CHAPTER 1

1.1 Introduction

Social Ecology is assuming tremendous significance due to variety of reasons including environmental degradation. The present study revolves round social ecology and its close ties with agrarian structure in Bathipur. It is mainly based on field study during January-July, 2003 in Bathipur. The village under study is located in Katihar district in Bihar (See Map 1.1). The village has been selected after careful consideration from the Kosi command area. Sociologists and Social Anthropologists have evinced their interest in studying social ecology in India as early as 1920s. RadhaKamal Mukerjee has been one of the pioneers in the study of social ecology in India. However, not too many sociologists and social anthropologists have evinced their interests in studying social ecology in India from 1940s to 1970s. Since 1980s Sociologists and Social Anthropologists are taking deeper interest in social ecology and its relationship with social structure, economy, polity and culture.
Map 1.1 Map of Kursa Block showing Bathipur
This study has examined the influence of social ecology on the agrarian classes in Bathipur. It has focused on the changing relations between the members of the dominant class (Girhasts) and the subordinate class of landless labourers due to the determining influence of ecological conditions in the village. The agrarian relations in the village since the beginning of the twentieth century were influenced by a major transformation in its physical environment because of the changing course of the river Kosi. The erratic behaviour of Kosi caused uncongenial environment for agriculture. There has been an attempt in unraveling the character of the relations of exploitation and the conflicts of interest arising from the ownership control and use of land and irrigation resources: the principal means of production. The relations between the landholders and landless labourers are located in a setting in which agriculture has an overwhelming commercial orientation. Both material resources (such as land, seeds, means of irrigation, tractors) and the labour process entailing the use of these resources for agricultural production were subjected to rigorous control by the landholders to maximise profit. The population in the village depends primarily on agriculture. The area is
regarded as one of poverty, backwardness and unemployment. This study has attempted to explore the class relations by using the concepts of exploitation and domination. One class is appropriating the fruits of the labour of another class by virtue of possessing superior control over the means of production. It seems that the welfare of the exploiting class depends upon the work of the exploited class.

In this study, the impact of changing ecological conditions on agrarian relations has been described. There are many aspects of relationships between ecology and social structure, which give ample scope for further research. Matin\(^1\) in his study of agrarian structure in Purnea district has pointed out the possible relationships between social ecology and agrarian structure. However, he himself has not examined this dimension. Guha\(^2\) has also observed about the possibility of relationships between social ecology and agrarian structure in general. It is evident from their discussions that there is a need for studying relationships between social ecology and agrarian structure. I have made an attempt in describing the connection between social ecology and agrarian structure
in this study. There is need for further researches on the following aspects. (1) Social ecology and urban social structure. (2) The responsibilities of caste and rural institutions in regulating the use of forests, water and other common resources. (3) The effects of ecological degradation on gender relations. However, these are beyond the objectives of the study. The main objective of the study is to examine relationships between the social ecology and social structure. Besides, what are the ways in which ecological factors (especially canal irrigation and bamboo tube-wells) and technological factor (tractorisation), affect patterns of cultivation in Bathipur? What is the social location, in terms of caste and class, of those who initiate the process of commercialisation? What are the reasons for the changes in the patterns of exploitation: from tenancy to wage labour?

There is inter-relationship between ecological infrastructure (soil, water, forest, etc.) and economy (forces and relations of production) as well as social structure (eg. caste, community, kinship). This study has examined inter-relationship between ecological infrastructure and economy as well as social structure at
the village level. It may be noted here that the Kosi is one of the most notorious rivers in India for changing its course frequently. Despite the abundance of village studies in India, social anthropologists have paid little attention to the ecological framework of rural life. RadhaKamal Mukerjee first outlined the theoretical possibilities of an ecologically oriented sociology. Social ecology studies the reciprocal relations between ecological infrastructure, i.e. soil, water, forests, etc. and economy, social structure, polity and culture. Agrarian social structure is primarily an institutional framework of agriculture, which includes the structural distribution of land holdings; the nature of land ownership; means and motives of production. In the study of agrarian social structure the main concern is with patterns of inequality and conflict arising from the ownership, control and use of land and irrigation resources. The concepts of social ecology and agrarian structure have been discussed in detail in chapter 2.

The task of ecology is the study of the relations between organisms and their environments. This study is aimed to give a focussed perspective on the interactions of
nature and some aspects of social structure. This study attempts to show the material use of nature and the goods and services it provides for human society. It has primarily been concerned with the relations of production within the agrarian structure and also with the relations between different groups in conjunction with social relations around the use and abuse of nature. This study tried to indicate how the ecological factors interdigitate with social ones and is aimed to examine to what extent an ecological analysis is possible in dealing with the complex agrarian relations of production.

Present day problems of varied nature in human life are directly or indirectly very much related to ecology and their solution needs an ecological knowledge. These days ecology has been contributing very much to socio-economic, political and other similar policies of the world. There are interdependencies not only between ecology and other areas of plant sciences but also between ecology and physical as well as social sciences. Ecology plays an important role in human welfare. This is primarily a field subject and modern ecology is concerned with the functional interdependencies between living things and
their environment. Despite the abundance of village studies in India, social anthropologists have paid little attention to the ecological framework of rural life. Their main concern has been with caste, kinship and religion. However, earlier generation of anthropologists working on tribes had studied the influence of the natural environment on cosmology, ritual and on the local economies.

In the beginning, human beings were shaped by the environment, which controlled and shaped its evolution and they remained in equilibrium with the environment. But in the quest of its development, human beings broke this equilibrium and since then they are exerting an ever-increasing influence on their environment. Due to growing urbanization and industrialization, human beings have distorted their environment.

All developmental activities, irrespective of their scale of nature and magnitude affect the environment. The impact of the developmental activities may have short-term as well as long-term implications. The short-term implications may by negligible as compared to the benefits of the developmental programmes but the long-term
implication may further create new ecological and environmental problems, the solutions for which may not be easy to find. Some of these implications may be summarized in terms of vast areas of deforested lands, denudation of slopes, soil erosion and silting of rivers, regular occurrence of floods and droughts, impoverishment of important flora and fauna, changed climate, polluted water unfit to drink and contaminated air unfit to breathe. The ecological balance of flora, fauna and forests is being drastically disturbed by the rapid increase in human population.

Land degradation is a major problem, which results in loss of its intrinsic qualities or a decline in its potential utilities and capabilities. Land degradation may be caused due to natural or human factor or due to the combination of both. Soil erosion by rain and river that takes place in hilly areas causes land-slides and floods, while cutting trees for firewood, agricultural implements and timber grazing by large number of livestock over and above the carrying capacity of grassland, traditional agricultural policies. Soil erosion results in huge loss of nutrients in suspension or solution, which are removed from one place
to another, causing depletion or enrichment of nutrients. The process of agricultural resource development has a large and long terms impact on the natural component of original ecosystem.

During recent years, the growth of population and technological development tend to affect adversely the ecology both by utilizing the environmental resources beyond the carrying capacity of the nature and by altering the resource use pattern. The land use pattern of the region has been undergoing a process of rapid change and transformation. The process of irrational utilization of natural resources has depleted and degraded the critical environmental components in the ecologically sensitive region.

The ecological conditions and lack of economic diversification in the village seem to be the most significant factor affecting the material destiny of landless labourers, constraining them to depend mostly on agriculture for their livelihood and thus, subjecting them to the arbitrary will of their employers. The proportion of agricultural labourers in the area under study happens to be high. There seems to be a sense of overpowering
economic insecurity among the labourers. This statement also applies to the plight of agricultural labourers in the village.

1.2 Research Design

Research design is generally meant for setting up the research in such a way as to derive systematic and logically sound conclusion. Among its various aims, one of the important is to decide the data to be collected and the manner in which the collected data to be organized. Each method has various advantages as well as limitations. Therefore, multiple methods and theories are required in grasping the complexities of social realities. Denzin\(^3\) has advocated for the use of multiple methods which he calls "triangulation". The techniques of "triangulation" have been applied in this study.

Case studies have been used. The method of exploring and analyzing the life of a social unit: be it a person, a family, an institution or a community is known as case study method. Expressed somewhat differently, it is an approach, which views any social unit as a whole. Data have been supplemented with unstructured interviews and participant observation. Observation is an
integral part of any scientific inquiry. Every researcher does observe the unit being studied in one way or other. Participant observation helps researcher to gather sufficient information before starting to investigate according to specific problems formulated. While employing participant observation technique, a researcher, generally, faces two kinds of problems. One is the problem of accessibility and acceptability among the people being observed. If the researcher is accepted by the people, the second problem arises. It relates with the possibility of influencing the behaviour of the people by the presence of stranger that is researcher. Expressed somewhat differently, the people may become conscious in revealing information, needed by the researcher. In order to surmount these problems, researcher often hides his identity and purpose. Fortunately the researcher did not face these problems due to being “insider”. In course of observation, the researcher takes notes of each and every aspects of life. This exercise helps in identifying major aspects related with ecology and social structure.

No matter, how objective, the researcher is, one may have doubt in the objectivity in the research. First, due to
researcher being an "insider". Second, on account of possible inherent limitations associated with the technique of participant observation. Therefore, the researcher employed case studies in order to substantiate his observations as well as to make the study verifiable.

Case study method involves an intensive study of small number of situations, in which emphasis is on understanding the subject of investigation as a whole and all aspects of cases are investigated. This method is used to capture qualitative aspects of social life. It is a way of organising social data so as to preserve the unitary character of the social object being studied. The method is thought to be useful in probing many facets of social unit. In an interview, the interviewer asks questions which crop up in his mind related with the problems under investigation at the time of conducting an interview. This method provides good insights to understand the subject of study. In a nutshell, participant observation, case study and interview methods have been used to examine the relationship between social ecology and agrarian structure.
Sociologists and social anthropologists use the method with a view of describing qualitative aspects of social life which, they thought cannot be captured merely by statistical methods. In order to describe the characteristics of whole unit, some cases are selected with the assumption that they represent whole unit. Cases are constructed either with the help of life, history documents such as personal diaries, letters and autobiographies or by making genealogical charts. Sharing experience with the individuals being studied conducting personal interviews and using folk-songs, ballads are other techniques which are used for portraying qualitative characteristics of the unit being studied.⁴

While being fruitful in capturing the qualities of social unit, case study method is often blamed to be “a kind of intuitive approach, without adequate sampling design or checks on bias or distortions resulting from personal views of social reality”.⁵ It is also said that neither few cases can be the basis of generalization nor they can represent whole unit. Without going in detail to defend the case study method, it would be suffice to say that neither any method can ideally be perfect nor it can be totally un-
methodological. Sophistication and refinements of methods are continuous process.

P.V. Young⁶ has defined case study as “case study is a method of exploring and analyzing the life of a social unit, be that unit a person, a family, institution, culture group, or even an entire community. Its aim is to determine the factors that account for the complex behavior patterns of the unit and the relationships of the unit to its surrounding milieu. Case data may be gathered on the entire life cycle or on a definite section of the cycle of a unit but always with a view of ascertaining the natural history of the social unit and its environment”

Inductive methodology has been used in this study. This study is qualitative and descriptive in nature. Descriptive studies aim at portraying the characteristics of a particular situation or group or individual (with or without specific initial hypotheses about the nature of these studies). An exploratory study would always be descriptive while descriptive study may not necessarily be exploratory. The inductive research strategy starts with the collection of data and then proceeds to derive generalizations using so-called inductive logic. The aim is
to determine the nature of the regularities, or networks of regularities, in social life. Once these are established, they can be used to explain the occurrence of specific events by locating them within the pattern of established regularities. This strategy is useful for answering 'what' questions but rather limited in its capacity to answer 'why' questions. In the inductive research strategy, explanation is achieved by locating a particular pattern within a known and more general pattern or network of relationships. The inductive strategy has been described as consisting of three principles: accumulation, induction, and instance confirmation. General laws are produced by applying inductive logic to the carefully accumulated observations and experimental results. Inductive logic is used to produce generalizations about the patterns or regularities that exist in the data obtained.

The inductive strategy has been characterized as consisting of four main stages:

1. All facts are observed and recorded without selection or guesses as to their relative importance.
2. These facts are analyzed, compared and classified, without using hypotheses.

3. From this analysis, generalizations are inductively drawn as to relations between the facts.

4. These generalizations are subjected to further testing.\(^8\)

This strategy is used for descriptive objectives to answer 'what' questions, i.e., to describe phenomena and establish regularities which need to be explained. This study seeks to present an account of some phenomenon, the patterns of relationships between ecology and agrarian relations.

1.3 Problems Faced during the Field Study

Before describing the problems, which the researcher faced during the fieldwork, it is necessary to state that the village was selected for the study because of its being in the Kosi command area of the district. The river Kosi is near to this village and this village is well exposed to the typical ecological conditions of the area. It was thought to be essential for understanding the relationship between
social ecology and agrarian social structure particularly the agrarian relations of production at micro level as well as for filling up the gap in the literature of Indian sociology. The researcher was well acquainted with the village. Keeping in mind the problems, which a researcher often faces in a new place, it was preferred to study this village.

Despite being “insider” and having close connections with many of the people, the researcher faced the problem of not getting exact information related with economic aspects. Due to the high rate of illiteracy, the researcher faced difficulties in getting the information regarding the changing ecological conditions in the village. Many times the researcher had to explain the meaning of ‘ecology’ to the informants. Most of the informants, especially of higher income group, seemed reluctant in telling their annual income. Some of them directly told not to ask such questions. In these cases, the researcher took the informants into confidence. This helped to a very great extent.

The major operational problem that confronted the researcher at the time of the fieldwork was to evolve a
strategy to describe how various classes of landholders conducted their agricultural operations. This required the researcher to observe the agricultural operations and take interviews (unstructured) with those involved in them. To inquire about the ecological conditions especially before and after the introduction of canal irrigation and its application to the process of cultivation, the techniques used, the organisation of time, the status of the actual producers as tenants or labourers and the kind of power exercised over them was not an easy task for the researcher. Constructing a picture of the agrarian relations of production under the changing ecological conditions was not a simple task since this required an intense participant observation. The researcher has blended participant observation with case studies and supplemented interview in order to form an idea of the various classes and the relations between them and the ecological conditions influencing these relations of production. This study may be useful first, in filling up the gap in the literature of Indian Sociology which has hitherto paid little attention to the study of reciprocal relations between social ecology and social structure. Second, this study may be useful for those who theorize about social ecology and agrarian structure.
References


5. Ibid. p. 119.


8. Ibid. p. 103.