

A CANDIDATE PARADIGM FOR HUMAN ECOLOGY

Introduction :

The concern with man-Environment relationship is as old as man. Human struggle with environment in order to master it has reached its climax in today's world. The result has been the unintended consequence of resource overuse and abuse of the physical environment. These human actions have had ramifications on all the theories of Science and Humanities. The scientific theories that are positivistically oriented accept man's mastery of nature as axiomatic. The theories then propose ways and means of understanding the laws that govern nature so as to manipulate and control it.

The concern of social theories is with the consequences of these actions on man and his environment. Historically it has been observed that domination of man by nature has prompted technologies that promote domination of some men over others. In the environmental paradigms as they exist today this dimension is side-tracked. While the social theories, be it Marxian or Structural functional, have failed to give environment its due credit. They have looked upon physical environment purely as a "natural resource" a means for producing economic goods and practices. These theories, however, have studied the effects of such a "transformation process" on human societies. But they have failed to acknowledge environment as having a separate identity worth noting.

Received : 23-6-1989

Therefore, there is a need to develop a new paradigm to fill this lacuna. As a first step "adaptive dynamics" paradigm is identified as a viable environmental theory while Habermas' critical theory is identified as a viable social theory. This is an attempt to develop a new paradigm for man-nature relationship by means of a synthesis of these two frameworks. Such a task would demand a theoretical analysis and critique at three levels.

As a first step a clear theoretically sensitive discussion of the basic concepts and propositions of the two theoretical frameworks is required. Next, it will have to be shown that the incompatibility between these two frameworks is only apparent. This will be supplanted with the reasons for a theoretical synthesis. This final level of analysis relates to the modes of combination and the appropriate methodology required for such a combination.

Presuppositions of Adoptive Dynamics Paradigm :

The adaptive dynamics paradigm originates in the general system theory. The fundamental assumptions of the theory are as follows :

1. The theory begins with the assumption that socio-cultural systems are examples of organized complexity.
2. These complexities are to be studied as processes in time rather than entities.
3. These processes are determined by various parts in the system.
4. These processes follow a logic of their own. This logic is mathematical and formal. It can be explicated through mathematical modelling. Such an exercise would help man understand these processes in a better manner, so that they can be subject to manipulation and control

The socio-cultural systems fall under adaptive systems. These complex adaptive models are characterized by the elaboration and evolution of the system. They thrive on disturbances and variety in their environment. A typical response of an open adaptive system to its changed environment is that, the system changes. These changes can be either ontogenic i.e., 'within' system changes or phylogenic i.e., 'of the system changes'.

The ecological models that arose from these processual adaptive dynamic models have guided major studies in man-environment relationship. To name a few, models used by the 'club of Rome' studies, (Medows, 1972, Mesarovic and Pestel, 1975, Tinkerg 1976, Gabor et al, 1976), the system dynamics (J. J. Forester 1974), the Ecological carrying capacity models, by William Stesser of Edinburgh University.

The Adaptive Dynamics Models

The 'adaptive dynamics paradigm' suggested by J. Bennett (1976) does not deny the systems approach, but Bennett has asserted the primacy of socio-cultural factors over the environmental. Bennett has defined Human Ecology as an historical ecological transition in man. It follows the dynamics of adaptation of man to his environment at three spheres: Population, technology and energy consumption. He goes on to identify the uniqueness of "Human Ecology", He identifies two steps that are unique in Human ecology. Firstly, the symbolic step of naming certain substances of physical environment as "natural resources" and secondly allotting economic value to them. This is a cognitive step in human interaction with environment. This step enables man to act upon physical environment and extract substances from it, that are used to produce and transform energy.

Since assigning economic value to goods is a cognitive step that arises through and within social organisation, these values are not determined by biological needs alone; they also have culturally determined wants for goods and energy. Since there are no absolute standards for these cultural wants, there is no automatic biologically determined control over them; it is, however, substituted by cultural feedback loops of information flow and communication, which are cognitive in nature. Because the control is cognitive in nature, at best it is imperfect. It serves both the interests, namely the purpose of action and means for control of these actions, when they become dangerous. This is possible through reflection on the meaning of the act and after reflection, subject it to control.

It is these cognitive steps in the ecological paradigm, that are parallel to Marxian theory. The ability of man to extract natural resources and subject them to forces of production, the ability of self-reflection of human-beings, is finding added emphasis in interpretative theories of today. These cognitive steps that make Human Ecology unique are correctly identified and given their central position in the Paradigm proposed by Bennett. Thus, he is able to rise above the deterministic processual model of systems approach partially.

But he still adheres to the systems approach when he posits an external origin to 'change' when he traces the causes of ecological transition in man. Bennett goes on to trace the peculiar problems faced by human societies, when he seeks to answer the following questions :

1. How human societies maintain short term equilibrium ?
2. What causes disequilibrium in such societies ?
3. What kind of adaptive strategies are used to restore equilibrium ?

The maintenance of short term equilibrium is attributed to what Bennett calls as subliminal controls that exist in primitive societies. These controls are exercised traditionally through rituals and work practices in these societies. When such societies come in contact with other societies, which have larger resource consuming instrumentalities, which innitiate a higher technical development, the sublimial controls tend to break down. This transition from equilibrium to dis-equilibrium is demonstrated in the highly generalized adaptive dynamics paradigm for human Ecology. The paradigm includes the socially problematic aspects of man's relations with nature. The basic component of the paradigm is the transformation process, or the social production. Beneath the transformation process are two terms technology and social organisation, that are considered as means to futher the process of production. The processes signify one generalized motive force that defines the reasons for action, the desires, needs and wants of people involved. These processes can function to limit or enhance the operations of energy processes. The formal controls below processes indicate that sublimial regulations have not been historically sufficient to preserve the system from over use and abuse of resources. Therefore, formal controls based on information and feedback become necessary. Finally, human biology is inserted in order to indicate that output of energy and social organization will have an influence on human physiology and gene pool.

Points of Disagreement :

Thus, the paradigm is based on the premise that the social processes have a primacy over the individual 'self'. Infact the systems follow a logic of their own, over which man has no control. This is in line with one possible interpretation of Kant. Kant argues that the basic mode of human action is 'freedom'. But because humans are posited within causal laws of nature,

this struggle for freedom remains unexercised. This forces human beings to return to the 'inner-self' i.e., to subjectivity, in order to attain transcendence. There is always a discrepancy between "what is" and "what ought to be" in today's world. The attempt of any theory ought to be towards 'freedom of self'.

Habermas also agrees with this enlightenment doctrine which assumed human-enstrangement. He proposes (Giddens, 1977) that understanding human conduct is not only a causal endeavour, but it also consists of uncovering its intelligibility by relating it to the rules that constitute form of life. Habermas stresses the point that the generalizing sciences, that dictates the system approaches in positivistic sociology and hermeneutics have for a long while gone their separate ways. The problem is to show that logical relations connect them on the level of epistemology; Science can only be comprehended epistemologically, which means as one-category of possible knowledge and the evolution of scientific disciplines have led to 'scienticism'. This has resulted in the conviction that we can no longer understand science as one form of possible knowledge, but rather identify knowledge with science. Thus, it conforms to only one type of knowledge constitutive interest, that of prediction and control of occurrences, or technologically exploitable knowledge. This kind of knowledge denies the diachronic process of social systems. The systems theorists advocate a synchronic dimension. The chess game is usually cited as an example. Just as in a chess game there are various elements, so do social systems have various elements. If the relationship between these elements and the rules of the game are known, then anyone can play the game, from any point, within the game. The system theorists argue that similarly social systems follow a logic of their own. These rules and relationships between social elements can be explicated. Just as in a chess game a present permutation and

combination of elements that exist at any one point of time are a-historic i.e., the present situation may be arrived at by any possible earlier moves and thus they have no bearing on how the game can proceed, or the further course of events. Similarly, the present social situation cannot be used to predict future evolution.

But this approach is unable to adequately explain the newly emergent social elements beyond those assumed earlier. It portrays a static image of society. It is a fact that social systems do undergo change and evolve, over time. This the synchronous approach is unable to account for (Gouldner, 1970). It is this crisis that has led to the emergence of hermeneutics and critical theories. Habermas has stated that such a synchronic approach is only one possible logical form in which discourse can take place and is directly connected to instrumental or purposive rational action.

The second type of knowledge constitutive interest is emancipatory. This communicative interest assumes interaction. Interaction is dialogical rather than monological. A dialogue assumes a degree of normative consensus between communicating individuals. One cannot, therefore, be concerned with interaction without being able in principle to enter into a dialogue. This is the locus of hermeneutics, which confirms to knowledge constitutive interest in understanding. Hermeneutic problems relate to the inter-twining of language and experience in different forms of life, which ordinary language both expresses and mediates. Habermas takes reflexivity to be fundamental to the interest in emancipation, just because it is in the course of self-reflection that the subject is able to grasp and transform, the conditions under which he acts, through embodying his knowledge of these conditions within the rationalization of his action. Thus, the

shift to historicity is a necessary condition for self-reflection and emancipation, for a critical theory.

The adaptive dynamics paradigm, though rooted in systems approach, does recognize the importance of historicity and therefore transcends the purely instrumental interest. It attempts a theoretically generalized history of human Ecology, even as it maintains its systems approach. Therefore, the paradigm can be retained with modifications.

The second reason to retain the paradigm is because this is the only paradigm that recognizes the 'social production' as well as environmental dimension. The alternate Marxian theories are not adequate to explain environmental domination by man. This is elaborated by Issac Bulbus (1982), when he considers Marxian Structuralist theory of production. Bulbus points out that both the optimistic and pessimistic theory of technology is unable to serve the emancipatory interest of man. Thus, contrary to Marx, the social relations of production possess a partially autonomous logic of development. This takes us back to Marx's Instrumental theory coupled with the insistence that the logic of technological development is repressive which is what Weber and Ellul argue, that there is an inherent identical logic underlying industrial production as such and this logic is repressive. Bulbus answers this problem by identifying and promoting technologies that are not destructive to the environment. But this only partially solves the problem i.e., the domination of nature, the problem of domination of man remains.

A way out is to develop a theory that is rooted in the emancipatory theory and is able to adopt an ecological dimension. The adaptive dynamics paradigm (Bennett 1978) is identified as an ecological theory, to be modified, to suit emancipatory interests of man, mainly because it adopts a historical perspec

tive. But this paradigm alone is not sufficient for two reasons. Firstly, it ignores the socio-political dimension. Secondly; it posits an external point of origin to change. This is because it lacks a grounded theory of learning process, to locate the origin of change within Human Social Systems. Such a theory of learning would adequately explain the origin of change that is responsible for the ecological transition from one stage to another. The emancipatory interest would thus have to be a central concern of a 'Theory of Human Ecology'.

This emancipatory interest also provides the guiding inspiration for critical theory. (Held, 1980) The theory aims at the liberation of human being from being dominated by forces constraining their rational autonomy of action.

The Presuppositions of Habermas' Critical Theory :

Habermas has developed a research programme which is at once philosophical, critical and pragmatic, all at the same time. Habermas' critical theory has three major concentrations, which have relevance to ecological attitudes and ethics.

1. as a philosophical theory i.e., an epistemic problem.
2. as a meta-scientific mode i.e., critical theory as a philosophy of social sciences.
3. as a substantive social theory i.e., hermeneutic dimension.

These are rooted in various ways in which 'critique' can be interpreted.

The first clue to the notion of a critique is as associated with 'crisis'. This relationship of association was found by Hypocritas. Hypocritas regards, in an individual organism, a 'crisis situation'. This is determined by an up or down in the body of an organism. Thus, a disorder or a structural imbalance in

an organism is identified as a root to 'crisis'. But merely a disorder is not a sufficient condition for the need of a 'critique'. This systemic disorder has to be identified as such, by the organism itself, through its perception of the malice. Thus, Habermas suggests that such a situation has an objective structure and a subjective hermeneutic dimension. The significance of the crisis is not because it represents a structural disorder but that this disorder is perceived as such by the organism.

The person who is capable of recognizing a system of crisis and to prescribe remedial steps becomes a 'critique'. In case of an organism it is a healer.

In ecological context, the environmental crisis is identified as a problem of pollution resource over use and abuse by all. Here, apart from other notions, the central idea is that a physician, in diagnosis of the disease, is guided by the conception of 'well-being'. This normative idea is a guiding principle and a goal for medical practice. Thus, the activity of the critique is to talk to the patient for understanding of what an illness means to the patient.

Therefore, the investigations besides being subjective and objective, will have to be normative in nature. Michel Foucault (Dreyfus & Robinow 1987) suggests a methodology for identifying the concept of 'well-being'. His methodology states that in order to find out what our society means by environmental 'well-being', we must investigate what is happening in the field of environmental 'crisis'. Roughly this boils down a commitment to 'deep ecology' or ecological egalitarianism. The normative principle of sustained yield can become the guiding principle.

Thus, a critical theory as a philosophical theory ought to enumerate the conception of what is 'normal' in a society, if a 'crisis' has to be identified.

The second meaning of a critique as understood by Habermas, pertains to Aristotle. In socio-political context Aristotle observed that a state has certain multiplicities leading to a system. Thus, these various structures would at some time indicate certain structural imbalances over what is just and right. A social system can encounter a period of crisis which is expressed as conflict. The critique is a person who is able to identify disorder and take corrective measures.

In environmental context this crisis is manifest in the nature important problems existing in human ecology today. The present way of techno-ecological exploitation raises certain problems, with increasing knowledge about environment.

1. The mastery of some men over others as a consequence of technical interest in resource exploitation conflicts with the egalitarian principles accepted as a 'world view'. (Bennett, 1976)
2. 'Economic growth' as a criterion for development is increasingly questioned as against 'quality of life'. This is because there are limits to growth in material spheres, due to environmental constraints. At the same time, increasing material standards does not guarantee distributive justice. (Jenning & Hoebel, 1955)
3. The technical interest dictates that nature be treated as an instrumentality, but increasing knowledge about nature dictates that nature be treated as a system of great complexity not fully understood. (Schroyer, 1988)

The critique is the environmental scientist who brings up these issues, and takes corrective measures.

The third meaning of critique originates in the Roman medieval periods. During the renaissance period, the Romans depended on Greek Scriptures for the borrowed civilization they reconstructed. This was a literary critique whereby alien meanings had to be a hermeneutic activity. This notion of critique as a hermeneutic activity is important. For proper understanding of scriptures the appeal had to be to human reasons, for re-interpretation. When this happens the appeal is only to faith and reason. Thus, reason was not just a tool but the final arbitrator. At this final stage reason is public. But for Kant a critical reason had to be a critique of pure reason. Thus, for him critique becomes a self-critique and reason becomes 'a-public'.

In case of human ecology the need for a self-critique is obvious. If the present techno-ecological path of instrumental use of nature is followed to its logical extreme, it will lead to self-destruction. Therefore, a reflexive and hermeneutic methodology is needed for deciding on corrective measures.

One can follow Habermas' logic and attempt to develop a 'critical human ecology'. Habermas suggests a three tier research programme to develop a critical theory of society. The ground level consists of a general theory of communication, at the next level it serves as a foundation for a general theory of socialization in the form of a theory of acquisition of communicative competence; and finally Habermas sketches a theory of social evolution based on the previous two levels which he views as a reconstruction of historical materialism.

Contribution of Habermas to the theory of social evolution is two-fold. He has developed a new theory of learning which incorporates both communicative actions and instrumental actions under human action. In re-interpreting the base superstructure theorem he has stressed the primacy of communicative

action. Thus, his reconstruction of historical materialism states that normative structures play an equally important role in resolving system problems in social evolution.

He then sees systems as life-worlds that are symbolically structured, social system crises, according to him, arise in economic, political or socio-cultural sub-systems leading to systemic changes. For example, in capitalist societies due to internal contradictions, these societies are endangered from at least one of these four possible crises namely economic, rationality, legitimation or motivational crisis.

Habermas, like all Marxists, seems to have given almost no importance to the ecological crisis. He only states that capitalist form of society has an established growth mechanism that compels population growth and an increase in production on a world wide scale. This growth has two limitations—the finite resources and population. These limits have not yet been reached but one absolute limit to growth can be specified, namely the limit of thermal load imposed on the environment by the consumption of energy (Connerton, 1976).

Thus, Habermas, like all Marxian Scholars, considers ecological issues as technical issues. This seems to follow necessarily from his theory of constitutive interests, particularly the interest in control and domination. If this is so then new levels of social learning can only be social and inter-human. Such an anthropocentric view would limit the ecological attitudes and ethics. Such a Habermasian version of critical theory is possible.

In so far as the new levels of normative learning would be anthropocentric, the prospect of new ecological attitudes and ethics would imply some modifications in the marxian theory of technology. As Bulbus (1982) has argued that modification of just relations of production would not produce technologies that

are less dominating, because domination is internalized in the very mode of production. Therefore, there is a need for identifying technologies that are non-domineering. Bulbus has proposed the doctrine of 'small is beautiful' as presented by Shoenmaker. This would be a narrow way of solving the ecological crisis as it proposes a partial solution.

Therefore, the critical paradigm needs elaboration to encompass the ecological dimension. The adaptive paradigm with its ecological and historical dimension can be strengthened by the critical dimension. The mode of combination of the theoretical frameworks can be now elaborated.

Habermas, in the development of a general theory of communicative action, gives certain clues to the mode of combination. He states that in order to arrive at a general theory of communication certain universal pragmatic rules of communication need to be reconstructed. In the light of these reconstructed rules/strategies, the "communicative competence" of an individual can be established. These two would then form the foundation for a general theory of communication.

Similar steps can be followed to arrive at a general paradigm of Human Ecology. We will, therefore, have to reconstruct the adaptive strategies used by human-beings in their interaction with nature. In the light of these 'adaptive strategies' an "ecological competence" will have to be developed. These would provide the foundation for the general paradigm, We will then elaborate on the causes of ecological transition through a theory of learning and suggest an appropriate methodology for the same.

Reconstructive Strategies :

Habermas uses the term reconstructive sciences to designate any undertaking aimed at explicit systemic reconstruction of

implicit pretheoretical knowledge. In case of human ecology such an exercise will have to define a guiding principle that is normatively ideal in man-environment relationship. (This is done by defining a "reconstructive adaptive strategy").

The methodologists for applying such a theory will have to incorporate a hermeneutic and historical dimension along with empirical analysis. This is in order to make a critical social theory empirical and scientific without being reducible to empirical analytic science.

Therefore, as a first step let an reconstructive adaptive strategy be defined.

This is a very complex job, mainly because the problem with human-social systems is that they adapt to environment by changing and not by resisting change. The feed-back is positive and they do not tend towards any one particular goal. When the criteria of 'what is adaptive' shifts from an individual to a group, its welfare and survival, human ecology in the sense of having a 'practical intent' becomes an enquiry into the adaptive consequences of human activities. Here one factor must be noted. Adaptive strategy aimed at group survival is given prime importance and it may be at times mal-adaptive to an individual. Several concepts of adaptive strategies will have to be examined in order to justify and define a reconstructive concept.

The adaptive strategies adopted by individual human beings fall under two spheres (1) the biological (Steward 1978, Huizing, 1975; Jennings and Hoebel, 1975) (2) socio-cultural adaptation, between individuals as studied by social psychologists, (Thomas and Zenneski 1960) and between individual and groups. (Merton, 1968; Mills, 1960; Peel, 1972).

The systems theory as suggested by Talcott Parsons (Parsons, 1967) refers to adaptation problem, as problem of providing facilities for the use of system, i.e. given certain goals to arrange resources to attain these goals. Thus, it is a means of solving the problem of self-maintenance. Adaptation as a value-pattern in societies is also studied by Parsons. From systems theory this definition of adaptation as a 'means' poses a question, namely which mechanism in the system can create adequate adaptation of the system to the environment. Even if we find the mechanism, at what price? For, only strategies that have already proved to be adaptive, can belong to this object domain, other adaptive strategies not thus proved will be ignored, thus excluding an independent evaluation of reasons. But can we ignore the fact that normative validity claims of adaptive strategies meet recognition because they are well grounded? It can be decisive for an analysis to know whether a population acted on the basis of an accurate or false information and opinion. To make judgement we have to be able to systematically evaluate adaptation claims in a rational intersubjectively testable way. To do so, we require a concept of adaption with normative content. But if philosophical ethics and socio-cultural theory can know nothing more than what is contained in the everyday norm consciousness of different populations, and if this cannot even be known in a different way, it then cannot rationally distinguish between adaptive and mal-adaptive strategies.

Thus, the empirical concept of social science is not satisfactory because it abstracts from systemic weight on grounds of validity. The philosophical is untenable because of metaphysical context in which it is embedded. A third concept of adaptive strategies is the 'reconstructive concept'. This should satisfy the following: A recommended adaptive strategy should be (1) in general interest, (2) as well as satisfy normative validity claims.

Assuming that idea and reality do not split, the adaptive strategy must fulfil three criteria : (1) It should leave the physical environment ecologically beneficial (2) The adaptive strategy should be sustained and strengthened by the social organization, so that it becomes culturally acceptable (3) Finally satisfaction of both these criteria, one at the environmental level and the other at both individual and group level would lead to the satisfaction of normative validity claims, given the adaptive strategy.

Ecological competence consists of identifying certain pragmatic features of ecological activities which can be logically reconstructed.

1. It is the ability of an individual to incorporate environmental dimension into his every-day life. What is suggested here is that he should look upon his environment as something which is a part of himself and any action on his part would have consequences to himself in the end i.e., to see the consequences of his actions as having ecological consequences.
2. This would imply the normative basis which accepts equality, non-domination and a dialogical approach to differences. Incorporated in the concept of ecological competence here are both the physical and social environmental aspects.
3. The human decision to be 'one' with nature does not depend upon any epistemic presuppositions or changing contexts. Man in any ecological context also is capable of engaging in this kind of action. Therefore, a universal and pragmatic investigation can be proposed.

Having defined a reconstructive adaptive strategy and the notion of ecological competence, we can now review the transition in human ecology in its light. A theory of learning will help to locate the causes of change within human societies.

Habermas has stated that two series of initial conditions may appear in a system that stimulates new learning—processes initiating change in a system. These initial conditions can also explain the Human Ecological transition. This ecological transition in man has been from equilibrium to disequilibrium towards larger resource consuming instrumentalities which are motivated by the goal to emancipate man from vagaries of nature.

According to Habermas these two series of initial conditions are :

1. The unsolved system problems. In case of human ecology this problem takes the form of providing adequate subsistence production in order to emancipate man from vagaries of nature.
2. New levels of learning that have already been achieved in world views, but not yet incorporated into action systems, thus remaining institutionally inoperative.

In case of human ecology this would mean new value systems that question various axioms, on normative grounds, in economic, political and environmental spheres. (Schroyer, 1979).

It is Habermas' contention that human species organizes its experience in terms of prior interests. That there is a basis for interest follows from understanding of humans as tool making and language making animal. The basic interests that mankind has are :

1. The interest in creation of knowledge which helps him in controlling objectified processes and to maintain communication.
2. A technocratic interest in control of nature.

3. An interest in reflexive appropriation of Human life. This is the interest in reason, in Human capacity to be self-reflexive and self-determining, to act rationally; This is an emancipatory interest.

Habermas claims a universality of hermeneutics whereby he argues that interaction is founded in ordinary language communication, which is the organizing mode of intersubjectivity. The norms governing everyday communication are rooted in practical demands of sustaining community existence. Language is a medium whereby an intersubjectively formed social life is carried out. Language is a medium of doing things through communication with others. Interaction is, thus, dialogical rather than monological, as is the case in instrumental actions guided by technocratic interest. One cannot be concerned with interaction without being able in principle to enter into the dialogue. This is the locus of hermeneutics which conforms to the knowledge-constitutive interest in understanding.

Habermas acknowledges that science as understood epistemologically is one category of possible knowledge, which is guided by the interest in controlling objectified processes and technological interest dictated by instrumental rationality resulting in strategic action. The domination of this interest in today's world has led to 'Scientificism'. This has resulted in the conviction that we must identify knowledge with science. As a result, the knowledge constitutive interest in understanding and emancipation has suffered and human ecology is facing a crisis both at normative levels as well as material levels.

Thus, objectification of nature as a source for drawing 'natural resources' both in Marxian theory and adaptive dynamics paradigm is directed by the technical interest in control and mastery. This has led to contradictions in human ecology.

1. The objectification of nature severely conflicts with the assumption of nature as a complex system. This assumption is increasingly supported by knowledge through technological evidence made available today. (Schroyer, 1983).
2. The objectification of the subject i.e. human being, which is necessary for the production process is another contradiction. It conflicts with the emancipatory interest and belief in dialogue and interaction.

Habermas in his own work in historical materialism has criticised Marx for ignoring communicative action which is equally important in production processes. He has demonstrated this through historical studies. In fact it is Habermas' contention that it is normative structures which determine the rules of communicative action. These play an equally important role in resolving system problems in social evolution. Habermas finally suggests a reframing of base super structure theorem. He states that it is the endogenous learning process that provides growth of technically useful knowledge. The equilibrium according to this between forces and relations of production is rare. Hence, endogenously caused development of productive forces makes it possible for structural incompatibilities to become obvious and this causes disequilibrium. It is the development of new normative learning that may restore equilibrium.

The modified Paradigm :

Following the guidelines stated by Habermas we need to modify Bennett's ecological paradigm. Bennett's paradigm based on the older Marxian approach shows the primacy of 'social production' over socio-political and normative superstructures. But if we were to accept the primacy of superstructures, then the Ecological paradigm needs to be modified.

The social organization presses, technology and subliminal controls over resource use and distribution i.e., the normative dimension should form the basic component of the diagram and not the 'transformation process' as suggested by Bennett. Thus, the super-structures guided by the ecological competence and the reconstructive adaptive strategies follow egalitarianism as a normative commitment at the level of life world analysis. It means acknowledging the equality of right to live and blossoming of all forms of life. This primacy of superstructures would then provide an alternate understanding to the transition of societies from ecological equilibrium to ecological disequilibrium.

This transition and the current ecological crisis could then be attributed to the change in normative structures due to the theory of learning suggested by Habermas.

The solution of these crises have to be sought through interaction. In asserting the claim to universality of hermeneutics Habermas states that interaction is the locus to hermeneutics, which conforms to the knowledge constitutive interest in understanding and hence emancipatory in nature, Understanding human conduct is a causal endeavor and consists in uncovering its intelligibility by relating it to the rules that constitute a form of life. The methodology that dictates this kind of analysis will have to be an interpretative methodology.

There are two sequential aspects of social science methods. Weber distinguishes them as the difference between the 'what' and the 'why' of a phenomenon. The 'what' questions explicate adequacy at the level of meaning. The 'why' questions give causal adequacy. Weber goes on to add that causal explanations are possible in interpretative sociology. It is, according to him, wrong to suppose that because human action is subjective and

therefore unpredictable, human conduct tends to be predictable to a layman or a scientist to the degree to which it is rational in terms of selection of means to attain specific ends. Predictability is more in actions, free of emotions. Motive explanation is definitely a causal explanation because it can be attained via a prior grasp of the subjective meanings that men attached to their actions. The task of the social scientist is to concern himself with the interpretative understanding of social action and thereby supply it with a causal explanation of its course and consequences. Social action is expressed in terms of the subjective orientation of the agent. Action is social if the actor takes account of the behaviour of others. Understanding the problem of other is problematic. At the core of Weber's analysis is the distinction between behaviour, Verstehen and action (Habermas, 1988). Each of these can be explained by the observer, but the first cannot be framed in the subjective intent of the actor because it is habitual. Action on the other hand has to be framed in terms of its meaningfulness to the actor.

The possible criticism of an interpretative approach is as follows. Since interpreting meanings involves an empathetic experience, meaning has to be understood and described with the great degree of certainty in the 'correctness' of the interpretation. Since there can be no absolute standards for a correct 'description' one can argue that interpretation will always be subjective. The way out is, one can perceive multiple meanings to understanding of an act. Alternately, one can study the opposite in crisis to get clues into the ideal phenomena as suggested by Foucault.

In case of Human Ecology an interpretative methodology would mean understanding the possible alternate way of perceiving an ecological crisis to draw upon what is meant by 'ecological well-being'. This has a significance, because various

groups like administrators, policy planners, the people affected by it, each will have an alternate understanding of the phenomenon. Thus, clues can be drawn to understand what is their ideal type of 'environmental well-being'.

Towards a 'Critical Theory of Human Ecology'

The objective of this exercise was to develop a new paradigm for man-nature relationship based on omissions and underdeveloped implications of the two frameworks of adaptive dynamics and critical theory.

Finally, such a paradigm will need to be further developed to create a 'critical theory of Human Ecology'. Since the paradigm recognises an emancipatory interest as fundamental, it can be considered as a variant of the self-enstrangement theories. Fay (1987) has suggested that a 'critical social science' can be developed as a separate discipline (instead of a purely critical theory) which has humanist variant of self-enstrangement theories as a basic foundation. He has suggested the research programme for such a Social Science. This can then be applied to specific instances of Science, say, Human Ecology.

He suggests a humanist variant of 'self-enstrangement theory' which will simultaneously explain the social world, criticize it and empower its audience to overthrow it. The theory would reveal how a particular social order functions, show the ways in which it is fundamentally unsatisfactory to those who live in it, and do it in such a manner that it itself becomes the moving force, helping to transform this order into something radically different.

The research programme can be characterized by a complex of theories that are systematically related to one another. These theories have to be scientific in the sense of providing comprehensive explanations of wide areas of human life in terms of a

few basic principles, explanations, subject to public empirical evidence. They would be critical in the sense of offering a sustained negative evaluation of social order at hand. Finally, they would be practical in the sense of stimulating members of society to alter their lives. This complex of theories will consist of :

1. A theory of false consciousness
2. A theory of crisis
3. A theory of education/learning, and
4. A theory of transformative action.

But the development of such a research programme is beyond the scope of the present paper. *

Tata Institute of Social Sciences
Post Box 8313
Sion-Trombay Road, Deonar
Bombay-400088.

JYOTSNA BAPAT

NOTES

Bennett, John, W. ; *The Ecological Transition*, Pergamon Press, N. Y. 1976.

Bulbus, Issac ; *Marxism and Domination : A Neo-Hegellan, Feminist, Psycho-analytic Theory of Sexual, Political and Technological Liberation*, Princeton University Press, Princeton, New Jersey, U. S. A. 1982.

Connerton, P. ; *Critical Sociology*, Penguin Books Ltd., London, 1976.

Dreyfus H. L. & Rabinow, Paul ; Michel Foucault : *Beyond Structuralism and Hermeneutics*, The Harvest Press, U. K. 1987.

Fay, Brian ; *Critical Social Science : Liberation and its Limits*, Polity Press, Cambridge, Great Briton, 1987.

Forester, J. J. ; *World Dynamics*, Hutchinson, London, 1974.

- Gabor, D. Colombo, U. King A. & Galli, R. ; *Beyond the Age of Waste*, Hutchlnson, Lodon, 1976.
- Giddens, Anthony ; *Studies in Social and Political Theory*, Hutchinson of London, 1977.
- Gouldner, Allevin, W. ; *Commng Crisis of Western Sociology*, Heinemann Educational Books Ltd., London, 1970.
- Habermas, Jürgen ; translated by NicholSEN S. W. & Stark J. A. † *On the logic of Social Science*, Polity Press, M. I. T. 1988.
- Huizenga, J. ; "Cultural and Biological Adaptation in Man", in Salzano, M. (Ed.) *The Role of Natural Selection in Human Evolution*, North Halland Publication Co., 1975.
- Held, David ; *Introduction to Critical Theory : Hockheimer to Habermas*, Hutchin & Co, (Publishers) Ltd. London, 1980.
- Jenning J. D. and Hobel E. A. (Ed.) *Reading in Anthropology*, Mc Graw Hill Book Co., N. Y. 1955.
- Meadows, D. : *The Limits to Growth*, Hutchinson, London, 1972.
- Merton, R. ; *Social Theory and Social Structure*, Amerind Publishing Co. Pvt. N. Y. 1968.
- Mesarovic M. & Pestel E. ; *Mankind at Turning Point*, Hutchinson, London, 1975.
- Mills C. W. ; *Images of Man*, George Brazille Inc. N. Y. 1960
- Parsons, Talcott ; *Social Theory and Modern Society*, The Free Press, New York, 1967.
- Peel, J. D. Y. ; *Herbert Spencer on Social Evolution*, University of Chicago Press, Chicago, 1972.
- Schroyer, Trent ; "Critique of the Instrumental Interest in Nature", *Social Research*, Vol. 50, No. 1, pp. (158-184), Spring, 1983.
- Steward, J. W. ; *Sociology, the Human Science*, McGraw Hill Book Co., New York, 1978.
- Tinberg, J. ; *Reshaping the International Order*, Hutchinson, London, 1976.
- Tomas, W. I. & Zennenski, F. ; "Three Types of Personality", in C. W. Mills (ed.) *Images of Man*, George Brazille Inc. N. Y.

★ I wish to thank Professor R. Sundara Rajan, Philosophy Department, Poona University for greatly helping me in preparation of the paper. His useful comments enabled me to separate grain from the chaff.

Statement about Ownership and Other Particulars about
Newspaper INDIAN PHILOSOPHICAL QUARTERLY

FORM IV (RULE 8)

1. **Place of Publication** ...Philosophy Department,
 University of Poona,
 Pune-411 007
2. **Periodicity of its
 Publication.** ...Quarterly.
3. **Printer's Name and
 Address** ...Dr. Surendra Sheodas Barlingay,
 Philosophy Department,
 University of poona,
 Pune-411 007.

Whether Citizen of India ... Yes.

4. **Publisher's Name and
 Address** ...Dr. Surendra Sheodas Barlingay,
 Philosophy Department,
 University of Poona,
 Pune-411 007

Whether Citizen of India ... Yes.

5. **Editors' Names and
 Addresses** ... (i) Dr. Surendra Sheodas
 Barlingay,
 Philosophy Department,
 Poona University,
 Pune-411 007.
- (ii) Dr. Rajendra Prasad,
 Opposite Stadium main gate
 Premchand path
 Rajendra Nagar
 Patna-800 016.

(iii) Dr. M. P. Marathe,
Philosophy Department,
Poona University,
Pune-411 007.

(iv) Dr. Mrinal Miri,
Philosophy Department,
N. E. H. U.,
Shillong-793 014

(v) Dr. R. Sundara Rajan,
Philosophy Department,
Poona University,
Pune-411 007.

(vi) Dr. S. S. Deshpande,
Philosophy Department,
Poona University,
Pune-411 007.

Whether Citizens of India, ... Yes

6. Names and Addresses of .. Department of Philosophy,
Individuals/Institutions Poona University,
which own the newspaper Pune-411 007
And its
Pratap Centre of Philosophy,
Amalner-425 401

I, Surendra Sheodas Barlingay, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/- Surendra Sheoas Barlingay

INDIAN PHILOSOPHICAL QUARTERLY

INDIVIDUAL LIFE MEMBERS

299. Smt. Jyotsna Saha
 Research Scholar
 Philosophy Department
 North Bengal University
 Raja Rammohanpur 734 430
 Darjeeling (W B).
300. Dr. (Smt.) Bhaswati Bhattacharya (Chakrabarti)
 U/A, W/174 (Western Sector)
 Darjeeling 734 430 (W.B.)
301. Prof. Kalyan Kumar Bagchi
 Philosophy Department,
 Visva Bharti,
 Santiniketan 731 235
 Birbhum (W B)
302. Dr. Pratima Ganguli,
 P G. Department of Philosophy
 Bhagalpur University,
 Bhagalpur 812 007 (Bihar).
303. Dr. Chote Lal Tripathy
 Philosophy Department
 Allahabad University
 Allahabad 211 002
304. Dr. Shyamal Krishna Banerjee
 Department of Philosophy
 Vidyasagar University
 Midnapore 721 101 (W. B.).
305. Dr. Pratap Chandra
 C/91 Gaur Nagar
 Sagar 470 003 (M P.)