The rich and poor equally are affected and still the disease could not be understood in totality, because of the two dominant approaches i.e. disease ecology
and political economy, remained divergent. The efforts, which were made towards combating it, remained influenced by either of the explanations, which have been based on the generalization of facts. The role of human thinking, the patient's perspective, the psychology, the stress level of individual are some of the factors, which can not be generalized but affect the person's heath and the recovery process. The new approach i.e. political ecology of disease accepts the role of these factors in shaping the map of disease in a particular locality and society and expects to provide a better explanation for the prevailing situation.

2.7. Conclusions

Two systems of health and medicine can clearly be identified from above discussion. Foucault has noted this as the emergence of two trends in medical practice: first was 'medicine of the species' and the other was identified as 'medicine of space'. Medicine of species remained concerned with the biomedical tradition and pertained to the strong emphasis in western medicine upon classifying diseases, diagnosing and treating patients and finding cures. Medicine of social space has been concerned with preventive measures by improving the social, physical, and behavioural surroundings through interventions from governmental and civic bodies. Both the traditions have had their impact on 'disease ecology' and on 'planning' in the changing course of history of disease and medicine in the world with India being not an exception. India was a colony of Britain during the period when Europe had started experiencing the disease.