CHANGING HUMAN-ENVIRONMENT RELATIONSHIP: A CASE STUDY OF A WATERSHED VILLAGE IN BUNDELKHAND REGION, UTTAR PRADESH

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BY

VINAY TRIPATHI

DEPARTMENT OF ANTHROPOLOGY
SCHOOL OF SOCIAL SCIENCES
UNIVERSITY OF HYDERABAD
HYDERABAD – 500 046

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DECLARATION

I, hereby, declare that this thesis entitled "Changing Human-Environment Relationship: A Case Study of a Watershed Village in Bundelkhand Region, Uttar Pradesh" submitted by me under the guidance and supervision of Prof. R. Siva Prasad is an original research work.

I also declare that it has not been submitted previously in part or in full to this University or any other University or Institution for the award of any degree or diploma.

Date: VINAY TRIPATHI

Place: Hyderabad (Regd. No. 05SAPH01)

Department of Anthropology
School of Social Sciences
University of Hyderabad
P.O. Central University
Hyderabad – 500 046
Andhra Pradesh
India

CERTIFICATE

This is to certify that the thesis entitled "Changing Human-Environment Relationship: A Case Study of a Watershed Village in Bundelkhand Region, Uttar Pradesh" submitted by Vinay Tripathi in partial fulfillment of the requirements for the award of Doctor of Philosophy in Anthropology is an original research work carried out under my supervision and guidance.

I declare to the best of my knowledge that no part of this thesis has been submitted previously in part or in full to this or any other University or Institution for the award of any degree or diploma.

Prof. R. Siva Prasad
Supervisor
Department of Anthropology
University of Hyderabad
Hyderabad

Prof. N. Sudhakar Rao
Head of the Department
Department of Anthropology
University of Hyderabad
Hyderabad

G. Nancharaiah
Dean
School of Social Sciences
University of Hyderabad
Hyderabad

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CHAPTER I

INTRODUCTION

Over the last few decades natural resources have received an unprecedented attention mainly because of their continuous degradation and increasing stress on them. These resources are overexploited in the name of development and are destroyed faster than their replenishment by nature. In few ecological settings, the destruction has reached to an irreversible level. However, a growing concern for their protection and restoration is witnessed across the world. The last few years, cutting across national and regional boundaries, this concern is loudly expressed in major world conferences/commissions /summits that largely focused on natural resources and their state. For instance, Conference on Human Environment (1972), United Nation Conference on Environment and Development (1992), the World Summit on Sustainable Development (2002), the International Year of Mountains (2002), etc., had seen the participation of delegates from different countries/regions deliberating on the precarious conditions and conservation of natural resources[1]. They strongly endorsed the view that the basic life support systems need immediate protection and urged different countries to protect, conserve and effectively manage their natural resources.

The most significant aspect of these concerns of world leaders is to draw our attention towards two major phenomena that are largely responsible for the present deteriorating situation of the natural resources. The first one deals with increasing dependence of human beings on natural resources and unsustainable utilization of natural resources causing environmental degradation threatening human existence.

Second, human beings have recognized the fact that if the civilization has to survive, it is necessary to control degradation process and conserve environment. Nevertheless, certain conclusions about human beings and environment could be deduced from the above aspects: (i) Human beings and environment have been in constant state of interaction; (ii) the interaction is a complex phenomenon; (iii) history has witnessed changes in interaction pattern between human beings and their environment from a symbiotic state to disequilibrium state; and (iv) human beings attempt to check or control those processes that has disturbed this amiable relationship. Considering this complex nature of human-environment relationship, its changing nature and the nature of research problem, the review of literature has been organised into three major sections.

I

HUMAN ENVIRONMENT RELATIONSHIP: THE ANTHROPOLOGICAL PERSPECTIVE

The complex nature of human-environment interaction provided scope for understanding or studying human environment relationship from various disciplinary perspectives. The natural sciences had been instrumental in developing the initial understanding of this relationship, as both human beings and environment for a long time were considered as elements of scientific enquiry alone. Nevertheless, the very wide nature of human behaviour, particularly its influence on the environment, had always puzzled the natural scientists. This, in turn, made them to look towards other disciplines and understand their perspectives for evolving a better and refined understanding of the human-environment relationship. Anthropology has contributed significantly in this direction as it provides a holistic understanding of human-environment relationship, besides explaining its dynamic (changing) nature. Therefore, it would be

interesting and relevant to look towards the ways this relationship and its dynamic nature has been understood by the anthropologists over a period.

Anthropologists have been known for their interest in exploring the interaction between human beings and environment. Within the domain of anthropology, this interest is pursued more intensely in the sub-discipline known as ecological anthropology. One of the significant aspects, which made this branch of anthropology different from other disciplines that deal with human-environment relationship, is its focus on culture while understanding this relationship. However, the way culture has been conceptualized in anthropology has changed over a period of time, which in turn had a bearing on ecological anthropological enquiry. For a long time, anthropologists have used the cultural approach to explain socio-cultural diversity, the adaptation of humans to their environment, and how this process affects the social and cultural behaviour. Anthropologists, through their unique approaches of holism, comparison, and participant observation have undertaken this task to make sense out of chaos of human diversity. However, their interest to understand the relationship between the activities of human beings and its influence or implications on environment and vice versa (particularly within the context of environmental problems like environment degradation) is a recent one and is largely attributed to the more refined conceptualization of culture (Milton, 1996).

The conceptualization of culture in anthropology has been very wide, multi-faceted and has undergone many changes. It was conceptualised as 'general/specific, broad/narrow, system/process' (Milton, 1996). However, an interesting aspect of this diversified conceptualization of culture is that it had

provided different analytical approaches, such as, historical materialism, cognitive approaches, interactive approaches and system approaches to understand the human environment relationship. Very recently, anthropologists have conceptualized culture as an 'ecological mechanism' (Milton, 1996). Viewing culture from this perspective provides a different understanding of human environment relationship. In this perspective, anthropologists have considered culture as the medium through which interaction between human beings and environment takes place, i.e., culture helps people to obtain the necessary things from their environment for their survival. Culture is further seen as a medium through which people adapt to their environment (Milton, 1996). It would be pertinent to note that the study of human adaptability tends to emphasize the flexibility of human response to any environment. According to Ingold (1992), this perspective of culture has been fundamental to ecological anthropology. However, the nature of this relationship and the mediating role of culture had been contested by some anthropologists and that had lead to a different theoretical perspective (Milton, 1996).

It is widely accepted that anthropologists were originally interested in providing explanation for the existence of diverse cultures across various regions, which in turn made them to explore the relationship between culture and environment. However, this exploration has resulted into the emergence of different approaches or theoretical perspectives which help in explaining and understanding the relationship between culture and environment. One of the earliest and long time dominant approaches in anthropology is widely known as environmental determinism. In this approach, the relationship between culture and environment has been understood in terms of cause and effect, i.e., physical environment understood as the cause that

dictates or shapes the culture. In other words, environmental factors determine cultural features. This, in turn, means that if one would like to understand the culture of any specific region, the only thing which an observer or a person has to do is to have a detailed understanding of its environment (Milton, 1996). However, this approach was challenged as anthropologists gradually discovered the existence of different cultural features within similar environment. The deterministic approach due to its inherent defect in methodology of single cause and single effect failed to explain the diversity. The environmental deterministic approach of explaining cultural diversity was later replaced by another approach known as possibilism. In this approach, environment was seen as playing a limiting role, i.e., certain cultural features has grown in certain environment because the environment has allowed them and not because environment has caused them (Hardesty, 1977). There are two interesting aspects about these approaches that need to be mentioned. First, these approaches consider environment and culture occupying separate spheres that can seldom meet. Second, both these approaches focus on understanding the culture-environment relationship by analysing the impact of environment on culture and vice versa (in deterministic approach) and considering the environment as playing a limiting role (in possibilism approach) (Hardesty, 1977). Geertz (1963) opined that with these perspectives one can only question that "How far culture is influenced by environment?" and "How far is the environment modified by the activities of man?" and can only get answer "To a degree, but not completely" (1963:3). These approaches are silent about 'the origin of specific cultural features and patterns which characterizes different area' (Steward cited in Milton, 1996:42). These lacunae in earlier approaches led anthropologists to seek other ways of understanding culture-environment relationship.

The quest for formulating an alternative and more holistic approach led to the incorporation of ecological perspective in understanding culture-environment relationship, and eventually gave birth to another approach widely known as 'cultural ecology'. The cultural ecology approach theorises that the cultures have evolved within their own environments. Therefore, a detailed analysis of specific cultural features and their local environment helps in explaining the reason and process of origination and persistence of these institutions. According to Steward, these specific cultural features constitute the 'cultural core' and deals directly with the environment. This core consisted of the economic sector of the society, i.e., those features that are "most closely related to subsistence activities and economic arrangement" (Steward, 1955:37). Processes like diffusion and innovation were termed as secondary cultural features, determined by purely cultural-historical factors. Accordingly, Steward developed the three-step methodology to identify those cultural features that constitute 'cultural core'. His methodology was instrumental in explaining the cultural diversity in similar environment, besides providing explanation to the origin of cultural features.

This incorporation of ecological perspective overcame the lacunae of earlier approaches in the sense that it viewed human beings and environment as two mutually inter-dependent spheres wherein a constant interplay takes place (Hardesty, 1977:7). Cultural ecology (through identifying cultural core and establishing its relationship with environment features) created the concept of integrated system, within which culture and environment features interact (Milton, 1996:44). The two spheres are involved in "dialectic interplay....or what is called feedback or reciprocal causality" (Kaplan and Manners, cited in

Hardesty, 1977:8), i.e., “neither environment nor culture is “given” but that each is defined in terms of the other, and the idea that environment plays an active not just a limiting or selective role in human affairs” (1977:8). It must also be understood that “the relative influence of environment and culture in feedback relationship is not equal” (Kaplan and Manners, 1972:79). Therefore, “sometimes culture may play a more active role and sometimes environment has upper hand” (Hardesty, 1977:8).

Cultural ecology approach provided the foundation for diverse kinds of studies that were interested in demonstrating the adaptive nature of cultural features (Milton, 1996). One of the important contributions of cultural ecology was that it initiated the shift from explaining the relationship between culture and environment to human groups (or human population) and environment. However, soon the limitations of cultural ecology were highlighted by other anthropologists. It was found that the cultural ecology though blurs the distinction between culture and environment as separate sphere, tried to understand relationship between culture and environment in the same deterministic way as earlier approaches. The only difference is that cultural ecology has restricted the environment from whole to environment features that shape or determine not the whole culture but only specific cultural features (Geertz, 1963 cited in Milton, 1996:44). Similarly, Vayda and Roy Rappaport (1968) criticized this approach on three grounds, namely, lack of appropriate sampling in establishing the correlations; correlations do not mean a cause and effect relationship; establishing significant correlations and causality does not necessarily reflect that relationship is inevitable (cited in Hardesty, 1977:10). The cultural core was overemphasized and the approach had a materialist bias. The restriction of cultural

core to technology and its interaction only with environment was considered as another limitation of this approach. Studies highlighting other cultural features like rituals and ideology, which also interact with the environment, were contradicting the ecological approach and posed challenge to its universal application (Hardesty, 1977).

However, the work of Geertz later brought a radical change in explaining human environment relationship. The approaches or ways that anthropologists used before Geertz to describe human environment relationship revolved around environment shaping culture or culture shaping environment. Geertz introduced the ecosystem approach which was a major landmark in the field of ecological anthropology. The ecosystem approach emphasized on the interactive nature of relationship between human beings and their environment and not considering nature and culture as two distinct entities. Apart from subsistence and economic arrangements, Geertz included historical and political factors too, to understand ecosystem. Instead of focusing upon "reciprocal causality" between two objects or processes, the ecosystem focuses upon a complex network of mutual causality (Hardesty, 1977:14). In other words, using single environmental causes for specific physical and behavioural traits, analysis shifted the attention to total complex of relationships in which human population participates (Milton, 1996:56). Another contribution made by the system approach is that it shifted the focus from culture or cultural features (which were basic unit of analysis of human environment relationship) to the human population, thereby, focusing on human ecology (Milton, 1996). However, this approach had certain weaknesses, such as, emphasising on homoeostatic nature of ecosystem, difficulty in defining the boundaries, not considering the unobservable features of cultures in its analysis – which ethno-ecology has

done. Therefore, the adequacy of the system approach in explaining or examining human environment relationship was contested.

It was pointed out that all these approaches were greatly influenced by the biological ecology (Orlove, 1980:24). Bennett highlighting the advantages and disadvantages of these approaches opined that "the principles and control mechanism of natural/biological ecology will work out for long range theoretical problems (for instance in explaining cultural diversity, evolution of cultures) and for man respectively. However, for a short range problem (immediate current problems say resource depletion, degradation, etc., and their control solutions), such endeavour will not work effectively. In order to deal with such problems, it is mandatory to have specific information on how people behave in society, how they deal with what they conceive to be nature/environment and the incentives available for modification of the exploitative behaviour" (1976). It would be pertinent to highlight that this focus on individual behaviour was neglected in earlier approaches dealing with human environment relationship, as their attempt was mainly focused on explaining the influence of environmental factors in shaping the collective patterns of behaviour (Orlove, 1980: 247-248). This, in turn, influenced the researchers to highlight regularities rather than change among different cultures. Besides this, the unit of analysis was also instrumental in sidelining the focus on individual behaviour. It is apparent that the unit of analysis in all these approaches was either culture or human population, but not individuals. Further, the conceptualization of culture as wide, broad, and general restricted the earlier approaches from talking about the individual behaviour and its influence on the environment (Milton, 1996).

Thus, a shift was noticed in understanding human environment relationship from 'culture-environment' to 'individual-environment' perspective in ecological anthropology. A growing interest on actor-based approach in social anthropology also played a significant role in this shift (Orlove, 1980). Raymond Firth's "distinction between social structure and social organization" acted as a watershed in this shift. He highlighted the "importance of variability in decision making and individual behaviour, and demonstrated that many social systems contain options among which individual must choose" (cited in Orlove, 1980:246). In other words, actor-based approach emphasizes on existence of 'element of choice which is very essential to the concept of action' (Milton, 1996:62). This element is always at the disposal of human being. It depends on human or individual (and in certain cases guided by the culture itself) whether to opt for this choice or not. Thus, the actor-based approach brought shift from "social structure to social process, from treating population as uniform to examining diversity and variability within them and from normative and jural aspects (adherence to culture and thereby focusing on cultural regularity) to behavioural aspects of social relations" (Orlove, 1980) which were not the focus of earlier ecological studies.

This development of actor based approach provided an advantage of better understanding of human environment relationship and its dynamic nature in ecological anthropology. Actor based approach promotes the "examination of changes in individual and group activities and emphasises on the mechanism by which behaviour and external constraints influence each other" (Orlove, 1980: 245). Therefore, it promotes to focus on mechanisms of change that links environment and human behaviour. Orlove opines that the "mechanism of change

acknowledges the significance of conflict and cooperation by recognizing that not all goals are population wide" (*Ibid*: 261). Stating the significance of actor based approach from ecological perspectives, it shifts the focus from cultures towards the study of social process and individual behaviour related to environment and to those factors that influences this behaviour.

The shift from emphasizing culture to social processes and individual behaviour in ecological anthropology was not only because of this intellectual shift in anthropology, but also because of limitations of earlier approaches in dealing with the human environment problems of contemporary societies. Bennett (1977) opines that in contemporary world "human environment relations are in transitional phase" wherein societies have incorporated, through human action and activities, "nature into culture" and in the process have produced negative impact on their environment. The earlier works on cultural ecology had limitations in studying these transitional or industrialised societies and their environmental problems generated due to human action for the following reasons – "most of the earlier works focused on those societies that are remotely located with lower level of technology and thereby have minimal impact on environment; treating these societies as such that they exist in isolation, i.e., these societies did not have any contact with larger institutional systems and, therefore, the role of external forces in influencing their (people residing in those societies) use and abuse of environment has not been considered; most of the works were largely concerned with culture rather than ecology, i.e., subsistence systems were described but the emphasis was given on their role in explaining socio-cultural forms; the tendency to conceive of ecological relations as relatively stable and enduring" (*Ibid*, 1977: 26).

To summarize, the actor based approach has the potentiality of providing an analytical framework of studying the contemporary environmental problems existing in changing societies, besides understanding the dynamic nature of human-environment relationships. Having understood how anthropologists have viewed the human environment relationship over a period of time using different approaches and how the approaches have been modified to deal with the contemporary environment problem and changing human environment relationships, it would be worthwhile to draw our attention to the nature of this relationship both in the past and contemporary world and explore those factors (both in general, and in India in particular) that led to these changes.

II

CHANGING HUMAN ENVIRONMENT RELATIONSHIP: FROM SYMBIOTIC TO NON-SYMBIOTIC AND VICE-VERSA

Human dependence on its environment is inevitable for its survival. Humans utilize the natural resources available in the environment and sustain themselves. Within this context, the existence of two kinds of societies is very conspicuous in contemporary world: one that lives symbiotically with their environment, while the other does not. Bennett (1976) called them as 'equilibrious' and 'disequilibrious' societies. Equilibrious societies are those whose culture guides the people and their activities towards establishing the harmonious[2] way of living. In these societies, the activities of individuals do not lead to the exploitation of the environment. Tribal societies, small-scale societies, local level culture represents such kind of relationship. Their symbiotic relationship is evident from the sustainable utilization pattern of various available resources in their environment and the management systems they have evolved to protect and conserve their environment. These

communities, over a period, have evolved various controlling institutions/ mechanisms (management systems) which prevent over-exploiting or deterioration of the resources. These institutions/ mechanisms are manifested in different aspects of culture, social organization, value system, folklore, and so on. These societies are characterized by their sustainable resource use and the symbiotic relationships with their environment.

On the other hand, disequilibrious societies are just opposite to equilibrious societies. Contemporary industrialised societies (and even many developing societies) are representative of the same. In disequilibrious societies, the human activities are not controlled. The activities are guided by the attributes of domination (over environment), such as purpose, goals, attainment, power, etc. These societies (due to the nature of human activities) have influenced environment to an extent that it has deteriorated, degraded and threatened the very existence of human beings. Air pollution, water pollution, soil degradation, and recently noted and publicised climate change are some of the instances of the repercussion of human activities on the environment. In the present scenario, given the uncontrolled human activities, it is difficult to have a cordial and symbiotic relationship with the environment. The human environment relationship generally does not exist in symbiotic form any longer.

History has been witnessing the shift from symbiotic form of human environment relationship towards the non-symbiotic form. The pace of this shift has increased manifold in the contemporary world due to globalization. However, this shift did not happen abruptly or overnight, but took perceptibly long time. The societies have gradually moved from equilibrium to non-equilibrium state and in the process, human beings have

affected their environment, altered their relationship and destroyed their resource management system. Indian society is no exception to this. There could be various reasons or causes behind this shifting process. We will attempt to trace back the shifting process within the context of India (which could be largely applicable to many of the South Asian societies) and try to understand how this symbiotic form of relationship has changed and still continues to change.

Colonial Era: The Onset of Destruction of Natural Resources:

The colonial invasion of the country brought many changes in the technological, socio-cultural and environmental domain. Within the environmental domain, the change due to colonization was explicitly noticed on forests and its management systems. Under the colonial rule, forests were destroyed at an unimaginable scale for timber - *teak, sal and deodar* - to lay railway networks and build ships (Gadgil and Guha, 1993:113-145)[3] that helped the rulers in transporting the necessary natural resources (required to run their industries in their respective countries), besides expanding their colonial empire. However, the realization in later half of the 18th century to control the cutting of forests for uninterrupted supply of timber forced the rulers to formulate the Forest Act. As a result, first Indian Forest Act was formulated in the year 1865. But the Act proved to be bad in the long term sustainable management of forest resources, as it transferred the control and management of forest from the hands of communities to the State (colonial rulers). The Act, which was modified later in 1878 and 1927, further restricted the access of the communities to forest, reduced their customary rights, alienated the communities from their managing role (through creating concept of reserved/protected forest), and provided an edge to

the State in controlling and managing the forests (Gadgil and Guha, 1993:135-145; Joshi, 1983:43). The Act, thereby, alienated the protectors and owners of the forest resources from their own habitat, restrained them to follow their traditional and environmentally amicable livelihood activities, and in the process, destroyed the traditional resource management systems[4]. Studies have highlighted that once the communities are removed from their habitat, they rarely take care of the environment (Siva Prasad, 2001).

Post-Colonial Era: Economic Growth, Early Development Programmes and their Impact

The colonial legacy of giving upper hand to State in controlling affairs dominated the development planning of independent India. India adopted the planned development approach[5] after its independence and considered the economic growth as the potential way for developing the country. Policy makers held that rapid industrialization through focus on science and technology would help India in achieving high economic growth. They believed that the benefits from this economic growth would trickle down to different sections and regions of the country resulting in the overall development of the country. However, the focus on economic growth and industrialization had adversely affected the environment. Further, different specific scientific projects which were designed to assist the process of industrialization and to achieve high economic growth, added to the woes of environment degradation. Such initiatives[6] provided immediate solution for addressing the problems of that time. However, their negative impacts (on environment) were visible in no time. For instance, the construction of multi-purpose large dams considered as the victory of human beings over controlling the nature, brought large area of land under irrigation and cultivation, which consequently enhanced the productivity[7].

However, it also led to many environmental problems and caused tremendous damage to ecology and biodiversity of the region[8]. Similarly, the introduction of high yield hybrid seeds into the agriculture system (led to increase in productivity and the phase was largely known as Green Revolution) in the mid sixties transformed the sustainable subsistence pattern (mainly traditional agriculture systems) towards unsustainable mode of production and, in turn, deteriorated the environment. This also led to various social and economic problems.

Increasing Population and Poverty: Bane for the Environment:

The population of India at the beginning of twentieth century was 238.4 million and gradually crossed the billion mark by the end of the century. A careful examination reveals that more than 85 percent of this increase happened in the latter half of the century, i.e., after independence. Since the large size of India's population resides in rural areas, it was obvious that the proportion of population increase would be higher in rural areas, despite considering the fact that a significant population from rural areas have migrated to urban settlement. Most of these rural populations primarily derive their livelihood from three major natural resources, namely, land, water, and forest. These natural resources had already been facing the wrath of high economic growth (in the form of degradation/destruction) and concurrent increase in population played a devastating role. A closer look of statistical data reveals that the population density increased from 117 (in 1951) to 324 (in 2001)[9] and accordingly the pressure on resources (particularly land) has increased manifold. This implies that the population is being compelled to extract more and more from the declining resources for their survival. In this process, the continuous development of technology[10] emerged as a boon for the

population which, in turn, led to unsustainable exploitation of natural resources and threatens their very existence.

Similarly, the increasing poverty also had a bearing on the environment. It is observed that the number of people who live in poverty has increased from 200 (in 1950) to 312 million (in 1993-94). A comparison between urban and rural poverty figures reflect that poverty is comparatively high in rural areas when compared to urban areas. Existing literature points out that the failure in redistributing the benefits of economic growth (in first two and half decades of Independence) is the prime cause for it, which not only had widened the gap between rural and urban, but also between haves and have-nots, rich and the poor. Ironically, till the mid 1970s, no specific attempts[11] were made to address these issues in India. A substantial literature exists which argues that unabated poverty negatively affects environment. It is argued that increasing poverty forces rural poor to exploit more natural resources. On the contrary, another school of thought argues that in scarcity of resources, resource rich people create more harm to environment in comparison to resource poor (Jafarey and Farrukh, 1993: 9; Khan and Naqvi, 2000: 1; Jodha, 1986 Reddy, 2003; Siva Prasad and Vinay, 2009;). However, unequivocal agreement with any one side of this inconclusive debate would be unreasonable. The crux of the matter is to understand that in both the cases, the environment is at stake and in the whole process it has been neglected, degraded, destructed, and damaged.

Sustainable Development: Move towards Symbiotic Relationship

The degrading natural resources, thus, forced various countries to think on their conservation and management. In the decade of 80s, the concept of 'sustainable development' emerged and

was widely accepted and appreciated by many. International communities, which adopted 'economic growth model' of development, were realizing the environmental consequences[12] of it. As a consequence, the West was seeking out solutions and strategies to check the adverse impacts of the development model on environment. The United Nation Conference on Human Development, which was held at Stockholm in 1972, focused on the deteriorating condition of environment and on formulating strategies for integrating development and environment. This conference highlighted the precarious condition of environment due to development. However, the major breakthrough in building a consensus on restoring and conserving dwindling environment came a decade later. In 1983, the World Commission on Environment and Development, which is also known as Brundtland Commission, first time introduced the concept of 'sustainable development'[13] and called for multiple stakeholder cooperation or partnership to institutionalize it. The idea of sustainable development received massive support in United Nation Conference on Environment and Development held in 1992 at Rio de Janeiro, Brazil. One of the outcomes of the conference in the form of Agenda 21 (set up for the world) re-emphasised that development should not take place at the cost of environment and asked for international cooperation in restoring and conserving environment. However, it would be pertinent to highlight about the one common thread that runs across all these events highlights the need to seek the possibilities of collaborating economic development and environment in a sustainable way.

Within the Indian context, the echo of the sustainable development was heard in the form of enactment of different laws or Acts, such as, Wild Life Protection Act, 1974; Water Act, 1974 for preventing and controlling of water pollution; Forest

Conservation Act, 1980; Air Pollution Control Act, 1986 and National Forest Policy (1988). Besides this, various national bodies and sector specific groups were formed and eco-development plans and area/sector specific programmes were undertaken (Ghosh, n.d). Some of the sector specific programmes like Joint Forest Management, Participatory Irrigation Management, and Watershed Management were also initiated. These programmes were given sincere attention and priorities in post 80s development policies, clearly reflecting a bent towards protecting environment and natural resources.

It is apparent from the above discussion that human-environment relationship has witnessed changes within the Indian context. It has moved from symbiotic to non-symbiotic stage. However, later attempts to put back this relationship on the symbiotic path has also been observed across the world as well as in India in the form of various environmental conservation programmes. However, these environment management and conservation programmes, more particularly watershed management, have passed through various stages of reforms and development. It is, therefore, pertinent to look into the history of the environment management and conservation programmes like the watershed programme, its functioning, shortcomings, challenges that the programme faced and the lessons learnt over time, in order to understand the changing human-environment relationship.

III

WATERSHED MANAGEMENT IN INDIA: AN ANALYSIS

It is apparent from the above discussion that the three major life support systems, namely, soil, water, and forest are under intense pressure and are in a state of continuous degradation[14]. These resources are inter-linked to one other and the health of

each resource is dependent on the health of the other. The degradation, mismanagement and negligence of any one of them certainly makes an impact on the others. This interrelationship is very apparent and observable in watershed areas. In India, the watershed areas are under huge stress, particularly in arid and semi-arid regions. Watershed management programme (herein after, WSMP) is an important initiative of Government of India to control the degradation process with an emphasis on conservation and management of natural resources.

Concept of Watershed and its Management

"Watershed is a hydrological unit comprised of all land and water within the confined drainage area, and the watershed management is the integrated use, regulation and treatment of land, forest and water resources of a watershed" (Soil Conservation Society of America, cited in Paudel, 2002:188). However, this definition should neither limit our understanding about watershed to an area or unit for conserving and managing natural resources nor watershed management as an approach for checking soil erosion and conserving water run-off. A watershed is not merely a collection of physical and hydrological resources. It is also a habitat of human beings. Human beings reside within it and, therefore, its resources are always influenced and determined by their activities. Hence, watershed management is more than checking soil erosion and water conservation. As Mohan Kanda (2001) rightly puts it, it is an attempt to maintain equilibrium between natural resources and human activities. It is the process of guiding and organizing land and other resources use for providing desired goods and services to the people residing in it without affecting soil and water resources (Brooks et al. cited in White, 1992:4). Thus, watershed management is about the recognition of the complex interrelationship between land use, soil, water, and human

activities. This interrelationship is an essential factor to consider when managing watersheds (Gelt, 2000). It is pertinent to highlight that the recognition of this interrelationship by the policy makers and development practitioners made the watershed based management approach as a strategy for alleviating poverty, enhancing agriculture and developing rural areas (comprising the watersheds).

Technical to Integrated Perspective

WSMPs for a long time were considered mainly as soil and conservation measure. The present WSMPs are not just merely perceived as a solution for rehabilitating degraded land or increasing agricultural productivity. In fact, they are looked at as integrated approaches for comprehensive development of people residing in the watershed, as is evident from the 1995 guidelines, 2003 Hariyali guidelines, and 2008 common guidelines for watershed development projects in India. They have been now considered as strategies for rural development, poverty alleviation and livelihoods improvement. Thus, it is worthwhile to reflect on the processes that led WSMP to shed its technical image and how it got transformed into an integrated approach for holistic development of rural people.

Considering the success of Tennessee Valley Authority in protecting water reservoirs from siltation in United States of America, India replicated it through the Damodar Valley Corporation (DVC) in Eastern India. This replication is considered as one of the earliest attempts for managing watersheds, which subsequently led to the enactment of River Boards Act for developing the river basins or catchments by forming River Basin Organization (RBO). The major task of the RBO was to take up and promote river basin development. However, they (including DVC) were not largely successful in

their later task of promoting river basin development (Chitale, 1992). One of the most significant cited shortcomings of these early attempts in managing watershed was the failure on the part of development planners in recognizing the essential differences found in the situations of watershed in developing countries. Unlike developed countries, watersheds in developing countries are the habitat of large, increasing human population and are comparatively more affected by human actions. People in these areas generally depend largely on natural resources and live in poverty. The technologies that were adopted in these early attempts were important for soil and water conservation, but were insufficient to address such issues (Unasylva, 1991). Blaikee had very aptly summarized the state of affairs of WSMP of that time. He points out that 'the technical packages, which were designed in the United States were then transferred to the very different physical and social conditions of the Third World during the decades of 1950s and 1960s' for managing watersheds, which resulted into their failure' (cited in Seth, 1999:508).

Further, there was growing realization that these programmes did not recognize the complex linkages between inter and intra-watersheds, which further hindered their success. While evaluating WSM programmes in Asia, Doolette and Magrath (cited in White, 1992: 6) found that these programmes in general are dominated by the concern of physical linkages related to movement of soil and water within drainage basins. However, they neglected the political, economic and social linkages between the upstream and the downstream. Besides the linkages between the upstream and the downstream, the programmes also neglected the linkages within the watershed, which are equally important in managing watershed. A watershed may comprise of one or more than one community;

one or several villages; arable or non-arable land or both; common resources; private resources; small or large landholders and farmers; thereby making watershed as a multiple resource and multiple user geographical unit. Both the resources and users may have diverse problems and needs, and, hence require an integrated solution for their problems.

However, early WSMPs in the country were never comprehensive in nature to deal with such issues. Their design and planning were basically from technical perspective and focused mainly on soil and water conservation measures. In fact, the project approaches had certain inherent weaknesses. For example, most of these projects were top-down designed, preoccupied with achieving verifiable and quantifiable defined project outputs and were not designed with participation or sustainability as a goal in mind (White, 1992). They were mainly supply-driven in nature, i.e., promoting agencies (Central ministries, States, non-government organizations, funding agencies, etc.) provided funds and decided about various activities to be undertaken, their cost norms, the technical and research support required, etc., for developing watersheds. These approaches did not take into account the needs of the communities, which, in turn, led to mismatch between supply and demand (Reddy and Rao, 1999). Further, these programmes were highly sectoral in nature and were implemented by different departments, ultimately leading to failure in meeting the desired results. For an effective and overall development of watershed, an integrated approach is required. Therefore, by the end of 1980s, India saw emergence of Integrated WSMP.

Integrated Approach: Call for People's Participation and Collective Action

It is apparent that the various shortcomings in the earlier WSMPs forced the policy makers to shift the focus from merely

technical measures to integrated system having multiple objectives that can address the needs of the people, besides focusing on soil and conservation measures. Certainly, this integrated approach called for community participation, which gained a wide acceptance across different development programmes and projects. However, the emergence of integrated approach within WSM programmes cannot be referred to as the sole reason for this call. Other experiences in the field of rural development also played a critical role. Development agencies' (including government) wider experiences of reported failures in other rural development programmes and projects during the same time were prominent among them. Development agencies found that most of the community development programmes initiated in early 60s and 70s, failed in generating desired results (like poverty reduction), as people were missing in the development process (Clayton et. al., 1998). People were not involved in the design and implementation of projects and programmes (World Bank; Oakley and Marsden; Uphoff; Cernea cited in Karl, 2000: 5; Hinchcliffe et. al., (1995). A shift in development strategies was felt by the development agencies. As a result, by the end of 1980s, most of the development agencies started emphasizing on people's participation in development projects and programmes (Karl, 2000:8).

A growing literature (Pretty, 1995; Singh, 1991; Michaelsen, 1991; Warren, 1998) highlighting the significance of community involvement in other development programmes also played a vital role in entailing their participation in WSM programmes. Besides this, the call for participation in the programme was also influenced by some of the reported successful experiences of NGOs (like Mysore Resettlement and Development Agency - MYRADA, Ralegaon Siddhi, Bharatiya Agro Industries Foundation-BAIF, etc.) in implementing WSM programmes.

Their work demonstrated that community based integrated watershed approaches are successful in transforming the lives of rural people (Chandrudu, N.D) and proved that involvement of the community is critical in WSM programme. The endorsement of community participation from Ministry of Rural Development in the form of 1995 Common Watershed Guidelines was also proved instrumental in making the community participation in WSM programmes mandatory. It is pertinent to mention that these guidelines were largely based on the recommendations of Prof. Ch. Hanumantha Rao Committee, formed in early 1990s to review Drought Prone Area Programme (DPAP) and Desert Development Programme (DDP). Most of the recommendations of the Committee were incorporated into the Guidelines, including that of community participation in programmes. The 1995 guidelines were ground breaking in the area of WSM as they brought major changes at the design and implementation level of WSM programmes. It made participation an important component of programmes; made micro-watersheds as an intervention unit rather than block (earlier it was implemented on the block basis rather than watershed basis); made institutional arrangements at District, Block and Village level (MoRD, 1994 and 1995). Thus, mid-nineties onwards, the participation became an integral part of WSM programme in India, and these programmes started to be known as participatory integrated WSMP.

Irrespective of the form of participation and approaches, which have been used for ensuring the participation in WSM programmes, it is apparent that participation of the community and stakeholders forms an essential component of it. This being the case, collective action becomes a prerequisite for it, and, thereby, becomes a critical component in WSM programmes. In WSM programme, resources are developed and managed in an

integrated manner. Resources are developed by the application of various technologies and are managed through building or supporting institutions. Adoption or maintenance of these technologies and effective functioning or sustainability of these institutions requires collective action. However, operationalizing collective action for the same has been a challenging and difficult task for the implementing agencies. An idea about the nature of natural resources in a watershed and under what property arrangements they are held or used would be helpful for understanding such challenges and difficulties.

Many natural resources (like pastures, forests, pond, groundwater, etc) in a watershed exhibit the properties of commons (Kerr, 2007), namely, excludability (or control of access) and subtractability (or rivalry). Excludability means that the cost of controlling access or use by potential users may be costly and in the extreme, virtually impossible due to the physical nature of the resource. While subtractability refers to a situation where each user is capable of subtracting from the welfare of other users, i.e., the use of resource by one person reduces the amount available to the others (Feeny, et. al., 1990). In watershed, these common property resources fall under various regimes. These regimes differ from each other by the assignment of property rights and, accordingly, can be grouped into four categories, namely, open access, private property, communal property and State property. In open access, there is absence of well-defined property rights, i.e., access to the resources is unregulated, is free and open to everyone. While in private property, rights are assigned to an individual or group of individuals. In communal property, the rights are vested with an identifiable community of interdependent users. Here rights are talked in terms of equal access to and use of resources. In State property, rights are vested exclusively in government, which

makes decision regarding the access and use of the resources (Feeny et. al., 1990). However, in practice, the distinction between these categories is blurred and natural resources property ownership can be viewed as 'bundles of rights held by different people at different times with respect to different aspects of land and resources' (Riddell *et. al.* cited in Turton *et. al.*, 1998: 5). Therefore, in watershed, where resources exhibit the property of commons and are held under any one or all of the regimes or in mixed regimes, operationalizing collective action evidently becomes a challenging and difficult task for their management.

Many studies (like Jodha, 1986; Ostrom, 1991, etc.) have pointed out that collective action under such circumstances (where resources are held under commons) is possible, provided effective local institutions or organizations exist. These studies mentioned about a set of conditions (characterizing resources systems, user groups, institutional arrangements and external environment), which are conducive for local institutions or organizations in facilitating the management of their commons (Agrawal, 2001). However, Kerr (2007) argued that watershed characteristics correspond poorly to most of these conditions highlighted in these studies for managing the commons and states that the successful cases of WSM programmes have overcome such mismatches by effectively building up social organizations. It is pertinent to note that most of these successful cases are implemented under the NGOs' or research institutions' supervision, which has the capabilities and resources to overcome such mismatches by investing high on social organization. However, at a larger scale, overcoming such mismatches is a costly affair in terms of resource use and time consumption. These mismatches and incurring costs involved in overcoming them hampers the scaling up of such successful

projects, which is an important step for the programme to realize its multi-purpose objectives of rural development and poverty eradication. Nevertheless, efforts, in terms of evolving WSM guidelines, are in progress for overcoming such hindrances in scaling up the programme.

Broadening Horizons: From Physical to Social Environment

The continuous emphasis of government on participatory WSM programmes and its efforts for scaling it up reflects the potential of WSM programmes in improving the livelihoods of rural people. Conventionally, WSMPs achieved this through concentrating on the rehabilitation of degraded natural resources. The basic assumption behind this was that rural people derive their livelihood largely from natural resources. Therefore, interventions on these natural resources would lead to improvement of their life. As a result, we find that substantial funding and time in WSM programmes was allocated on enhancing these natural resources. However, a growing number of literatures argue that a rural household does not rely only on single resource for livelihoods. They use alternative means or livelihood strategies (like livelihood diversification, intensification, etc.) while ensuring their livelihoods (Scoones, 1998; Ellis, 1998). These strategies not only help them in coping with the vulnerability, but also in enhancing their assets and capabilities through which they derive their livelihoods (Chambers and Conway, 1991).

This perspective on livelihoods has emerged from the improved understanding about the nature of poverty. Understanding on poverty has shifted from 'money-metric approaches' that focuses on income, and thereby, determines a threshold level above or below which one is ‘poor’ (Toit and Ziervogel, 2004:5). Increasingly, poverty is seen as lack of access and entitlement to

a range of assets, capacities and livelihood strategies, which can sustain households and individuals through the vulnerability, i.e., stresses and shocks of life (Cahn, N.D). This new understanding of poverty not only led the development practitioners to understand the multi-dimensional aspects of poverty, but also forced them to have a re-look on their poverty reduction strategies and think for new approaches for development. As a result, a new approach called Sustainable Livelihoods (SL) approach has emerged in the early 1990s. This approach focuses on different ways of understanding the practical realities and priorities of poor men and women, i.e., what they actually do to make a living, the assets that they are able to draw on and the problems that they face in the process (Farrington et. al., 2002:1). Within this perspective, a livelihood is seen as a composition of "capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation"(Chambers and Conway, 1991: 6) while not undermining the natural base (Scoones, 1998:5).

This new understanding of rural livelihoods also influenced the WSM programme. It made the programme to enlarge its focus from natural resources to other resources, on which people rely for their livelihoods. In other words, it asked the programme to pay equal attention on the livelihood aspect of people. Some of the recent initiatives in WSM programme using this approach were initiated by the donor agencies. East and West India Rainfed Farming Projects, which were initiated in 1993 and supported by the Department for International Development (DFID), have used the SL approach, and broadened their

interventions from crop and farming systems, and focused on issues of health, education, transport and micro-enterprise activities in their programmes. Similarly, the other two programmes, namely, Orissa Livelihood Projects and Andhra Pradesh Rural Livelihood Projects, have adopted SL approaches by incorporating SL principles in their projects (Turton, 2000a). These projects are generally known as 'watershed plus' project, which means that project aims to cover or address those activities that may be non-land based (SHG formation, micro-enterprise, etc.) in order to meet the immediate needs and priorities of rural poor. It would be pertinent to highlight the recommendation of Parthasarthy Committee in its technical report "From Hariyali to Neeranchal" has specifically focussed on the livelihoods aspect in WSM programme (2006). It has recommended a specific two-year phase in WSM programme for enhancing the livelihoods of the people (particularly those who are resource deprived) through various activities, which need not be land based. This clearly reflects that the experiences of these 'watershed plus' projects based on SL approaches have influenced the WSM programme not only at the design level but also at the policy level (reflected in 1995 Common WSM guidelines; Hariyali 2003 guidelines; and recommendations of Parthasarthy Committee 2006).

The SL approach, besides influencing the programme at the design and policy level provided the new framework for studying the WSM programmes and its impact on rural people. Turton (2000b) attempted to study the impact of watershed development programmes in India through the SL framework by studying the changes in assets and livelihood strategies. She opines that watershed based approach lead to the improvement in livelihoods but questioned the extent to which these benefits are equally distributed among the various groups of the

community. Similarly, Reddy *et al.* (2004a) used the SL framework for assessing the impact of watershed development in four villages. Assessing the changes in five capitals across various economic groups of the village, they opine that the programme has the potential of improving the livelihoods of poor. However, they pointed out that the programme should be complemented with other activities, which focus on landless poor households. In another study, Reddy et al. (2004b), using SL framework, studied three villages (one with programme and less irrigated area, another with no programme and less irrigated area, and third with no programme but large area under irrigation) and status of various capitals across these three villages. They found that village with the programme is marginally better in terms of livelihoods than the one without programme. However, they observed that the third village with large area under irrigation has net positive return in comparison to the other two, thus, questioning the significance of intervention in the absence of critical resources (here water in form of irrigation). They suggested that in the fragile regions the interventions with livelihood focus (like dairy, horticulture) alone could not provide sustainable livelihood until and unless the other measures (activities related to soil and water conservation) are properly implemented. Besides this, policy support is also required at the three levels, namely, household (in terms of financial and technical), community (in terms of evolution of institution for collective efforts) and regional (in terms of infrastructure support) levels for ensuring sustainable livelihoods. Thus, it is clear that the SL emergence had influenced the WSM programme not only at policy and design level, but also in broadening the framework for studying the impact of the programme.

IV

STATEMENT OF THE PROBLEM

It is apparent from the above literature review that human environment relationship is not static, but dynamic in nature. Using a diachronic approach it was pointed out that the human activities (from the colonial to post-colonial times) had far reaching consequences on the environment and its resources. In order to restore or contain the depletion or degradation of resources, the State enacted environment protective policies and Acts. WSMPs are one such measure to protect and conserve environment. Therefore, a detailed review of various literatures pertaining to WSM programmes in India has been made in a chronological order. This analysis revealed that most of the earlier literatures on WSM programme focused on technical aspects and factors responsible for the failure of WSM programmes. Most of these literature highlighted factors, such as over-emphasis on sectoral approach, lack of integrated approach at planning or implementation level and paucity of community participation during early phases of the programmes.

At the same time, another set of literature exclusively dealt with the hindrances on scaling-up of the successful programmes. These studies primarily highlighted about the need of effective local organization for managing the natural resources, as these resources exhibits the property of common resources, and highlighted certain set of enabling pre-conditions for creating such effective local organization. There are also studies that challenged these enabling pre-conditions within the context of WSM programme. Recent literature on watershed management have discussed about the emergence of livelihood approaches in the development arena and its implications on broadening the scope of the programme from land-based activities (physical) to

non-land based activities (mainly on livelihoods). However, the studies highlighting the relationship between the livelihood resources/strategies and participation level of people in the programme (except Reddy et. al., 2004a, who partly discussed about it) are very limited.

Similarly, the literature on watershed management that explores the dynamic relationship between human activities and environment from ecological anthropological viewpoint (particularly from actor based approaches), and in relation to other development programmes in watershed area are very rare. The watershed area, due to its inherent characteristics and its broadening scope, makes it an attractive platform to observe human environment relationship in both its equilibrium and disequilibrium state. However, earlier studies have failed to see watershed from this perspective. Moreover, the influence of this changing human environment on rural livelihoods has also not been dealt with in detail. Therefore, the present study attempts to explore these dimensions from an anthropological perspective, besides analyzing the overall success of the contemporary WSM programmes in checking disengaging state of human-environment relationship in watershed areas.

ANALYTICAL FRAMEWORK

In the first section, we have discussed about the various theoretical approaches or frameworks that anthropologists have used to understand the human environment relationship. We also discussed that how these approaches have modified and evolved gradually to deal with the contemporary environment problems, which arose due to human activities. The harmonious relationship between man and environment gradually paved way to exploiting and conquering nature. With the onset of industrialization, natural resources were put under tremendous

pressure. Processes like rapid urbanization and deforestation further inflicted serious damages on the ecosystem. Consequently, societies gradually moved on to the path of environmental degradation with uncontrolled human activities. Technological advancements further accentuated the whole process and the change in human environment relationship became quite apparent. Of late, attempts have been made to safeguard the natural resources and the impetus was on reverting back to harmonious human-environment relationship.

It is in this context that we need to understand the emergence of actor based approach in anthropology and its significance in dealing with the dynamic process of resource use/abuse that exist in contemporary society. Since the research problem deals with both the process of resource use and attempts to conserve the resources in watershed area, actor based approach has been used to analyse the research problem. As mentioned earlier, the intrinsic characteristics of watershed area makes it possible to study the human environment relationship both in its engagement and in disengagement state. This relationship is very prominent in watershed areas due to the proximity between human activities and sustainable or unsustainable use or abuse of resources. This suggests the fact that individuals residing in the watershed area and their activities are instrumental in determining the nature of the relationship. This being the case, it becomes important to look at those decisions that an individual choose and those decision making systems (which includes motivation and incentives) that influence his decisions while interacting with the environment, which in turn, determines the nature of human-environment relationship. These decisions and decisions making or influencing systems are prone to get influenced by the development programmes, including WSMPs. They may direct the human activities towards

the equilibrium or disequilibrium state depending on the kinds of interventions that the programme has undertaken and concentrated. Therefore, the actor-based approach seems to be apt for analyzing human environment relationship and in comprehending the dynamics within the watersheds areas from an anthropological perspective.

OPERATIONAL DEFINITIONS

The operational definitions of few terms, which are used in different chapters, are described hereunder.

Caste-Class: This is used as mutually inclusive term. In the context of social mobility, Siva Prasad argues that "... a person in society holds simultaneously membership both in caste and class. For example, upper caste-upper class, upper caste-lower class, lower caste-upper class, and lower caste-lower class, and so on. To make it further clear, a person has a dual status viz., caste and class (caste-class), and that while the former is clear the latter is fuzzy but none the less there" (1987:5).

Landholding categories*:* on the basis of landholding, the farmers are divided into mainly five categories, namely, marginal (0.01 -1.00 hectare), small (1.01 - 2.00 hectare), semi-medium (2.01 - 4.00 hectare), medium (4.01 - 10.00 hectare) and large landholders (> 10.00 hectare) and they largely correspond to the local classification of farmers in the village. The large, semi-medium and medium farmers are referred to as *Maate*, *Muqaddam* or Lambardaar, while small and marginal farmers as *chowte kisan*. The landholders who do not come under the *Maate*, *Muqaddam* or *Lambardaar* categories are either simply referred as *bade kisan* or with their respective clan name.

OBJECTIVES

- To understand the various development interventions undertaken in watershed area;
- To examine the changes in the livelihood resources/strategies before and after the onset of development interventions;
- To understand the social structure and cultural change in the village due to changes in livelihood resources/strategies;
- To study the linkages between livelihood resources/strategies and community participation

RESEARCH METHODOLOGY

The present study was undertaken in Bundelkhand region, which is a mountainous and rocky backward region that spreads across the States of Uttar Pradesh and Madhya Pradesh. The region is environmentally very fragile. The pressure on natural resources is at the extreme. Currently, Bundelkhand is seen as a region suffering from acute ecological degradation. The region is characterized by acute water scarcity, almost throughout the year. Unabated soil erosion and runoff during rainy season further augments the declining situation of natural resources. Some of the prominent instances of soil erosion (like Chambal ravines) are located in this region only. The region is also a home of over a million of poor to very poor people which further increases the pressure on the deteriorating natural resources, mainly land, forest and water. Most of these poor are landless and marginal farmers. In the absence of any major industrial opportunities in the region, these farmers still depend on natural resources for their survival and in the process affect environment. Their gradual growth is further exerting a pressure on existing land resources. As a result, the region witnessed acute poverty and many families are no longer able to meet their subsistence needs.

Apart from being environmentally fragile, the region also lags behind in development. Studies like that of Diwakar (2009)[15] have depicted Bundelkhand as under-developed region. All the districts in Bundelkhand are in a lower state of development and lag behind other regions of the State. It would be pertinent to note that Bundelkhand region under Uttar Pradesh consists of seven districts, namely, Jhansi, Lalitpur, Jalaun, Banda, Hamirpur, Mahoba and Chitrakoot. According to Composite Development Index (CDI), prepared by the Government of Uttar Pradesh through ranking 36 horizontal and vertical development indicators, the development across all the districts is not uniform (Government of Uttar Pradesh, 2007)[16]. These development indicators include population density, urbanization, health infrastructure, literacy and educational infrastructure, and so on. Based on this development index, these districts are classified into five categories, namely, most developed, high-medium developed, medium developed, low-medium developed, and most backward.

Keeping the research problem in perspective and considering all these factors, it was envisaged that the village selected for the study purpose should belong to the district that is neither most developed nor most backward and could be representative of Bundelkhand region. Accordingly, Lalitpur district was selected, as it is a low-medium developed district and typifies Bundelkhand region.

Selection of the Study Village

As mentioned earlier, the study attempts to analyze the dynamic aspects of human-environment relationship within the context of watershed management and other development programmes in watershed area. Therefore, the selection of a village where WSM programme is being implemented was imperative. A

watershed village not only helps us in analyzing the changes in human-environment relationship due to WSM programme, but also provides an opportunity to explore the role of other development programmes in these changes. It would be pertinent to highlight that a village falling under the watershed area is not only fortunate to have the interventions of WSM programme but also of other development programmes, which one can find in other non-watershed village. However, a village that does not fall under the catchment of any watershed does not get entitlements to have specific interventions of WSM programmes that exclusively targets natural resources. Therefore, a watershed village has an edge over a non-watershed village to understand the changes in human-environment relationship in a comprehensive and holistic manner as watershed village provides an opportunity to analyze both the influence of WSM programmes as well as other development programmes on human activities (or decision making systems that in turn guides the human activities) in holistic way. Besides exploring the changes in human-environment relationship, the research also intends to examine the influence of these changes on the participation of community members in WSM programme.

Thus, in order to select appropriate block and village, researcher first approached the office of Chief Development Officer and Drought Prone Area Programme (DPAP) of Lalitpur during the pilot study. The researcher held detailed discussions with them, explained the nature of the study being undertaken and sought their help in choosing block and watershed village. Out of the total six blocks of Lalitpur district (Taalbhet, Jhakhora, Baar, Virdha, Maharauni and Madawara) the WSM programme was being implemented in only two blocks, namely, Madawara and Virdha under DPAP. Virdha block was selected for the study

purpose as it falls under medium developed block. Accordingly, a list of watershed villages falling under Virdha block was procured from the officials. There were eight watershed villages wherein the watershed programme was being implemented at different periods of time. Since, it was proposed to select a multi-caste/ethnic watershed village in order to understand the role of internal caste and class dynamics in the process of decision making and where the WSM programmes was the three years old in order to see the community participation as well as the outcomes of the interventions, *Pataaripur* village (pseudonym) found to come closest to these criteria. In other villages, either the programme was in its nascent stage or near completion or lacked multi-caste/ethnicity character. Hence, *Pataaripur* village under the Virdha block of Lalitpur district was chosen for the purpose of this study, where the WSM programme is being implemented since 2005. To protect the identities of villagers and to maintain confidentiality, all the names used in the thesis are pseudonyms.

Data Collection

Data for the present study were collected from both primary as well as secondary sources.

Primary Sources

For collecting primary data, nine month long fieldwork was carried out in the year 2008 in *Pataaripur* micro-watershed. The fieldwork was divided into two phases. The first phase extended over a period of four months (March to June 2008) while the second phase of fieldwork was carried out between August to December 2008. However, before carrying out full-fledged fieldwork, researcher carried out a two months pilot study for selecting the study area and to pre-test the field instruments during January and February, 2008.

It is an undisputable fact that in anthropological study establishing rapport is very essential and critical for collection of quality data and information. Therefore, the researcher deliberately avoided probing on the research issue during the first month of pilot study. Indeed, the first two weeks researcher devoted his time in interacting with villagers, teachers of government and private (*Shishumandir*) schools and children.

Researcher made various visits to the fields of farmers along with the children and young boys. It was found that the interaction with children and young boys facilitated the researcher to get recognized by the villagers as most of these children and young boys used to discuss about the researcher with their parents or family members. After spending almost two weeks in the village, researcher started with the household questionnaire. Filling each household questionnaire personally also helped the researcher to gain the confidence and acceptance of villagers. Indeed, a lot of information used to be shared with the researcher while administering household questionnaire to each household. However, the researcher administered few household questionnaires during the pilot study which helped in gaining a good rapport and helped the researcher in conducting the later part of the fieldwork with ease. Even while conducting the fieldwork, researcher continued to attend important events, such as, childbirth ceremony, attending group marriages, visiting temple, festivals like Diwali, bore-wells drilling, preparation of agriculture fields for sowing, and so on.

After establishing a good rapport with the villagers, primary data were collected through informal interviews using detailed checklists, key informant interviews, case studies, observation,

and focus groups discussions.

As mentioned before, a detailed household schedule was also canvassed to get the socio-economic data of the villagers.

Interviews

Interviews, structured as well as informal, were carried out to obtain information on various dimensions. The structured interviews were administered to the field staff of the implementing agency in order to obtain data on various interventions, understanding community participation and villager's expectation from the programme. A structured schedule was used for gathering the baseline data from the implementing agencies or government officials. On the other hand, informal interviews were canvassed to collect information on aspects, such as perception/opinion about the community groups, including decision-making process, leadership, harmony and conflicts of interest, and benefits sharing among the group members.

Informal interviews were conducted with the villagers for understanding the changes in access and ownership to various natural resources before and after the WSMP. Besides this, these interviews also helped the researcher in gathering data from the rural poor regarding the role of rural elites and Gram Panchayat in decision-making, organizing and implementing activities, etc. Informal interviews were found to be very useful in extracting the information about the traditional dynamics of ownership and access to various natural resources and common pool resources, particularly from the village elders. Most of these informal interviews happened while visiting agricultural fields of the respective farmers or tea stalls.

Besides, structured and informal interviews, in-depth interviews were also conducted with the villagers for collecting information on community interaction pattern with regard to the utilization and conservation of natural resources. A detailed checklist/interview guide was used for this purpose. A semi-structured questionnaire was developed to collect information on the community participation in WSM programme, benefit sharing and decision-making. This semi-structured questionnaire was administered to each household personally.

Observation

Throughout the fieldwork, both participant and non-participant observation were carried out to collect information about general land use pattern, status of existing infrastructure, people's lifestyle, social segregation, social organization, etc. This method proved to be very useful in observing changes in the status, such as individuals attaining influential positions, acquiring/losing assets, improving economic position through multiple livelihood strategies, etc. Information on the participation of villagers in the WSMP was gathered through observing villagers going for constructing soil and water conservation structures. Further, it allowed the researcher to check the disparity between what people say and what people do.

Case studies

Many case studies of beneficiaries as well non-beneficiaries belonging to different socio-economic background were collected. These case studies were useful in highlighting the changes in social institutions like family and marriage, levels of participation in different activities, etc. They were also found to be useful in understanding the changes in ownership and access pattern of resources among the farmers.

Key Informant Interviews

Key informant interviews included interviews with village leaders, project and field staff of the programme. They were interviewed separately to gather information with regard to technical aspects, conservation aspects, kind of funding pattern, and other related schemes, etc. Besides them, a couple of beneficiary and non-beneficiary farmers were also taken as key informants in order to know the different perspectives related to the programme. Besides, collecting information on WSM programme, the key informants were also instrumental in providing the historical as well as current status of various natural resources, technologies adopted by the farmers to utilize these resources, changes that they have witnessed in the quality and quantity of these resources, etc.

Focused Group Discussions

Focused group discussions were also conducted with the community members. These were primarily held to have an overview of the village, livelihood pattern of farmers, their opinion on natural resources and its changing state as well as about the awareness of WSM programme and its interventions in the village. Through these FGDs, information on the awareness of farmers about other development programmes was also gazed.

Household Census Schedule

As mentioned before, a household census schedule was used for collecting socio-economic data from each household in the village. The schedule was aimed at obtaining information relating to members in the household; family composition; type of family; economic, social, political and religious status; types of lands; agriculture; occupation and educational attainments of members of household, etc. It also helped in collecting the data

on the various livelihood related resources (landholding, agricultural equipments, sources of irrigation, livestock, etc.) and changes witnessed among them.

Secondary Sources

Secondary sources comprised of readily available studies and reports, which include annual reports of Ministry of Rural Development, watershed guidelines, books, published articles from various journals and anthologies. These sources helped the researcher to draw certain important reflections pertaining to the study.

CHAPTERIZATION

The present study is organized into seven chapters.

The first chapter provides an extensive review of the major trends and debates existing in the field of ecological anthropology. Apart from this, it also provides an overview of the history and emergence of WSMP. Further, the chapter discusses about the objectives, analytical framework, rationale of selecting the study area and the methodology adopted for the study.

Demographic and socio-economic profile of the study village is discussed in the second chapter. Aspects like population distribution, landholding pattern, occupation, education, etc., are discussed in this chapter. Further, these aspects are analyzed in terms of caste, gender, age and landholding. The data on these demographic and socio-economic dimensions is presented using both tables and graphs for easy comprehension and to provide a comparative picture of the village. The chapter also provides a brief overview of Uttar Pradesh and, in particular, Bundelkhand region where the study has been

carried out.

The third chapter examines the various development programmes implemented in the village. The main aim of this chapter is to provide an overview of different interventions taken under different development programmes, including WSM programme. Considering the fact that one can find number of interventions under various development programmes in any village, a deliberate attempt was made in this chapter to highlight only those interventions and development programmes that had a bearing on human-environment relationship. The development programmes are broadly discussed under two categories. Under the first category, those developmental interventions that had either direct or indirect influence on natural resources are discussed, while the second category discusses about other development interventions that are not related to natural resources but are instrumental in supporting the livelihoods of farmers.

The fourth chapter attempts to analyze the changes mainly in ownership and access to different livelihood resources and its influence on the livelihood strategies of the villagers. Using a diachronic approach, the changes have been highlighted. The chapter begins with an historical account of livelihood resources available in the village, the ownership and access pattern of these livelihood resources and the traditional livelihood strategies pursued by the villagers. The later part of the chapter discusses about the influence of WSM programmes, including other development programmes, on this ownership and access pattern to the livelihood resources and the consequent influence of these changes on livelihood strategies.

The fifth chapter deals with the changes that occurred in the social, economic and political spheres of the village life due to the changes in access to and ownership of livelihood resources as well as livelihood strategies of the villagers. The chapter discusses about the outcomes of these changed livelihood resources and strategies. The findings are substantiated with the case studies collected during the fieldwork. Besides this, the traditional social life of the village is also highlighted for a holistic and comparative analysis of the impacts generated due to the WSM and other development programmes. The chapter does not restrict itself to the positive changes in the socio-political-economic environment of the village but also highlights the negative outcomes of the whole process.

The sixth chapter attempts to understand the community participation in WSM programme within the context of changing ownership of and access to livelihood resources and livelihood strategies. The focus of the chapter is to analyze the participation level of community members with different ownership and access pattern of livelihood resources in various phases of the programme, such as planning, implementation, and post implementation. Finally, reflections on the successfulness and sustainability of the programme have also been provided in this chapter.

Chapter seven summarizes the findings of the study. It also attempts to draw attention to the policy implications of the study.

Endnotes:

[1] For a brief summary of these conferences and related important events, see Chapter 1- Integrating Environment and Development 1972:2002 (available on http://www.unep.org/geo/geo3/pdfs/Chapter1.pdf).

2 To measure this harmony he gives certain indicators – population dynamics, contact with the surrounding environment, range, sustenance needs, gratification expectations and technological capacity.

3 Both of them comprehensively quantified the amount of forest which was cut down under the colonial rule for laying the rail network and building ships reflecting the scale of destruction done to forest during colonial period.

4 For a detailed understanding of how forest policies influenced traditional resource management systems and subsistence pattern, see Guha and Gadgil (1989) pp. 141-171

5 Planned development approach refers to five years planning system, which policy makers/planners have adopted.

6 Only two initiatives are discussed here –construction of dams and introduction of High Yield Variety (HYV) seeds into the agriculture systems.

7 Agricultural area has increased from 97.32 million hectare (1950-51) to 126.67 million hectare (1980). Agricultural production has increased from 50.82 million ton (1950-51) to 109.70 million ton (1980). Similarly, the area under irrigation has increased from 18.1% to 30.3% in the same duration (www.indiastat.com).

8 For detailed understanding of different adverse impacts on environment and ecology due to dams, see Dams and Development: A new framework for decision making (2000), The Report of the World Commission on Dams.

9 The population density has marginally increased from 77 (1901) to 103 (1941). Surprisingly, it has increased three times between 1951 to 2001 (www.indiastat.com)

10 For example, introduction of irrigation, HYV seeds, tube wells, fertilizers, tractors, etc.

11 It would be pertinent to highlight that only after mid 70s various institutional and legal reforms related to land holding, land ceiling and land re-distribution were enacted in India.

12 For instance, increase in air pollution, acid rains, depletion of ozone layer, land degradation, etc

13 "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." *See* World Commission on Environment and Development (WCED). *Our Common Future.* Oxford: Oxford University Press, 1987 p. 43

14 Out of total land area of 330 million hectare (approximately)

around 175 million hectare is facing one or the other form of degradation (Shankar, 1999)

15 Diwakar, D,M (2009) Intra-Regional Disparities, Inequality and Poverty in Uttar Pradesh, Economic and Political Weekly, June 27-July10, Vol. XLIV, No. 26 and 27

16 Eleventh five year plan, Vol. 1, Part II, Ch 6, 484-85

CHAPTER II
PROFILE OF THE STUDY VILLAGE

This chapter presents a brief overview of Uttar Pradesh State, in general, and Bundelkhand region and Lalitpur district, in particular, where the study has been carried out. This is followed by an overview of the demographic and socio-economic profile of the study village. Dimensions like population distribution, landholding pattern, occupation, education, etc., are discussed in this chapter. Further, these dimensions are analyzed in terms of caste, gender, age and landholding. The data on these demographic and socio-economic dimensions is presented using both tables and graphs for easy comprehension and to provide a comparative picture of the village.

I

Uttar Pradesh

Uttar Pradesh, located in the Northern part of India, shares its boundary with Nepal on the North, Uttarakhand on the North West, Haryana on the West, Rajasthan on the South West, Madhya Pradesh on the South and South West and Bihar on the East. It consists of an area of around 2, 36,286 sq km. and lies between 23^{o} 52' N and 31^{o} 28' North latitudes and 77^{o} 3' and 84^{o} 39' East longitudes. With over 190 million people residing in the State, it is the largest and most populous State of the country. The administrative and legislative capital of the State is Lucknow, while the financial and industrial capital is Kanpur, which also happens to be the largest city of the State. The State has a bicameral legislature: the Lower House is called Legislative Assembly (Vidhan Sabha) and the Upper House is called Legislative Council (Vidhan Parishad). The literacy rate in the State reflects the persistence of a moderate level of education. The overall literacy rate is 57.36 percent, with male

and female literacy rate around 70.22 and 42.97 percent, respectively.

The State is officially classified into four economic regions, namely, Western, Central, Eastern and Bundelkhand. Altogether, the State has seventy administrative districts that are further grouped into seventeen administrative divisions. The Western region has five divisions and consists of 26 districts, the Eastern region has eight divisions and 27 districts, the Central region comprises of two divisions and 10 districts. Bundelkhand region, which is also the study area, comprises of four districts of Chitrakut division, three districts of Jhansi division, five districts of Sagar division and one district of Gwalior division. Both the Sagar and Gwalior division falls under Madhya Pradesh. The climate is predominantly sub-tropical in nature. The State can be divided into three distinct hypsographical regions:

- The Himalayan region in the North (now a part of Uttarakhand)
- The Gangetic plain in the centre
- The Vindhya hills and plateau in the South

The Gangetic plain occupies three quarters of the State and spreads across the entire length of the State from East to West. It is considered as an important area for economy due to its high agricultural productivity. The entire alluvial plain can be divided into three sub-regions. The first sub-region is in the Eastern tract consisting of 14 districts, which are subject to periodical floods and droughts and have been classified as scarcity areas. These districts have the highest density of population, and, thus, record the lowest per capita of land. The other two regions, the Central and the Western are comparatively better with a well-developed irrigation system.

They suffer from water logging and large-scale user tracts. Jamuna, Ganga and its major tributaries - Ramganga, Gomati, Ghaghra and Gandak - water the Gangetic plain. The whole plain is alluvial and very fertile. The chief crops cultivated here are rice, wheat, millets, grams, and barley. Sugar cane is the chief cash crop of the region. The Southern fringe of the Gangetic plains is demarcated by the Vindhya hills and plateau. It comprises of four districts of Jhansi, Jalaun, Banda, and Hamirpur in Bundelkhand region; Meja and Karchhana tehsils of Allahabad district; the whole of Mirzapur district; and Chakia tehsil of Varanasi district. The Betwa and Ken rivers join the Jamuna from the Southwest in this region. Rainfall is scanty and erratic and water resources are scarce. Dry farming is practiced on a large scale.

II

BUNDELKHAND REGION: AN OVERVIEW

In view of the fact that the study area is located in Bundelkhand, a brief summary[1] of the geographic, climatic, and social dimension is presented here to provide a holistic picture of the region. The region of Bundelkhand lies approximately between 23.10 degrees and 26.27 degrees (North) latitude and 78.4 degrees and 81.34 degrees (East) longitude. It occupies around 70,000 square kilometres and is located in central plains of India. The region cuts across the territories of two Indian States, namely, Uttar Pradesh and Madhya Pradesh. Bundelkhand region comprises of thirteen districts - seven districts of Uttar Pradesh, viz., Jhansi, Jalaun, Lalitpur, Hamirpur, Mahoba, Banda and Chitrakut and six districts of Madhya Pradesh viz., Datia, Tikamgarh, Chhatarpur, Damoh, Sagar and Panna. However, Bundelkhand under both the States represents the underdeveloped regions of the respective States.

Geological materials like granites, sandstone and limestone are found across the region. The landscape gives a quite rough look with plains occupied with protruded huge rocks and hills. The size of hills vary anywhere between 300 to 366 meters. Ravine lands, deep gorges, Vindhyan ranges (located at the Southern part of the region that separates the region from the Southern part of the country) further adds to its picturesque beauty. Alluvial deposits of clay, silt and sand are the recent geologic deposits in the Bundelkhand and are more predominant near the Yamuna River and its tributaries. In general, semi-arid kind of climate is found across the Bundelkhand region. The semi-arid climate is due to the location of region between hot and humid climate of Eastern coast and dry climate of the West. Bundelkhand, like any other parts of the country, experiences both kinds of climatic seasons, namely, monsoon and dry. Monsoon arrives in the region towards the end of June. However, the timing may vary depending on the other meteorological factors. Nevertheless, the region gets over 90 percent of annual rainfall between the months of June and September with the highest precipitation occurring in July and August. The average rainfall that the region receives each year varies from 75 cm to 125 cm. In comparison to South-Eastern part of the region, the Northern part receives less rain. The region is also peculiarly known for both flood (during monsoon seasons) and severe droughts (during summer seasons). The temperature in Bundelkhand, like most other parts of the country, fluctuates depending on the season of the year. In summer, temperature remains anywhere between 40°C to 45°C while in winter it varies from 5°C to 15°C. Frost and cold breeze are common in winter season, mainly during the night time.

The natural vegetation in Bundelkhand also reflects the semi-arid climate. *Khardai*, Teak, different varieties of Acacia [*Dhak*

(Butea monosperma), Semal, Salai (Boswellia serrata) and Babul (Acacia nilotica)], *Siari, Katai (Flacourtia indica), Gunj, Bel (Aegle marmelos)* and *Ghout* are the most common tree species found across the region. Grasses are predominant in the rocky plains and hills, particularly after the monsoon. These grasses along with different shrub (commonly found where more water is available) species are important source of fodder for cattle.

The region gets drained by the Yamuna River, one of the main tributaries of the Ganges, and its tributaries, such as, *Betwa, Ken, Baghain, Pahuj* and *Dhasan* rivers. Due to this, drainage occurs mainly from North to South. However, local variations are found mainly due to the topography of the region. These rivers form the important sources of irrigation water in the region, besides small streams and *nallahs* that feed these rivers. Bundelkhand also has a considerable source of both man-made and natural water bodies, such as lakes, tanks, reservoirs and other water harvesting structures. Some of the known water bodies are *Pahuj* reservoir, *Barwar sagar*, *Barwar* Lake, *Siaori* Lake, *Pachawara* Lake, *Dakwan* and *Parichha* reservoirs, *Arthar tal*, *Manikput tal*, *Majhgawan tal*, *Bela tal* and *Rajpura sagar*.

The soil found in the region can be categorised into two broad types, namely, red soil and black soil. The North-Western region of Bundelkhand is predominant with red soil while the black soil is found mostly in the Southern part. The red soil is characterised by poor moisture retention as they are generally gravel and shallow, whereas the black soil are more water retentive and, therefore, preferred for wheat, gram, and sugarcane cultivation. Besides these two types of soil, a small area of Bundelkhand is covered with riverine soils that are formed by sand and clays. Most of the region suffers from acute ecological degradation mainly due to top soil erosion and

deforestation. This, in turn, leads to low productivity of the land. Soil erosion is a persistent problem witnessed in the region due to deforestation and further aggravated by the hilly landscape, high winds, and poor quality of the soils.

Agriculture has a prominent role in the economy of Bundelkhand in spite of the difficulties (poor soil, water scarcity, frequent draught and floods) in utilizing its full potential. Water sources in Bundelkhand region are varied and often seasonal, ranging from ponds, tanks, lakes and streams to open wells, bore wells and irrigation canals radiating out from large-scale dams. Therefore, most of the agriculture is rain-fed with supplementary water provided from private irrigation wells and canals in few places. The majority of the farmers are involved in farming or work as agricultural labourers. However, increasing poverty and population is creating pressure on already constrained and degrading marginal lands. A further comparison between rural and urban population reveals that the proportion of rural population still remains high in spite of high migration rate, thus putting pressure on the degrading land. The migration of people to urban centres to work as daily wage labourers during lean agricultural season is a common phenomenon in the region.

Human development indicators such as per capita income and literacy levels reveal that the Bundelkhand is among the least developed regions in the country. Per capita income revolves around Rs. 8,114 against the national average of Rs. 13,193 in 1997-98. Literacy levels are low, especially among women. The State of Uttar Pradesh has poor record of educational attainment and, as a result, literacy rates are abysmally low. In Bundelkhand region, educational opportunities are few and most children study only up to the primary level of schooling.

Those willing to continue their higher education often have to travel to major centres. Thus, just 51% of rural men and 20% of rural women in the region are able to read and write.

III

LALITPUR DISTRICT: A BRIEF PROFILE[2]

Lalitpur is one among the five districts of Uttar Pradesh. It was formed in the year 1974 and falls under the Bundelkhand region. This district lies between latitude 24° 11' and 25° 13' (North) and longitude 78° 11' and 79° 0' (East). In spite of being a part of Uttar Pradesh, Lalitpur largely shares its boundaries with many districts of Madhya Pradesh. For instance, Tikamgarh and Chhatarpur district lies on its Eastern frontier while Guna and Shivpuri districts on Western side. The Southern boundary is shared with Sagar district (of Madhya Pradesh) while the Northern part is connected with Jhansi through a narrow passage. The area under the district is generally rocky. The district forms a portion of the hill region of Bundelkhand, sloping down from the outer side of the Vindhya Range on the South to the tributaries of the Yamuna River on the North.

Generally, these hills in the South occur in small groups or in continuous narrow chain running parallel to each other from North-East to South-West, the ridges being mostly uncovered and sharp. The slopes are comparatively more covered with scrub jungles. The plateau is intersected by wide valleys particularly in the South West; and the entire tract, once covered with vegetation, looks barren now-a-day. Mining has affected the whole area considerably. Most of the area is drained by river *Jamni* and its tributaries which form its Eastern boundary, separating it from Tikamgarh district. The *Betwa* River forms the Western and Northern boundary and drains the

Western part of the district. The South Eastern part is partly drained by *Dhasan* River. In general, the slope is towards the North.

The soils found in Lalitpur are representative of Bundelkhand region. The soils here have evolved from the Vindhyan ranges of rocks which in this area are formed of gneiss, granite, quartzite and, at times, sandstone, limestone and slate. The soil is divided into two broad categories, namely, red and black soil. Each of these categories is further divided into following types:

(I) *Rakar:* It is one form of red soil. This soil is further divided into two types, namely, I-A and I-B. Generally, type I-A soil is found mainly around the rocky ridges in the Southern most part while type I-B is restricted in the Northern part of the district. These types of soil are not appropriate for farming but only suitable for afforestation. These soils are also subject to severe hazards of erosion and, therefore, need to be conserved through embankments.

(II) *Parua:* It is another form of red soil that is further divided into two types, namely, II-A and II-B. It is found in central parts of Lalitpur. The soil is sandy loam in texture and light to dark grey in colour. These soils soak water at a very fast rate, and therefore, require irrigation during farming.

(III) *Kabar:* It is a form of black soil which is coarse grained, loamy in texture, mature in profile, and has high clay element. It is mostly found in the Southern part of Lalitpur and Mahroni tehsil. It is a very productive soil.

(IV) *Mar:* It is another form of black soil and found around Southern part of Lalitpur tehsil. It is highly clayey in texture, and black in colour. Like *Kabar*, it is also a

water retaining soil. However, its retention is low in coarse sand and soluble salts.

The district witnesses a subtropical climate characterized by a very hot dry summer and cold winter. Like other districts of the Bundelkhand region, Lalitpur also experiences four distinct seasons, namely, summer (beginning from March and extended up to mid June), monsoon (from mid-June to September), post-monsoon transition (between October and November) and winter (December to February). During summer season, the highest day temperature is generally recorded in the month of May and June. However, with the onset of monsoon, the temperature comes down. It rises again around September and goes a little higher during October. The beginning of winter again reduces the temperature and it falls to a minimal during December and January. The monsoon usually starts from mid-June and continues till the end of September.

The total geographical area of the district is 5,039 sq. km. According to Census 2001, the total population of Lalitpur is around 9, 77,447. The proportion of males in total population is around 53.1% while females constitute the rest. The share of rural population is significantly very high (more than 8 lakhs). There are 697 villages in the district. The overall literacy rate is 39.32% with male literacy rate at 68.98% and the female literacy rate stands only at 31.01%. The district is divided into 6 administrative blocks, namely, *Talbehat, Jakhora, Baar, Virdha, Mahroni* and *Madawara* and 3 revenue blocks (*tehsil*), namely, Lalitpur, *Mahroni* and *Talbehat*. The village selected for the present study is located under Virdha block which falls under the Lalitpur tehsil.

IV

PROFILE OF THE STUDY VILLAGE

Pataaripur village is located at a distance of 25 kilometres from Lalitpur. The village got its name due to its undulating geographical landscape. Village elders told that the village was founded on slightly elevated land. Since it was located on higher ground, people named it as *Pataaripur.* The word *Pataaripur* roughly resembles with the Hindi word *Pataar* used to refer uneven land. Even now, one can notice, village is elevated from the central part. It falls under the administrative jurisdiction of *Virdha* block, which is about 5 kilometres from the village, while its revenue jurisdiction falls under Lalitpur *tehsil*. The village settlement is surrounded by numerous agricultural fields and can be accessed from four directions, namely, North, East, South, and West. Each of these entrances is marked with a temple site. One can also find a forest range that spreads over an area of 3 square kilometres on the Northern side of village. The four lane national highway (no. 26) connecting Lalitpur with the State of Madhya Pradesh and other Southern States cut across the agricultural fields of the village. The village is very close to the border of Madhya Pradesh State. The last check post connecting Uttar Pradesh and Madhya Pradesh is just around 15 kilometres from the village.

The village consists of 153 households and has a population of 1348. The male constitute 693, while their female counterparts are 655. It is a multi-caste village. Different castes, such as Lodhi, Aharwaar, Kushwaha, Paal, Dhobi, Kacherri, Kalaar, Khangaar, Kutwaar, Lohar, Nai, Sahoo and Brahmin, are found in the village. In local caste hierarchy, Brahmins occupy the highest position. Lodhi, Kushwaha, Kalaar, Sahoo, Nai, Lohar, Khangaar, Kacherri, Kutwaar, Dhobi and Aharwaar occupy the

subsequent positions in the caste hierarchy. Table 2.1 presents the details of castes and the number of households found in the village.

Table 2.1: Caste Wise Household Distribution

Caste	No. of HHs
Lodhi	64
Aharwaar	35
Kushwaha	15
Nai	11
Lohar	8
Kalaar	4
Khangaar	4
Dhobi	3
Paal	3
Brahman	2
Kutwaar	2
Kacherri	1
Sahoo	1
Total	**153**

The maximum number of households, as evident from Table 2.1, belongs to Lodhi caste, followed by Aharwaar, Kushwaha, Nai and Lohar. The rest of the households belong to other castes, namely, Kalaar and Khangaar (4 households each); Dhobi and Paal (3 households each); Brahmin and Kutwaar (2 households each); Kacherri and Sahoo (1 household each). Lodhi is the dominant caste in the village and dominates the village numerically, politically, educationally, and economically. Possession of large amount of land makes them economically strong. Aharwaar and Kushwaha, though numerically less, are found to be competing with the Lodhis economically, educationally and politically.

These three castes – Lodhi, Aharwaar, and Kushwah –

constitute three fourths (76%) of the total population. However, the proportion of Lodhi (46.2%) is significantly high as compared to Aharwaar (19.5%) and Kushwaha (103%) in the total population. The individual share of other castes, namely, Lohar, Kalaar, Khangaar, Dhobi, Paal, Brahmin, Kutwaar, Kacherri and Sahoo in total population is comparatively low (Table 2.2).

Table 2.2: Distribution of Population by Caste and Gender

Caste	Male	Female	Total
Lodhi	319	304	623 (46.2 %)
Aharwaar	140	123	263 (19.5 %)
Kushwaha	69	70	139 (10.3 %)
Nai	49	43	92 (6.8 %)
Lohar	29	32	61 (4.5 %)
Khangaar	19	21	40 (3.0 %)
Dhobi	16	12	28 (2.1%)
Paal	15	13	28 (2.1 %)
Kalaar	12	13	25 (1.9 %)
Kutwaar	11	12	23 (1.7 %)
Brahmin	7	9	16 (1.2 %)
Kacherri	5	0	5 (0.4 %)
Sahoo	2	3	5 (0.4 %)
Total	**693**	**655**	**1348**

The gender and age wise analysis of the population reveals that the male population is slightly higher than the females. However, it is pertinent to note the variation among different castes (Table 2.3).

Table 2.3: Distribution of Population by Age and Gender

Age Group	Male	Female	Total
1 to 15*	285	271	556 (41.2 %)
16 to 30	201	210	411 (30.5 %)
31 to 45	122	101	223 (16.5 %)
46 to 60	55	49	104 (7.7 %)
60 above	30	24	54 (4.0 %)
Total	693	655	**1348**

* 19 male and 13 female children, who were below the age of 1, are rounded up to 1 year

A similar trend with regard to the distribution of population across different age groups was also noticed in the village. The males are comparatively higher in all the age groups except in '16 to 30' age group where women have outnumbered males marginally. It is further evident from Table 2.3 that a substantial proportion of population belongs to '1 to 15' and '16 to 30' age categories. They constitute more than 70 percent of population reflecting the potential and substantial young workforce existing in the village. Among the others, those in the age group of '31-45' preponderate over the '46-60' and '60 above' age category in the village.

Settlement Pattern

Generally, the settlement pattern indicates and reflects the social status and economic stability of the residents of any village. Therefore, an outline of the village settlement pattern is presented here. The village settlement, as mentioned before, is surrounded with agricultural fields and is slightly elevated from the centre, thereby, dividing the whole village into two but continuous geographical segments. Villagers generally refer this elevated place as "*Athaai*" (means a place that is slightly above the earth) and each of these segments as "*Pura*" – means a place

to reside. It was found that each of these *Pura* (segment) is further divided into number of *bastis* (blocks). Each of these *bastis* consists of group of households that belong to a particular caste. Therefore, each of these *bastis* (blocks) is locally identified with the caste name. In case a block consist of households belonging to different castes it is identified with the temple or other major or significant or popular object or item that is located in the vicinity of that *basti* (block).

It was found that most of the households located in South *Pura* (segment) belong to Lodhi caste and, therefore, the whole Pura is known as Lodhi Pura. It would be pertinent to highlight that some households which were located at "*Athaai*" (the central elevated part of the village settlement) also belong to Lodhi caste. On the other hand, the households located in North *Pura* (segment) belong to different castes, like Aharwaar, Kushwaha, Nai, Lohar, Dhobi, etc., but each of them are restricted to their respective *bastis* (blocks). The *basti* (block) located on right side is identified with the *Bajrang Bali* (Hanuman deity name) temple as the households belonging to different castes groups were located there while the left side *basti* (block) is identified as Aharwaar *basti* (block*)* since most of the households belong to Aharwaar caste.

The caste wise settlement pattern was found to be still preferable among the villagers and was evident from the location of newly constructed homes. During the fieldwork, it was found that few villagers had constructed new houses. Some of them (mostly Aharwaars and Kushwahas) undertook construction activity as their old houses were uprooted while laying the national highway, while the others (mainly Lodhis) have constructed new ones, as they were either finding their old houses cramped or to avoid family conflicts. Nevertheless, it was

found that the new houses were located in close proximity to the houses that belong to their own caste.

Similarly, the structure of a house differs from caste to caste and largely reflects the economic and occupational background of house owners. An analysis of distribution of house types across the castes revealed that almost 98 % of the villagers have pucca or semi-pucca houses. The proportion of semi-pucca houses is more than pucca houses across the communities, except Aharwaar, where the Pucca houses are more than the semi-pucca houses (Table 2.4). This may be due to Mahamaya Awaas Scheme of Government of Uttar Pradesh, wherein financial assistance is provided to the families belonging to Schedule Castes for constructing one pucca medium size room. Besides this, the resettlement and rehabilitation compensation given to few Aharwaar families by National Highway Authority for relocating themselves from their old houses (which were located near to the road) to new houses so that the national highway could be laid was another reason behind finding more number of pucca houses among them. These families have constructed pucca houses from that compensation.

On the other hand, it was found that 50 percent households belonging to Lodhi and Lohar communities were residing in pucca houses while the rest had semi-pucca house, reflecting the economic variations among them. However, few villagers belonging to Kushwaha and Nai caste were found to be residing in kutcha houses.

Table 2.4: Types of Houses by Castes Wise

Caste	Kutcha House	Pucca House	Semi- Pucca House
Lodhi	0	32	32
Aharwaar	0	21	14
Kushwaha	2	2	11
Nai	1	4	6
Lohar	0	4	4
Kalaar	0	1	3
Khangaar	0	1	3
Dhobi	0	1	2
Paal	0	0	3
Brahmin	0	2	0
Kutwaar	0	0	2
Kacherri	0	0	1
Sahoo	0	0	1
Total	**3**	**68**	**82**

Family[3]

The family type in *Pataaripur* is predominantly nuclear. Almost 60% of the total families are nuclear families, while remaining are joint families. Villagers informed that there is a tendency of splitting from the traditional joint family to form into nuclear family units. The members of joint families are no longer live under one roof and not eat food cooked at common hearth. Rather, the family members have constructed their own houses due to an increase in conflicts among themselves. However, except in cases of severely strained relationships, these family members do participate in social functions of each others. The various types of families existing in the village are presented in Table 2.5.

Table 2.5: Types of Families

Caste	Nuclear	Joint	Total
Lodhi	41	23	64
Aharwaar	22	13	35
Kushwaha	8	7	15
Nai	7	4	11
Lohar	5	3	8
Kalaar	2	2	4
Khangaar	2	2	4
Dhobi	1	2	3
Paal	2	1	3
Brahman	0	2	2
Kutwaar	1	1	2
Kacherri	1	0	1
Sahoo	0	1	1
Total	**92**	**61**	**153**

Marriage

Each caste has different numbers of clans or *gotras*. In case of dominant casteLodhis, there are three major clans, who are commonly identified by their titles, which were conferred on their forefathers during British rule, like *Maate*, *Muqaddam* and *Lambardaar*. The other clans are identified with their respective *gotra* names, like *Chaudiyaal*, *Malgore*, etc. Marriages within the same clan and extended kin members are prohibited and unacceptable. Marriages are, by and large, monogamous and are usually arranged by the elders of the community. Villages prefer to marry off their children within their respective communities. The bride or groom is generally preferred from the nearby villages. However, in exceptional cases wherein parents find good bride or bridegroom at distant villages or towns, marriages do take place. Indeed, there are few cases in the village wherein parents have fixed the marriage of their daughters with the families residing in the villages or towns of Madhya Pradesh.

Table 2.6: Age wise Marital Distribution

Age Group	Marital Status			Total
	Un-married	Married	Others**	
11 to 15	155	5	0	160
16 to 20	58	116	0	174
21 to 25	8	117	1	126
26 to 30	3	106	2	111
31 to 35	1	84	1	86
36 to 40	0	94	3	97
41 to 45	0	39	1	40
46 to 50	0	32	3	35
51 above	1	77	45	123
Total	**226**	**670**	**56**	**952**

** Includes widows, widowers, destitute and divorcee

The usual age of marriage for girls is above 15 years while for boys it is 17 years or above. It is apparent from the Table 2.6 that out of the total population of age group '16 to 25' almost 77.7 percent are married. No cases of inter-caste marriage were found in the village.

Life Cycle Rituals

Life cycle rituals mark the transition from one status to another in an individual's life. These rites of passage are typically practiced by all members of the society. These transitions are observed through certain rituals and ceremonies mainly during childbirth, marriage and death. Some of the important ones are discussed below:

Child Birth:

Giving birth to a child is considered as an important event in a woman's life as she attains the status of motherhood. It was

found that most of the rituals practiced during this phase are similar for female and male child. After delivery, the mother along with her child is kept in a separate room of the house. Collective pollution is observed by all the family members. During this period, the contact with outsiders is forbidden. On the day of delivery, male members of the family visit local priest (called as *Maharaaj*) of the village and request him to prepare a *Kundli* (also known as *janam kundli* or birth chart) for the child. They tell him about the time of child birth and seek his advice on issues, such as possible name for a child, astrological details (like positioning of planets/stars during child birth in order to know any ill fortunes and solutions for reducing their influences on child life) and auspicious day when they should invite people for the dinner (called as *Dashton*).

After consulting Maharaaj, the male members visit *Nau* (a male member belonging to Nai caste) family to seek their services. The services of male Nau are asked mainly for sending invitation to the villagers who would be invited on the day of *Dashton*, while the services of his wife are asked for child care (mainly giving massage, etc.) during the first two months of child birth. Villagers told that this is basically a patron-client relationship and a Nai family is entitled to have 4 *phele* (40 kg) of grains every year from his or her patron. It was found that each *Nai* family provides these services to their respective clients in the village. It would be pertinent to highlight that the higher castes like Brahmins, Lodhis, etc. do not take the services from those Nai families who have their clients in lower castes, such as, Aharwaars. Amidst all these activities taking place, the female members of the family boil water along with leaves and small branches of *Kinni* and *Khair* tree, respectively, in a newly purchased earthen pot (*Matka*). Mother is expected to consume this mixed water in small quantities till the day of *Dashton*.

Water is boiled each day with leaves and branches.

After three days of delivery, the female Nau will be called to perform another ritual called as s*ootak hatana* (a kind of purification ritual). She would come to her client's house and gives bath to the mother with hot water. After that, she cleans the place, where mother has been lying and takes all the old clothes of the mother. This whole activity is known as *sootak hatana* in the village. Only after this purification ritual, the mother is allowed to visit the temple. Generally, after a gap of five to six days of this ritual, the Dashton ceremony is organized. On the day of *Dashton*, the male Nau is called by their patron so that he can deliver invitation to other villagers. Patron informs him about the villagers to whom the invitation should be sent. The invitation is generally verbal in nature. Male Nau visits the houses of respective villagers and informs them about the date and timings of *Dashton*. All the guests are offered dinner at the venue. The dinner is generally prepared by both males and females, who are either relatives or friends of the family.

The *Dashton* ritual is followed by another ritual called as *Kuaan Pooja*. It would be pertinent to highlight that mother is not allowed to draw water from the well from the day of delivery to the day of *Dashton*. It is only after she performs the *kuaan pooja* on the day of Dashton she is allowed to draw water from a well. It was found that on the night of *Dashton*, mother along with her female relatives makes a visit to the well (that is either located close to their house or which is owned by the family) and offer prayers. The mother lights a lamp on the surrounding walls of the well. After lighting the lamp, she draws a small quantity of water from the well and pours it into two metal jugs (*lota*). She leaves that jug there and returns back to home. The

metal jugs are brought back to home either preferably by younger brother or sister of her husband or any other female relative. From the next day of the *kuaan pooja*, the mother is allowed to fetch water from the well.

Another ritual '*mundan*' is also equally important in the village and is celebrated depending upon the economic status of the family. Under this ritual, the clients call the male member of the Nai family to home and he cuts the hair of the child. This ritual is particularly done for the male child.

Marriage:

Marriage marks another important event in the life cycle rituals. Usually the betrothal of the young couple is decided by the parents and elders. In general, irrespective of gender of children, parents start looking for suitable marriageable partners for their children as soon as they attain the age of sixteen. Girl parents usually come to know about the potential husband for their daughter either from their relatives, friends or other known persons. One or two family members along with the individual (who have informed about the boy) make a visit to boy's village, meet him and his family members and ask for boy's *Pipna or Kundali* (horoscope), which would be shown to the family priest (*Maharaaj*), who, in turn, tells about the compatibility of astrological stars and *guna*[4] of boy with the girl. It is believed that marriage is not possible if merely 14 *guna* of girl and boy matches. It is mandatory that at least 15, 20 or 22 *guna* of both girl and boy should match for the wedding to materialise. Once the compatibility of astrological details are known, one member of the girl's family, a male Nau (person belonging to Nai community) of village and about two or three close relatives visit the boy's house for *Pakayaat* ceremony. The ceremony is marked with handing over a token money of Rs. 2100 to Rs. 5100 to the boy. This confirms the consent of girl's family about

the boy being accepted as a potential bridegroom for their daughter. While offering money, members of girl's family touch the feet of boy's family members and relatives who are present during the ceremony. The matters related to dowry and auspicious dates for *lagun* (another event) get fixed in the presence of local priest during this ceremony. It would be pertinent to highlight that after this ceremony, the bridegroom family is restricted from giving boy's *Pipna* (horoscope) to any other girl's parents.

Lagun is another ceremony that takes place around one month before marriage. Around 15 to 20 family members, relatives and family priest of girl's family visit the house of bridegroom. They carry fruits (like grapes, banana, pomegranate, etc.) and clothes for family members or relatives of bridegroom along with them. The demands made (for instance motorcycle, cash, etc.) under the dowry during *Pakayaat* ceremony are fulfilled during this ceremony only. Announcement of wedding date is also made by priest during the same day.

On the day of marriage, about 150 to 200 family members, relatives and friends of groom's family (group is called as *Baraat*) arrive at girl's village either by bus, jeep or tractors. However, they are not allowed to enter into the village immediately. It was found that even the arrangement of their sitting and food are made near to any of the four temples that mark the four entrances of the village. Members and relatives from bride's family serve food to them. Once *Baraat* is done with eating, family members and relatives of the bride invite the groom and few of his close relatives and bring them to the house of the bride. There *Maharaaj* make couples to sit near to *Bedi* – a place that is made to conduct rest of marriage ceremony.

Death:

Generally, villagers cremate the body of the deceased on agricultural land that belongs to him or his family. It is observed that one member from each family visit the cremation site. Each villager from his home takes a piece of wood or cow dung cakes with him to the cremation ground. These wood pieces or cow dung cakes are used for cremating the dead body. Like most Hindus, after cremation, ashes are collected and immersed in holy water. Thirteenth day marks the purification and normalcy in lives and the family of the deceased offers food to villagers (called as *Mrut Bhoj*), who are invited by the family members.

Education

Education is one among the various indicators through which the state of development of any region could be gauged. Generally, it is agreed that an increase in literacy level indicates a rise in the standard of living. Further, a high literacy level adds to the overall development of human resources. Therefore, education has always been regarded as a good measure of development.

Table 2.7: Distribution of Education by Gender

Levels of Education	**Males**	**Females**	**Total**
Illiterate	111 (18.3 %)	302 (53.4 %)	413 (35.2 %)
Primary (1st -5th class)	210 (34.5 %)	156 (27.6 %)	366 (31.2 %)
Secondary (6th – 8th class)	159 (26.2 %)	79 (14 %)	238 (20.3 %)
Up to Intermediate	98 (16.1 %)	25 (4.4 %)	123 (10.5 %)
Graduate and above	30 (4.9 %)	4 (0.7 %)	34 (2.9 %)
Total	**608**	**566**	**1174**

It was found that the overall literacy level in the study area is 64.8 %. However, one could clearly find the stark gender

disparity in it. It was observed that the proportion of literate males (81.7%) is considerably higher than their female (46.6%) counterparts (Table 2.7).

However, the age wise analysis of literacy reveals that a high gender disparity persist in literacy level among the adult population of the village as compared to young population (mainly below 18 years). It was found that there are only 21 % adult females who are literate against 74.5 % of literate adult males, while in case of young population, there are 88 % of literate young girls against 93.9 % literate young boys (Table 2.8), reflecting the gender disparity reduces considerably in case of young males and females as compared to their senior counterparts.

The low gender disparity among young population clearly reflects the positive attitude of the villagers towards educating girls. It appears that villagers are gradually recognizing the significance of education in girls' life. Further, it is also apparent from Table 2.8 that most of the literate young and adults have received their education up to primary level. Interestingly, in this case too, the share of young males and females is high (70.2%) as compared to their adult counterparts (29.8%) which further substantiates the fact that villagers are making sincere efforts in making their children educated.

However, as we move towards higher education, it was found that the proportion of both young and adult females receiving higher education reduces considerably in comparison to males. It was found that only 18.4 percent of young and adult females have received education up to secondary and intermediate level against 42.3 percent of young and adult males (Table 2.8). Similarly, the college level education was found to be very less

in the village. Out of the total population, merely 2.9 percent have attained or attaining the graduate degree. Even among them the proportion (0.7 percent) of young and adult females receiving graduate degree is very less as compared to adult and young males (5 percent). It clearly reflects that though the gender gap has gradually reduced among young generation in receiving primary education but still persist in higher education.

Table 2.8: Distribution of Education by Age Category

Levels of Education	**Adult (>=18)**		**Non-Adult (>4<18)**		**Total**
	Male	**Female**	**Male**	**Female**	
Illiterate	97 (25.5 %)	276 (79.1 %)	14 (6.1 %)	26 (12 %)	413 (35.2 %)
Primary (1st - 5th class)	76 (20 %)	33 (9.5 %)	134 (58.8 %)	123 (56.7 %)	366 (31.2 %)
Secondary (6th – 8th class)	105 (27.6 %)	24 (6.9 %)	54 (23.7 %)	55 (25.3 %)	238 (20.3 %)
Up to Intermediate	72 (18.9 %)	12 (3.4 %)	26 (11.4 %)	13 (6 %)	123 (10.5 %)
Graduate and above	30 (7.9 %)	4 (1.1 %)	0	0	34 (2.9 %)
Total	**380**	**349**	**228**	**217**	**1174**

It is apparent from the table that the proportion of Lodhis is highest among those who have received graduate and above education. It would be pertinent to note that the proportion of Lodhis is also highest among others who have received primary, secondary and intermediate level of education (Table 2.9).

Table 2.9: Distribution of Education by Caste

Caste	Illiterate	Primary (1st-5th)	Secondary (6th-8th)	Up to Inter (9th-12th)	Graduate and above	Total
Lodhi	164 (39.7 %)	164 (44.8 %)	121 (50.8 %)	78 (63.4 %)	23 (67.6 %)	550 (46.8 %)
Aharwaar	91 (22 %)	86 (23.5 %)	33 (13.9 %)	10 (8.1 %)	5 (14.7 %)	225 (19.2 %)
Kushwaha	56 (13.6 %)	36 (9.8 %)	23 (9.7 %)	5 (4.1 %)	1 (2.9 %)	121 (10.3 %)
Nai	28 (6.8 %)	23 (6.3 %)	21 (8.8 %)	6 (4.9 %)	1 (2.9 %)	79 (6.7 %)
Lohar	20 (4.8 %)	16 (4.4 %)	13 (5.5 %)	5 (4.1 %)	0	54 (4.6 %)
Khangaar	10 (2.4 %)	13 (3.6 %)	4 (1.7 %)	6 (4.9 %)	0	33 (2.8 %)
Dhobi	11 (2.7 %)	5 (1.4 %)	9 (3.8 %)	1 (0.8 %)	0	26 (2.2 %)
Paal	12 (2.9 %)	6 (1.6 %)	5 (2.1 %)	1 (0.8 %)	0	24 (2 %)
Kalaar	8 (1.9 %)	5 (1.4 %)	5 (2.1 %)	1 (0.8 %)	0	19 (1.6 %)
Kutwaar	11 (2.7 %)	6 (1.6 %)	1 (0.4 %)	1 (0.8 %)	0	19 (1.6 %)
Brahmin	0	4 (1.1 %)	0	6 (4.9 %)	4 (11.8 %)	14 (1.2 %)
Kacherri	0	1 (0.3 %)	1 (0.4 %)	3 (2.4 %)	0	5 (0.4 %)
Sahoo	2 (0.5 %)	1 (0.3 %)	2 (0.8 %)	0	0	5 (0.4 %)
Total	**413**	**366**	**238**	**123**	**34**	**1174**

Occupation

The primary occupation of the villagers is agriculture as most of them own lands. Besides agriculture, activities like labour, petty business, private jobs are other secondary occupational activities of the villagers. An analysis of the occupational activities revealed that 37.4% of the villagers depend both on

agriculture and secondary activities to obtain their livelihoods as compared to 62.6% of villagers for whom agriculture is sole livelihood activity (Table 2.10). It was found that out of total workforce, there are around 8 percent of the villagers who were not involved in agriculture at all. They work as labourers, run petty shops (both within village and outside), do private or contractual jobs in district headquarter or other cities.

Table 2.10: Occupation Pattern

Occupation	No. of Villagers Involved
Agriculture	209 (62.6%)
Agriculture and Agricultural Labour	108 (32.3%)
Agriculture and Business	10 (3.0%)
Agriculture and Service/Private jobs	7 (2.1%)
Others*	29 (8.0%)
Total	**363**

*(Labourer, Small Business, Petty Shops, Private Jobs and Govt. Service)

A caste wise distribution pattern of occupational activities further reveals that the villagers who derive their livelihoods both from agriculture as well as from other secondary activities largely belong to Aharwaar caste (Schedule Caste). They are followed by other castes like Kushwaha, Nai, Lohar and Dhobi. For these villagers, agriculture (unlike most of the Lodhis) is not the sole occupational activity (Table 2.11).

Table: 2.11: Caste wise Distribution of Occupation

Caste	Agri.	Agri. and Labour	Agri. and Business	Agri. and Service	Total
Lodhi	153 (73.2 %)	4 (3.7 %)	1 (10 %)	1 (14.3 %)	159 (47.6 %)
Aharwaar	15 (7.2 %)	52 (48.1 %)	0	0	67 (20.1 %)
Kushwaha	12 (5.7 %)	16 (14.8 %)	4 (40 %)	2 (28.6 %)	34 (10.2 %)
Nai	9 (4.3 %)	10 (9.3 %)	4 (40 %)	0	23 (6.9 %)
Lohar	3 (1.4 %)	7 (6.5 %)	1 (10 %)	1 (14.3 %)	12 (3.6 %)
Dhobi	3 (1.4 %)	6 (5.6 %)	0	0	9 (2.7 %)
Khangaar	5 (2.4 %)	3 (2.8 %)	0	1 (14.3 %)	9 (2.7 %)
Kutwaar	1 (0.5 %)	6 (5.6 %)	0	0	7 (2.1 %)
Kalaar	5 (2.4 %)	1 (0.9 %)	0	0	6 (1.8)
Paal	3 (1.4 %)	3 (2.8 %)	0	0	6 (1.8 %)
Brahmin	0	0	0	2 (28.6 %)	2 (0.6 %)
Total	**209**	**108**	**10**	**7**	**334**

Land Holding

Land is a major economic resource in the village and is a prime means of livelihoods for most of the villagers. Therefore, the possession of land, like in most other Indian villages, reflects the economic and social status of the villagers. On the whole, the total cultivable land under the village is around 1300.56 acre. Almost 98.7 percent of the total households in the study area possess agricultural land. Only two households were found to be landless. Among these two households, one belongs to Kacherri while the other is affiliated to Sahoo community (Table

2.12).

When asked for the reason for being landless, the villager who belongs to Kacherri caste reported that *Pataaripur* is not his native village. Therefore, he does not own any land here. He told that he came to this village 15 years ago because he was appointed as a postman. Since he had to work in the village, he had constructed a house. However, he did not buy land as he owns it at his native village, *Teeta*, which is around 50 km far from this village. The other respondent, who belongs to Sahoo community, told that he never had land in the village in spite of being a native of *Pataaripur* village.

Table 2.12: Land Distribution Pattern

Caste	**Land (in acres)**
Lodhi	863.05
Aharwaar	161.2
Kushwaha	78.1
Nai	54.5
Khangaar	34
Lohar	28.8
Paal	24
Dhobi	21
Kalaar	18.5
Kutwaar	12.16
Brahmin	5.25
Kacherri	0
Sahoo	0
Total	**1300.56**

Land being the prime source of livelihoods in the study area, its ownership has a great significance. Caste wise distribution of land reveals that Lodhis possess maximum amount of agricultural land in the village. They nearly own two thirds

(863.05 acre) of the total agricultural land available in the village. This enormous ownership of land makes them economically strong. They are followed by Aharwaars and Kushwahas who own 161.2 and 78.1 acres of land respectively (Table 2.12).

Further, an analysis of amount of land holding across caste shows that about 76.5% of the total farmers are marginal, small and small-medium farmers and own anywhere between 0.01 to 4 hectare of lands (Table 2.13).

Table 2.13: Distribution of Household by Land holding (in hectare)

Caste	Landless (<0.01)	Marginal (0.01 - 1.00)	Small (1.01 - 2.00)	Semi-Medium (2.01 - 4.00)	Medium (4.01 - 10.00)	Large (> 10.00)	Total
Lodhi	1	2	6	27	21	7	64
Aharwaar	2	3	18	12	0	0	35
Kushwaha	0	4	2	9	0	0	15
Nai	0	1	7	2	1	0	11
Lohar	0	3	4	1	0	0	8
Kalaar	0	2	1	1	0	0	4
Khangaar	0	1	1	1	1	0	4
Dhobi	0	0	1	2	0	0	3
Paal	0	1	1	0	1	0	3
Brahmin	0	1	1	0	0	0	2
Kutwaar	0	0	1	1	0	0	2
Kacherri	1	0	0	0	0	0	1
Sahoo	1	0	0	0	0	0	1
Total	**5**	**18**	**43**	**56**	**24**	**7**	**153**

Among them, the proportion of semi-medium farmers (45.9%) is higher than the small (35.2 %) and marginal farmers (14.8 %). Further, among the semi-medium farmers, the proportion of Lodhis is highest (87.5%). Similarly, among the medium and

large farmers the proportion of Lodhis is also highest. Other than Lodhis, there are only three farmers (belonging to Nai, Khangaar and Paal caste) who own anywhere between 4.01 to 10.00 hectare of lands. It is pertinent to highlight that all the large farmers also belong to Lodhi caste clearly suggesting their economic dominance in the village.

Livestock

It is observed that every community, except Kacherri and Sahoo, possess cows and buffaloes. It is clear from Table 2.14 that Lodhis have maximum number of cows followed by Kushwaha, Aharwaar, Nai, Dhobi, Paal and others.

Table 2.14: Caste wise distribution of Livestock

Castes	Oxen	Cows	Buffaloes	Goats	Total
Lodhi	25	248	68	0	341
Kushwaha	16	66	12	0	94
Paal	8	14	0	60	82
Aharwaar	10	48	1	0	59
Nai	4	33	1	0	38
Dhobi	6	16	2	0	24
Khangaar	8	12	1	0	21
Lohar	6	12	0	0	18
Kalaar	0	11	4	0	15
Kutwaar	0	8	2	0	10
Brahmin	0	3	0	0	3
Kacherri	0	0	0	0	0
Sahoo	0	0	0	0	0
Total	**83**	**471**	**91**	**60**	**705**

It was found that Lodhis also owns maximum number of buffaloes. It was observed that except Lodhis and Kushwaha, none of the other communities have more than 5 buffaloes. The

number of other milching animals, like buffaloes and goats (in comparison to cows) are reared less by the villagers. Here, it would be apt to highlight that unlike cows and buffaloes, goats are not reared by everyone. Only members belonging to Paal community rear goats, as goat rearing is their traditional occupation. Therefore, in the village, they are also known with their traditional name, i.e., *Gadariya*.

Festivals

The people in the study area belong to Hindu religion. Villagers celebrate festivals like Dusshera, Deepawali, Holi, Janamashtmi, etc. Among all these festivals, Sankranti is an important festival for the villagers and is celebrated at the village level. There are other local or regional festivals that villagers celebrate in group as well as individually.

Infrastructural Facilities

The village is easily accessible due to its close proximity to the national highway. It is well connected with Virdha block and Lalitpur district. Both government roadways and private buses ply on this route. However, the frequency of government buses is quite less. Besides buses, private auto rickshaws run between Lalitpur and *Pataaripur* on sharing basis. The lanes or streets within *Pataaripur* are narrow and unevenly laid with medium size rectangular shape stone blocks. Villagers reported that the contractor, who is constructing water tank in the village had pulled them out for laying pipelines, but did not place them appropriately leading to uneven surface. The village also has electric supply. One can find electric poles erected on either side of these narrow lanes. These electric poles are also used for hanging halogen bulbs for illuminating the streets. However, it was found that there are one or two blocks (*basti*) that are without any electric poles. The village also has one post office

that is located in the middle of the settlement. The village is well equipped with educational facilities too. There is one primary and one upper primary school. Both these schools are government schools. Apart from these government schools, there are two private schools. One of them was established around 15 years ago and is up to 8th standard. The other private school, which was recently established, is an intermediate school. The school authorities run only 9th, 10th, 11th and 12th classes. Unlike government school, which has good infrastructure (in terms of building and other facilities), both these private schools do not have their own building but have comparatively good strength of students. The classes of intermediate school are held in the community hall of the village, whereas the classes in the upper primary school are generally held under the trees and in a rented building.

Similarly, it was observed that village does not lag behind in terms of access to health care facility. Within the village, there is one sub-centre and one Aganwaadi Kendra. The primary health centre is located at Virdha that is merely 5km away from *Pataaripur*. The village being well connected to block Virdha, villagers (generally) prefer to visit primary health centre as they find better health facilities.

In the village, well and hand pumps are two major sources of drinking water supply. At the time of fieldwork, villagers were not using well water for drinking purpose. Instead, they preferred water drawn from hand pumps. Across the village, one can find at least 20 government hand pumps. Primarily, it is the female members of the households who fetch water from hand pumps. However, there are few households who had their own private hand pumps. A water storage tank was being constructed in the village but was not operational as the

construction work was not over. Villagers were hoping of getting water at their house after the completion of construction work. The village also has one ration shop under the public distribution system, which is locally known as *Kotae ki dukan*. Items like sugar, kerosene oil, wheat and rice are provided to villagers through this system. However, villagers reported the discrepancies in distribution of these subsidized items.

Endnotes:

1 This summary has been largely derived from the data available on Bundelkhand on following web address: http://www.devalt.org/water/Checkdams/bundprimer2.htm

2 The information about Lalitpur has been accessed from the district website - http://lalitpur.nic.in/.

3 According to Ross, due to "lack of an adequate definition of the joint family itself" there are conflicting interpretations of joint families (1973:21) and to overcome that he has used the four types of categories of family in his work titled "The Hindu Family in its Urban Setting". He has referred joint family as "family composed of three or more generations living together in the same house, cooking in the same kitchen, owning property in common and pooling their incomes for common spending" and nuclear family as "family composed of two generations, usually one or both parents with children".

4 Vedic Astrology provides compatibility prediction of prospective husband and wife based on *nakshatras* (Lunar Constellations). It assigns points (*guna*) for factors that influence marriage. A Guna matching score of 18 is the minimum required for compatibility. The higher the score, the better it is.

CHAPTER III

DEVELOPMENT INTERVENTIONS AND THEIR IMPLICATIONS

Since Independence, India has been implementing a large number of development programmes for improving the living conditions of the people. A good proportion of these development programmes largely targets the rural population, as 70 percent of Indians reside in rural settings or villages, and most of them live under poor socio-economic conditions. These programmes are diversified in nature as they cater to different sectors of rural settings. They have a significant role in developing rural areas and their significance is evident from the successive increase in their outlay in each five-year plan of Government of India. Nevertheless, these rural development programmes are diverse in nature and may range from those which focus on providing basic infrastructure facilities in rural areas, such as roads, electrification, drinking water, schools, health facilities, etc., to the ones that aim to improve the condition of natural resources enhancing agricultural productivity, providing financial assistance to villagers and generating employment in rural areas. All these rural development programmes have their own specific objectives, designs, planning and operational guidelines to implement them, and, thus, distinct from each other. Nevertheless, they intend to address a common goal of reducing poverty by providing better means of livelihoods and strengthening the existing ones.

The present chapter attempts to highlight some of these development programmes that were implemented in the study area. For analytical purpose, these development programmes are divided into two categories: i) development programmes that are associated with natural resources development,

management, conservation and utilization; and ii) the other development programmes (mainly social welfare programmes) that are not directly associated with natural resources. This chapter towards its end presents a brief analysis of the implications of these interventions.

I

In the study area, it was found that the interventions of two major rural development programmes have largely concentrated on the management, development and conservation of natural resources. These two programmes are Watershed Management Programme (WSMP) and National Rural Employment Guarantee Act (NREGA).

WATERSHED MANAGEMENT PROGRAMME

In India, WSMP is being implemented since early seventies. The Ministry of Rural Development, through its Department of Land Resources, has been actively involved in its implementation since 1999. In the past, the Department has implemented various area-based programmes, particularly for developing the degraded and wastelands in the country. These area based watershed programmes have been largely known as Drought Prone Areas Programmes (DPAP), Desert Development Programme (DDP) and Integrated Wastelands Development Programme (IWDP), which were introduced at different points of time in India. Among them, the DPAP is the oldest area based programme. It was launched in 1973 to deal with the problems of those geographical areas that frequently witness and get affected by drought conditions. Similarly, DDP and IWDP were launched in 1977 and 1989, respectively. The aim of DDP was to mitigate the adverse effects of desertification, while that of IWDP was to develop and rejuvenate the wastelands[1] (mainly in

non-forest areas). However, Hanumantha Rao Committee, which was appointed in 1994 to assess the impact of DPAP and DDP, opined that the programmes were implemented in a fragmented fashion following rigid guidelines by different departments and without any well-designed plans that are prepared on watershed basis by involving the inhabitants. As a result, the ecological degradation proceeded unabated and the achievements of these programmes had been sub-optimal.

Therefore, following the recommendations of Prof Hanumantha Rao Committee, these area-based programmes were redesigned and have been implemented on watersheds basis following under the Common Guidelines for Watershed Development since 1995. These guidelines were intended to be common guidelines to make the programme more participatory, sustainable and equitable. However, in the year 2000, the Ministry of Agriculture revised these guidelines for its programme, the National Watershed Development Project for Rainfed Areas (NWDPRA). Similarly, Ministry of Rural Development (MoRD) also revised the 1995 guidelines in 2001, 2003 (Hariyali Guidelines) and 2008 (GoI, 2008).

Government of Uttar Pradesh is actively involved in implementing these area-based programmes on watershed basis across the State. In this endeavour, Department of Land Development and Water Resources, located in Lucknow, capital city of Uttar Pradesh is playing an active role. The Department is currently implementing three major programmes in Uttar Pradesh using watershed approach, namely, DPAP, IWDP and Command Area Development Programme. Presently, DPAP is being implemented in 60 blocks of 15 districts of the State. While under IWDP, 148 blocks of 51 districts are being covered.

In Lalitpur district, where the study area is located, out of total six blocks, DPAP programme is being implemented in two blocks (Virdha and Madawara) under the jurisdiction of DPAP unit of Lalitpur district. The DPAP unit is responsible for implementing all the watershed development activities and programmes in these two blocks. The micro-watersheds studied come under Virdha block.

It was reported that the DPAP unit consists of the following officials: Land Conservation Officer (also known as *Bhoomi Sangarakshak Adhikari* – BSA), Junior Engineer (J.E), Assistant Soil Conservation Inspector (ASCI), who is also known as "*Bandi Babu*" among villagers. Besides these technical persons, DPAP unit also has administrative staff, such as, accountant, clerk, draftsman, and driver.

The BSA of DPAP unit reported that micro-watersheds are selected on the basis of catchment area. These catchment areas are usually identified by the District Rural Development Agency (DRDA). Once the catchment area is identified where watershed development activities need to be taken up, DRDA informs the same to the DPAP unit. After getting the details of the catchment area, DPAP unit conducts a survey of the catchment in order to identify villages that fall under the identified catchment. A catchment area can have more than one village. If the villages are bigger in size, a catchment generally covers one village, otherwise it may have more than one or two villages. Each of these identified villages represents a micro-watershed. Officials reported that most of the time each of these identified micro-watershed covers a couple of villages. Officials, thus, identify the micro-watersheds with the village name that falls

under its catchments. Therefore, these villages are considered as micro-watershed for developing their respective areas. In case a watershed covers two or more villages, it is divided into village wise sub-watershed, thereby, confining to the selected villages. Once the villages (or micro-watersheds) are finalised, the actual work for the watershed management starts.

In *Pataaripur* village, the WSMP was started in the year 2005 and had already completed 3 years when the researcher started fieldwork. It was found that the Hariyali guidelines were followed to implement the programme. Hence, the role of Panchayati Raj Institutions was very critical. Under the Hariyali Guidelines, PRIs have been entrusted with the responsibility of managing and implementing WSMP. The guidelines identify the Gram Panchayat as responsible institution for implementing the projects under the guidance and supervision of Project Implementing Agency (PIA). Accordingly, it was found that the village Panchayat had carried out different activities of the project under the guidance and supervision of DPAP unit, which was acting as the PIA for the watershed. These activities included undertaking watershed treatment/development work, making payments for development work and forming different groups, such as Self Help Groups and User Groups[2]. Under the watershed treatment/ development activity, it was found that the village Panchayat under the overall guidance of DPAP unit has largely carried out construction work. A number of physical structures meant for rainwater harvesting were constructed in the last 3 years. Villagers told that these structures were of great use to them. It was reported that these structures have helped the farmers in storing the surface rainwater through checking water runoff. Many villagers were of the opinion that

these structures, besides checking the water runoff, also helped in recharging the groundwater and checking soil erosion.

Normally, the rainwater harvesting structures that are constructed in watershed area are check-dams, contour bunds, farm ponds, gully plugs, etc. These structures play a major role in managing and conserving the soil and water resources. However, the decision to construct a particular kind of structures depends on the geological and geographic conditions of watershed, besides the funds available for developing watershed areas. Considering these factors, the DPAP unit has focused on constructing three structures, namely, gully plugs, bunds and check-dams for the watershed area studied. The construction of these structures involves low cost and can be constructed with the locally available materials. Hariyali guidelines also endorse low cost soil and water conservation technologies. Accordingly, it was noticed that most of the bunds that were constructed were earthen bunds, i.e., they were built using mud. Bunds are small barriers that are constructed primarily to conserve water and check soil erosion. Bunds constructed along the contour line are considered as most effective methods for retaining the soil moisture in watershed areas. This is due to the fact that monsoon runoff can be impounded by constructing bunds which, in turn, increases the concentration of rainwater where it falls and consequently allows more water to percolate into the soil. Besides retaining the water, bunds were found to be useful in checking soil erosion as they reduce the velocity of water. Most of these bunds were found to be located in agricultural lands of the farmers. Almost all the farmers who benefited through the bund construction activity of the programme were found stressing the

effectiveness of them in controlling soil erosion and conserving water.

Besides bunds, it was noticed that the implementing agency has also constructed gully plugs under the WSMP. Gully plug is one of the simplest methods for controlling soil erosion. In general, gullies are formed due to the erosion of top soil by the flow of rain water. The gully formation starts with small rills, and gradually, develops into deeper crevices. Over a period, these gullies assume a big shape or take form of ravines, if they are left unplugged. Ravines represent extensive form of gully erosion. Gully erosion not only damages the land, but also contributes in sedimentation process of rivers and dams. Therefore, it is essential that gullies under the watershed areas need to be plugged on priority basis. Gully plugs are earthen embankments usually constructed for checking the active and erosion-prone gullies. Once gully plugs are constructed, the pace of gully formation reduces as these barriers control the soil erosion, and gradually, the process of gully formation gets stabilized. In the study area, such gullies were noticed in the agricultural fields of few farmers. However, these gullies were not so large in size. Farmers reported that under the programme plugs were constructed across these gullies. It was found that stones were laid layer after layer for constructing a wall across these gullies. The farmers informed that they have benefited through these gully plugs.

Along with the construction of bunds and gully plugs, it was observed that implementing agency had also constructed few check-dams at selected locations. Check dams normally act as a barrier to the flow of water and impounds water against this barrier. It cuts off the runoff velocity and reduces erosive

activity. The water stored under its catchment not only improves the soil moisture of the adjoining areas, but also allows water to be percolated through soil to recharge the aquifers. Though the check dam serves most of the purposes similar to bunds, it differs in terms of magnitude and construction process. In comparison to bunds, these check-dams can store large quantities of water and require technical assistance (unlike bunds) for its construction. The construction of check dam first prerequisites the topographical survey of the area. It was reported that Junior Engineer (posted at DPAP unit) generally carries out such topographical survey along with the help of villagers. Once survey is completed, the decision on the location and height of the check dam is taken in consultation with the villagers. After deciding the location and height, a detailed technical report is prepared by the Junior Engineer. This report usually contains the technical details of the designs, location and estimated cost of the check dam. Once BSA endorses the report, the actual construction work starts in the field. In general, the check-dams can be either completely earthen or fully masonry structures. However, the researcher found that most of the check-dams that were constructed under the programme involved both earthen and masonry work. They were about 2 to 3 meters in height. At the centre of these check-dams, one can find a masonry wall. The check-dams allow a minimum amount of water to get stored in its catchment while the excess water is allowed to flow over this masonry wall.

It was found that, along with these physical structures, activities related to horticulture were also carried out under the WSMP. Under the horticulture activities, tree plantation was taken up. It was found that saplings of fruit bearing trees and shrubs were planted near the bunds. The rationale behind

planting the saplings near these bunds was the availability of water and existence of moisture in soil near these bunds, which, in turn, allows the plants to grow properly. Moreover, the plants will not die due to the absence of water. Officials told that the plantation of trees intended to serve two major purposes. It generates an additional source of income for farmers during drought periods and also increases the fodder availability in the village.

Thus, it is apparent that under the WSMP major activities were related with soil and water conservation, such as, bunds, gully plugs and check-dams, besides plantation of fruit bearing saplings. Apart from the contribution of WSMP to rejuvenate natural resources, the other development interventions like National Rural Employment Guarantee Programme were found to be having implications on natural resources.

National Rural Employment Guarantee Act (NREGA)

National Rural Employment Guarantee Act (NREGA) is a development scheme of Government of India that was passed in 2005. It is playing a significant role in addressing the issues of poverty, particularly in rural areas. The act aims to provide at least 100 days of guaranteed wage employment in the form of unskilled manual work to every rural household in a financial year. It aims to enhance the livelihood security of the rural households in particular by ensuring a legal right to work for hundred days to rural population. Through this step, the Act intends to eradicate poverty in the long run. Under this Act, the Gram Panchayat has been given a significant role in implementing the scheme. The Gram Panchayat, along with other responsibilities[3], is entrusted with the responsibility of generating employment opportunities at the village level. For

this purpose, Gram Panchayat is entitled to carry out different activities in collaboration with Gram Sabha, Block and District Panchayats and other government functionaries. In *Pataaripur* Gram Panchayat different works were undertaken since 2008 under this scheme. It was found that Gram Panchayat during the initial years of NREGA implementation has focused mainly on two works, namely, soil and water conservation work and tree plantation. Both these works were found to be successful in generating employment opportunities for the villagers.

Under the soil and water conservation work, Gram Panchayat has mainly constructed farm ponds and has built bunds on the agricultural fields of the farmers. Farm ponds are water harvesting structures that are constructed on the agricultural fields. It is primarily used for storing the monsoon rainwater and can serve different purposes. A farmer can utilize this stored water for irrigation purpose, feed his livestock, meet the domestic requirement of water, and so on. Therefore, a farm pond has a great significance in the rain-fed cultivation and useful to those farmers whose fields are located in the upland area of watersheds. These structures are of immense importance in Bundelkhand region where the study area is located. It needs to be highlighted that lands in Bundelkhand region are not even and, therefore, most of the rainwater is drained out from the farmers' fields. Construction of farm ponds, therefore, not only helps the farmers in retaining the water in their field, but also aids in recharging the groundwater.

Government of Uttar Pradesh, is therefore, actively promoting such construction of farm ponds under NREGA, particularly, in Bundelkhand region through a scheme known as "*Khet ka paani khet mein*" (retaining the water of fields in the fields). The

main aim of this scheme is to check the rainwater runoff and store as much water as possible in the farm ponds. The scheme is particularly targeting small and marginal farmers. It intends to help them in increasing their crop production by providing irrigation resource in their field itself. The scheme, therefore, categorically states that 50 percent beneficiaries should belong to schedule castes or tribes while the rest of the beneficiaries should be from below the poverty line. Importantly, it was found that, in *Pataaripur*, Gram Panchayat has constructed six farm ponds on the agriculture fields of such farmers (largely belonging to below poverty line). Each of these farm ponds has a surface area of 400 square meters (20x20) and 3 meters depth. These farms are located on the lower end of the slope of the field in order to ensure adequate water supply into it. For constructing these farm ponds, the services of the villagers were hired under the NREGA scheme. In fact, it was observed that the villagers (including women) possessing job cards were moving from their houses along with implements (shovel and pan) during lean summer season in the morning to the farms to dig the ponds. These farm ponds got completely filled with water during the monsoon.

Along with these farm ponds, the Gram Panchayat under the NREGA scheme has also constructed contour bunds at two places. Contour bunds are considered as effective structures to conserve soil moisture in relatively low rainfall areas. Contour bunding involved construction of small bunds at short intervals across the slope on the contour of equal elevation. Each contour bund acted as a barrier to the flow of water, thereby impounding water, and, thus, allowing the soil to absorb more water, which consequently increases soil moisture. This interception of water, in turn, reduced the speed of water, and

thus checked soil erosion. The beneficiaries under these contour bunds stated that these structures are effective in conserving soil and moisture, besides checking the water runoff.

In addition to this, *Pataaripur* Gram Panchayat under the NREGA scheme has also carried out a plantation drive in the village. Considering the fast rate of deforestation across the Bundelkhand region, the plantation of trees attained great significance. Tree plantation offered many direct and indirect benefits. The long-term beneficial effects of such plantation drive on rainfall pattern, soil erosion prevention, improvement in soil condition, etc., have been well recognized by the village community in *Pataaripur*. It was notice that under the plantation drive, saplings of fruit bearing trees, such as, citrus, guava, mango, jackfruit, lemon, *mahuaa* (*Madhuca longifolia*), *imli (Tamarindus indica)*, etc., were planted on the fields of farmers. This decision of planting fruit saplings ensured the usufruct benefits of fruits, fuel and fodder. These saplings were planted either near to the farm ponds or near the bunds so that they do not die due to lack of watering as stored water in these structures ensured availability of water. It was found that such plantation drive was carried out at three locations in the village. The two locations were near to two respective farm ponds of two individuals, whereas the other location of plantation was near to the check-dam that was constructed under NREGA. The saplings were planted on the fields of four farmers that were located adjacently. Unlike the former two locations, this location is near to the village, alongside the road, and is, easily accessible.

It was reported that even for plantation work, labour services of farmers were utilized under NREGA scheme. Farmers who

worked for this activity told that they provided their services in digging pits and planting the saplings. Few young farmers were employed for erecting fence around the location where saplings were planted. The plantation that was near to farm ponds was left without fencing. Villagers stated that the plantation near to road was fenced, as it is easily accessible than the other two locations, and is more prone to officials visits and scrutiny. Hence, the plantation is maintained, carefully looked after and fenced, which is a major prerequisite for it.

INTERVENTIONS OF DEPARTMENT OF MINOR IRRIGATION

It was found that the Minor Irrigation Department of the State has also carried out certain programmes in the past that had the bearing on availability and accessibility of irrigating resources. The Minor Irrigation Department was set up in Uttar Pradesh, primarily with the aim of developing and strengthening minor irrigation systems in the State that accounts for almost 32 percent of the irrigation potential available in the State. The Principal Secretary heads the Department at the State level. The Chief Engineer, assisted by Superintending Engineers, is responsible for management, implementation and monitoring of various developmental schemes. These schemes are executed by Executive Engineers, assisted by Assistant Engineers, at the district level and Junior Engineers at the block level. The primary objective of the department is to make farmers independent through promotion of minor irrigation systems. To meet these objectives, the Department launched several programmes, such as, digging bore/tube wells, construction of rainwater harvesting structures for recharging ground water, ponds rejuvenation, and so on. In the study village, the Minor Irrigation Department carried out two interventions, namely, digging tube well and construction of rainwater harvesting

structures. It would be pertinent to mention that these interventions were implemented much before the launching of WSMP and NREGA scheme.

It was found that the department is facilitating the drilling of shallow tube wells across the State from almost two decades at subsidised rates. Though the scheme was useful to the farmers living in the plain areas of the State, the scheme was of limited use in Bundelkhand region, as the groundwater in this region is beyond the limits prescribed for shallow boring. Nevertheless, in the year 1998-99, deep boring scheme (where one can drill the bore for more than 60 meters) was launched for areas where shallow boring is not feasible. Under this scheme, 50% of the cost of boring, pump set and its installation and cost of construction of pump house, subject to a ceiling of Rs 1 lakh, is payable as subsidy. It was found that some of the farmers (particularly belonging to Lodhi community) in the village have utilized the deep boring scheme in order to gain access to groundwater for irrigation purpose.

Although the main aim of the Minor Irrigation Department is to bestow farmers with access to groundwater, it also played an active role in rainwater harvesting activities in the past. For such activities, the department was involved in constructing different water harvesting structures, such as check-dams and bunds, across the State, and particularly in Bundelkhand region, primarily with the intention of recharging groundwater and providing surface water as another means of irrigation. While conducting fieldwork, researcher came across such soil and water conservation structures (check-dams and bunds, in particular) that were constructed by the Minor Irrigation Department on the agricultural fields of few farmers. It needs to

be mentioned here that these structures were constructed much before the intervention of WSMPs and NREGA scheme in the village. Even the officials of DPAP unit also corroborated this fact that few rainwater harvesting structures were already present in the fields of farmers. They informed that the Minor Irrigation Department had not only constructed such structures in the *Pataaripur*, but also in other villages of the district.

PRIVATE BORE WELLS

Along with the government subsidized tube wells, it was noticed that villagers also use the services of private drillers to dig bore wells. These private drillers, unlike government one, charge comparatively less, do not require any documentation work and provide ready service without any delay. Further, in case of private drilling, a farmer need not invest on purchasing submersible pump and construction of pump house, which are mandatory for the government subsidised tube wells resulting into increase in cost. The major difference between the tube and bore well is that in former water is drawn through submersible pumps which requires either electric connection or separate generator to operate. Whereas, in case of bore well, water is drawn out from the hose pipe connected with a pump, which is kept near well and does not require separate generator, thereby saves cost. It was found that due to its cost effectiveness farmers went for bore well irrigation.

INSTALLATION OF ELECTRIC SUB-STATION AND POWER SUPPLY

Electricity is very essential for running the tube wells and is cost effective when compared to using generator for running tube well as diesel is more expensive than electricity. Villagers reported that till four years back the electricity was supplied only for four to five hours directly from Lalitpur main power

sub-station as there was no power sub-station in Virdha block. Villagers experienced frequent power cuts. However, in 2004, a power sub-station was established in the block headquarter. Villagers reported that after its installation, the village receives eight hours of power supply with good voltage. It was found that this proved handy to those farmers who owned tube wells.

While the above development programmes were useful in harnessing natural resource, there are other development programmes that have a bearing on the livelihoods of the people in the village. These also have a bearing on the use of natural resources.

II

In general, one can find various development programmes that are not directly associated with the natural resources are being implemented across the villages in Uttar Pradesh. However, these programmes support farmers in securing food, shelter, medicine, etc., by providing different facilities. This, in turn, makes farmers to save some money, which they spend on other things like purchasing water for irrigation, hiring tractors to plough their fields, owning their own sources of irrigation, etc. Some of these programmes, which were found in study area, are discussed under this section. All these programmes together contributed towards the holistic development of the village and its people.

A significant proportion (more than 60%) of the Indian population depends upon agriculture for their livelihood. This is one of the primary reasons for agricultural sector being central to most of the strategies or interventions of Indian government. From time to time, Government of India had implemented various schemes and programmes that aimed to strengthen and

sustain the growth of agriculture sector. One such scheme that was launched almost a decade back is Kisan Credit Card (KCC).

Kisan Credit Card (KCC)

KCC Scheme was introduced by the Finance Minister in the Union budget for the year 1998-99. The scheme intends to fulfil the short-term credit needs of the farmers. It aims to provide timely and adequate credit to the farmers in a cost effective and flexible manner. Under this scheme, a farmer is entitled to seek credit for crop production. The scheme also provides credit for ancillary activities related to crop production (purchase of agricultural inputs required for production of crop, purchase and maintenance of agricultural equipments or machinery, payment of electricity bills, etc.) and working capital needs for non-farm and allied activities. It is being implemented across the country through Commercial Banks, Regional Rural Banks (RRBs) and Co-operative banks. Farmers who are land owners are eligible to avail KCC facilities to meet their credit needs from any of these financial institutions, subject to fulfilling their lending conditions.

It was found that a significant proportion of farmers in the village posses Kisan Credit Cards. The rural branch of Punjab National Bank located in the block headquarters has been issuing KCC cards to the farmers. Farmers reported that there are two main criteria for availing the cards from the bank. First, the farmer should own a minimum of 1 acre of cultivable land (that can be mortgaged to the bank) and secondly, he should have good track record in his transaction with the branch. A farmer meeting these eligibility criteria is issued a credit card-cum-pass book for a separate credit account, which contains the name, address, particulars of landholding, borrowing limit,

validity period, etc. This credit card-cum-pass book acts as identity card and helps the bank in recording the transactions that the farmer has made. It was found that farmers do not have uniform credit limit. Farmers reported that one of the critical factors that bank takes into consideration while fixing the credit limits of the beneficiary is his amount of landholdings, followed by his repayment record. It needs to be highlighted that each KCC is valid for three years subject to annual review. Generally, the bank fixes a lower credit limit in the first year and continues or increases the limit after evaluating the performance of the borrower. It was found that the credit limit of large and medium landholders is comparatively higher as compared to the semi-medium and marginal farmers (table 3.1).

Table 3.1: Landholding Wise Availability of KCC

	MARGINAL (0.01-1.00 HA)	**SMALL (1.01-2.00 HA)**	**SEMI-MEDIUM (2.01-4.00 HA)**	**MEDIUM (4.01-10.00 HA)**	**LARGE (>10.00 HA)**
KCC	1	11	23	17	5
LIMIT RANGE	20000	10000-33000	20000-75000	40000-1.25 lakhs	30000-1.1 lakhs
YEAR RECEIVED	2007	2005-2008	2002-2008	2002-2007	2003-2005

It is also apparent from the table that the number of marginal and small farmers using KCC has gradually increased in the last three years reflecting the increased demand for it among farmers. When asked about the activities for which they use the card service, most of the card holding farmers reported that they have taken credit for digging bore wells, for purchasing agricultural inputs, such as seeds, fertilizers, pesticides, and so on. Few of the farmers reported that they have also used the credit for purchasing tractor.

Public Distribution System

PDS is a social welfare programme through which food grains are supplied to the poor at a subsidized price. However, the system in the past had received criticism largely for its failure in serving the intended beneficiaries, mainly, population living below the poverty line due to various reasons. The introduction of special cards to BPL families and the instruction to sell food grains under PDS at specially subsidised prices from year 1997 are intended to ensure food security. This new restructured system is known as Targeted Public Distribution System (TPDS).

The Food and Civil Supplies Department, which is responsible for proper functioning of PDS in Uttar Pradesh, has also adopted this new system. Under this new system, four schemes, namely, BPL Yojana, Above Poverty Line (APL) Yojana, Antyodaya Anna Yojana (AAY) and Annapurna Yojana (AY) were introduced in the State. It was found that most of the families in the village are receiving the benefits under one or the other scheme. Each family falls under one or the other categorization, and, accordingly, they are issued different colours of ration cards. For instance, BPL families possess white colour ration card while APL families have yellow colour ration card. Families falling under AAY were issued pink colour ration card. Each of these cards bears the name of the head of the family. Villagers told that for each card there is a fixed quota of commodities which a farmer can purchase. BPL families possessing white colour ration card is entitled to have 23 kg wheat (@ Rs.4.65/kg), 12 kg rice (@ Rs. 6.15/kg), 3 litre kerosene (if family has gas connection) and 5 litres if the family does not have any gas connection (@ Rs. 9.85 to 10.25 per litre) and 700 gms sugar per unit (@ Rs. 13.50/kg) per month. Similarly, APL

families possessing yellow ration cards can buy 23 kg wheat and 12 kg of rice at the rate of Rs 6.60/kg and Rs. 8.45/kg, respectively. Like BPL, APL families also get similar amount of kerosene oil and sugar on the same price. Nathu, aged 45 years, is a small landholder who owns 1.6 hectare of land. He belongs to Nai caste. He has two sons. He manages to sustain his family without much difficulty by doing farming and labour work as the size of his family is small. The food items which he receives under the PDS, he felt, certainly assists him in saving some money (as he need not spend on buying those essential commodities) and, thereby, help him in purchasing water for irrigating his fields for getting good crop yield.

Table 3.2: PDS Card Wise Distribution of Families

TYPE OF PDS CARD	NUMBER OF FAMILIES
BPL	85
ANTYODAYA	19
APL	25
TOTAL	129

On the other side, families who are extremely poor fall under AYY and are eligible to receive 35 kg of food grains, including both wheat and rice. Unlike their counterparts, they buy wheat and rice at the rate of Rs 2/kg and Rs. 3/kg, respectively. The Annapurna Yojana covers all the indigent senior citizens who are eligible for old age pension, but are not receiving it and those whose children are not residing in the same village. Such villagers are entitled 10 kg of food grains in a month free of cost. However, villagers informed about the various discrepancies in allocation of prescribed ration cards to eligible families and in distribution of these commodities. Nevertheless, families falling under below poverty line particularly reported that the

commodities, which they receive under the distribution system, come handy to them mainly during lean agricultural seasons.

The case of Raman, a marginal farmer, illustrates the point. Raman, aged 40, belongs to Aharwaar caste and owns one acre of agricultural land. He is married and has three children. His parents also stay along with him. He finds very hard to sustain the whole family alone on farming. During agricultural off-season, the condition gets further worsened as labour demand also gets reduced. He feels that the AYY card is a boon for people like him. He pointed out that due to AYY card he is at least ensured of receiving minimum quantity of grain, which comes in handy during off-season and is a supplementary source for securing essential food items for his family. The money thus saved is used on the purchase of irrigation water from the better off farmers. There are many more marginal farmers like Raman who have utilised the

Mahamaya Awaas Yojana

On the pattern of Indira Awaas Yojana (IAY), the Government of Uttar Pradesh has started another housing programme known as Mahamaya Awaas Yojana (MAY) in the year 2007. The programme, unlike IAY, is fully funded by the State government. The main objective of the programme is to help the members of Schedule Castes/Schedule Tribes in construction of their dwelling units by providing them financial assistance. The programme is exclusively meant for those living below the poverty line in rural areas. There is no specific layout or design that has been prescribed for such houses except that the floor area of the house should not be less than 20 square metres. The beneficiary is free to decide about the layout and design of the house of his/her choice. However, he/she should construct

house by themselves. Under the programme, a financial assistance[4] of Rs. 27,500 is given to the beneficiary. It is mandatory for a beneficiary to construct a sanitary latrine and smokeless *chulha* (stove) along with each house. In order to make sure that more money could be made available for construction of house, a provision has been made under the programme wherein funds can be dovetailed (wherever possible) from Total Sanitation Campaign for providing sanitary latrine.

In the study area, it was found that around five houses were constructed under this programme. All these houses belong to Aharwaar caste group. In two of the cases where the construction work was in progress, the participation of the family members was observed. A small notice board was fixed on front wall of the three houses on which the name of beneficiary, year of house construction and MAY was inscribed. When asked about the process of selecting the beneficiaries, the members of village Panchayat informed that the beneficiaries were selected based on their poverty rank. From the list of BPL households available in the village, the poorest households were selected in an orderly manner, thereby, giving benefits to the needy families first. Although the beneficiaries, in general, were satisfied with the programme, as they had their own pucca houses, they reported about the delay in completing the construction of houses as funds were released based on the progress of the activity undertaken.

ANUDAAN YOJANA FOR GIRLS' MARRIAGE AND FOR TREATMENT OF ILLNESS

The State government has been implementing another significant programme for the poor families belonging to General and Schedule Caste. Under the programme, financial assistance

is provided to the families for the marriage of their daughter and towards the treatment of ailing family members. However, the financial assistance is provided only to those families whose annual income does not exceed Rs. 25,546 in areas near to the city and Rs. 19,884 in rural areas. The amount of financial assistance given to a family for marrying off their daughter is Rs. 10,000 while for treatment of illness it is Rs. 5,000. Few villagers have reported receiving such financial assistance when they got their daughters married.

III

It follows from above account that the village, particularly in the past ten years, has witnessed development interventions under various programmes that had implication on natural resources utilization, conservation and management. The introduction of deep bore well scheme and credit facilities almost in the same time period has provided easy access of groundwater to the farmers. The soil and water conservation activities that were undertaken initially by the Department of Minor Irrigation were continued predominantly under the WSMP and NREGA. This, in turn, resulted in two fold benefits. On the one hand, more and more farmers got benefited as they could augment rainwater in their fields as number of such structures kept increasing and could use the stored surface water for irrigation purpose. While on the other hand, these structures continued to play a significant role in recharging groundwater. It was also found that the installation of power sub-station at the block further accelerated the use of tube-wells with increased hours of power supply. Along with these development interventions, village had also witnessed other social welfare programmes, which, to a large extent, supported the livelihoods of poor in the village

(mainly marginal and small landholders), besides providing them food and social security in terms of PDS, free houses, etc., and consequently helping them to invest in farming to get better yield.

End Notes:

1 Wastelands are the degraded lands, which are not being used currently, are deteriorating due to lack of appropriate water and soil management, and can be brought under vegetative cover, with reasonable effort.

2 It was noticed that the Panchayat has given more emphasis on the activities related to watershed treatment/development work and neglected the activities falling under other components (like forming groups, community mobilization) of the watershed management programme.

3 Registration of households which are entitled to get work, issuing job cards, allocating employment, executing works, and monitoring the implementation of the scheme at the village

4 This amount is for seven districts that fall under Bundelkhand region. While for other areas the amount is Rs. 25,000.

CHAPTER IV

CHANGING LIVELIHOOD RESOURCES AND STRATEGIES

Communities residing in villages primarily derive their livelihood from natural resources existing in their immediate physical environment. However, the decisions that determine their strategies for obtaining livelihoods largely depend on the availability, accessibility and utilization of these natural resources as well as the technological resources to harness these natural resources at optimum level. For instance, communities residing in semi-arid regions may have large amount of land, but in the absence of proper irrigation system or erratic rainfall they may not consider land as an important resource for obtaining their livelihood. Therefore, these communities may not choose farming as their subsistence activity; rather they may prefer migration or combination of farming and migration as an alternative strategy for obtaining livelihoods depending on the situation. However, the introduction of a development programme (for instance, canal irrigation system, which can promise the availability of irrigation round the year) may force the communities to reconsider their decision and make them to choose farming as their primary livelihood strategy. Similarly, people residing near forest area may consider forest as their prime source of livelihood despite having land as they may not have proper wherewithal to cultivate that land.

Any development intervention that assists the community in acquiring the relevant technologies may influence their choice of considering farming as the prime livelihood activity. It has been evident that most of these technological resources in rural communities are largely provided through development

interventions. Therefore, the influence of any such development interventions on availability, accessibility and utilization of livelihood resources have a bearing on the decision making systems of the communities that, in turn, determine the livelihood strategies of communities. In other words, the decision regarding what would constitute their primary and secondary livelihood activities to a large extent depends on these factors.

Like any other village, various development programmes have been implemented in *Pataaripur* from time to time, which have been influencing the availability, accessibility and utilization of natural resources and the livelihood strategies of the community. Further, WSM programme is acting as a catalyst to these changes. Hence, an attempt has been made in this chapter to understand this process in *Pataaripur* by recapitulating the development interventions (in chronological order) that had been taking place in the village and analyze their bearing on the availability, accessibility and utilization of natural resources across the village community. In this regard, the chapter discusses about the traditional livelihood resources and strategies of the villagers and the changes witnessed among them due to development interventions. Finally, it also discusses about the implication of these changes on livelihood strategies. Besides this, the chapter also reflects on how traditional disparities in terms of availability, accessibility and utilization of livelihood resources allow certain groups to receive more benefits from these development interventions than the other groups, and thereby, lead to unequal distributions of benefits of development interventions.

I

LIVELIHOOD RESOURCES AND STRATEGIES IN THE PAST

This section examines the availability, access and utilization pattern of various livelihood resources across the village community and the kind of livelihood strategies which villagers used to adopt to eke out their living in the past. It would be pertinent to note that the term 'past' does not merely refer to the time period immediately before the WSM programme but includes the time, say about 15 years back, when there were no major development interventions in the village that could have a bearing on the availability, access and utilization of natural resources. The rationale for considering the 'past' in this perspective is because 'change' is not considered as mono-causal but multi-causal. Since we are interested in understanding the process of change, we need to adopt historical perspective to understand 'past' and look at multitude of factors that have contributed towards the changes. The data for this section has been largely drawn from repeated interactions with many of the elders in the village and substantiated with number of case studies collected during fieldwork. Observation of various practices, norms, and rules that are still in vogue in the village helped in understanding the past practices. However, before we proceed with the analysis of past livelihood resources and strategies, it would be apt to briefly discuss the history of the village. This would give us an idea about social stratification and disparity which existed in terms of availability, access and utilization of various livelihood resources across different communities in the village.

The original settlers of *Pataaripur* were Lodhis, a dominant caste-class in the village. Lodhis of the two largest lineages in the village traces their descent back to Heeralal Singh and

Raghuveer Singh, who were the founders these lineages. Bhoopat Singh, one of the eldest members of this lineage[1], told that the forefathers of Heeralal and Raghuveer were the original inhabitants of the village and owned large tracts of lands in the village. The concentration of land in the hands of Lodhis helped them in establishing their economic dominance over others in *Pataaripur*. It is pertinent to note that in agricultural based economy, the ownership of land is of great importance. It not only bestows prestige and status but also accords privilege position and a high status in local power structure. Since they were landlords, they were also honoured with the titles of *Maate*, Muqaddam and *Lambardaar* by the colonial rulers and were made responsible for revenue collection and administration of the village. Powell in his study mentions that, 'a single headman who was selected to answer the revenue related matters and deal generally on behalf of the villages with the British officers, was called Muqaddam. Such a headman has received the title *Lambardaar* and his name bears a separate 'number' in the Collector's register of persons primarily responsible for the revenue' (1892: 153). Since these titles were hereditary in nature, it kept on passing from one generation to another. On the other hand, the other caste-class groups like Aharwaar, Lohar, Kutwaar, etc., were tenants and had worked for Lodhis. However, gradually due to the agrarian reforms relating to abolition of zamindari system and ceiling on land-holdings[2] during post-independence era the tenants were received land entitlement. However, disparity in terms of landholding still exists. A marked difference in land ownership across different caste-class groups was found in *Pataaripur*. It was found that most of the cultivable lands are owned by Lodhis and their proportion is remarkably high in the large land holding category (Table: 4.1).

Table 4.1: Distribution of Agricultural Land across Caste Groups

Caste	Landless (<0.01)	Marginal (0.01 -1.00)	Small (1.01 -2.00)	Semi-Medium (2.01 -4.00)	Medium (4.01 - 10.00)	Large (> 10.00)	Total HH	Total Pop.	Total Land in hectare (%)
Brahmin	0	1	1	0	0	0	2	16	2.1 (0.4)
Sahoo	1	0	0	0	0	0	1	5	0.0
Lodhi	1	2	6	27	21	7	64	623	349.3
Kushwaha	0	4	2	9	0	0	15	139	31.6
Kalaar	0	2	1	1	0	0	4	25	7.5 (1.4)
Nai	0	1	7	2	1	0	11	92	22.1
Lohar	0	3	4	1	0	0	8	61	11.7
Paal	0	1	1	0	1	0	3	28	9.7 (1.8)
Khangaar	0	1	1	1	1	0	4	40	13.8
Kutwaar	0	0	1	1	0	0	2	23	4.9 (0.9)
Kacherri	1	0	0	0	0	0	1	5	0.0
Aharwaar	2	3	18	12	0	0	35	263	65.2
Dhobi	0	0	1	2	0	0	3	28	8.5 (1.6)
Total	5	18	43	56	24	7	153	1348	526.3

It reflects that the agrarian reforms were not quite effective in diluting the dominance of Lodhis. It was found that the members of these lineages are still being identified and addressed with their traditional titles. This practice is not only confined to the members but also to their house, assets and everything which belongs to them is identified with these titles. The prevalence of these traditional titles in *Pataaripur* even now reflects that the economic and political dominance of Lodhis has not weakened and they still hold influence and authority in local power structure.

Nevertheless, it is apparent from the table that the upper caste-class, which generally enjoys higher ritual and social status, is neither numerically or economically strong. They constitute 2 percent of total population and own only 0.4 percent of total agricultural land. On the other hand, Lodhis enjoy dominant status due to their high numerical strength and strong economic position. They own more than half of total agricultural land and constitute 46 percent of total population. Though Aharwaar, in comparison to Brahmin and Lodhis, occupy lowest position in social hierarchy, are both numerically and economically dominant as they form 20 percent of population and own 12 percent of land. Kushwaha, Nai and Lohar whose numerical strength is moderate, own only 6, 4 and 2 percent of land thereby making them to be dependent on resource rich farmers for technological inputs. Other caste-classs, like Kalaar, Khangaar, Kutwaar, Kacherri and Paal do not wield much influence both due to their meagre productive resources and lower population size.

Traditional farming system

Most of the elders belonging to different caste-class groups, during informal interviews, reported that traditional farming system was comparatively very different from the existing one. They opined that the earlier farming system was largely rain-fed and was in accordance with the climatic conditions of the region. It would be apt to emphasize that Bundelkhand being the semi-arid region, had always faced the vagaries of environment, such as drought and irregular rainfall. Therefore, the crops grown under the traditional cropping system were resistant to such harsh conditions. Villagers opined that there were two major crops, namely, *kodon* (Paspalum scrobiculatum L) and *sama* (Echinochloa frumentacea) which used to be

cultivated in large scale during Kharif season. These crops were capable enough to survive under severe drought. Villagers reported that their deep penetrating roots help the plants of these crops in retaining soil moisture, and thereby, help them to survive even during low rainfall. Villagers told that the prerequisite for a good yield of these crops (and particularly *kodon*) is that there should be a gap of six months between two crops of *kodon*. The field should be left uncultivated for a period of six months after the crop is harvested. In other words, the Rabi crops should not be grown on the same fields where *kodon* was grown. Villagers told that this was very much possible in the past as people cultivated Rabi crop (mainly wheat) on those fields that were near to the well. Besides this, villagers were cultivating wheat only for self consumption in the past. The fields surrounding the wells were sufficient enough to produce subsistence level yield. Thus, the fields where *kodon* were grown remained uncultivated during Rabi season and villagers could grow *kodon* in these lands during kharif season.

Leaving field uncultivated for one cropping season was unproblematic for the medium and large farmers. However, farmers having limited land (mostly marginal and small farmers) faced difficulties. Therefore, they used to take on lease such uncultivated land from large landholders. In fact, one of the key informants, Ramu, aged 50 and belonging to Kushwaha caste, stated that in the past he (and other villagers also) had borrowed such vacant lands from Lodhis and other villagers who had large amount of land to cultivate *kodon*. He told that since he had limited land, he never had the option of cultivating *kodon* as every *Rabi* season he had to grow wheat, and thereby, could not leave the field uncultivated – a major prerequisite for producing a good yield of *kodon*. Many times, he had attempted

to grow *kodon* on the same field, but every time the yield was less in comparison to the yields received when cultivation is done on the land left fallow during *Rabi*. So, he used to lease in vacant lands (*baatha*) from large landholders to grow these crops. The lease in condition was that for every 100kgs of yield, he has to share 25kgs with the landholders. It would be pertinent to note that *kodon* and *sama* are still in demand in local markets of Lalitpur and Paali.

Besides these two crops, *Jonai* was another crop that used to be grown in large scale during Kharif season. Villagers reported that this crop is not cultivated now-a-day in large scales as it takes comparatively more time to ripe, which, in turn, delays the cultivation of cash crops during Rabi season. However, this was not the case earlier, as the concept of cash crop was absent among the villagers. As mentioned before, the traditional crop for the Rabi season was mainly wheat. Within wheat, there were two varieties which villagers used to cultivate. One was called as *katiya gehoon* while the other one was known as 360. The former variety was a *desi* (local) variety while the latter is a hybrid one. This variant of wheat (360) was introduced in eighties. However, villagers consider this also as a *desi* variety since they have been growing it from a long time.

Traditional systems of irrigation

Considering the fact that farming was one of the prime livelihood strategies in the village, the availability, access and ownership of irrigation facilities is another critical aspect that needs to be analyzed. It is evident that villages all over the country had different kinds of infallible traditional irrigation systems. Most of these systems were largely based on the principles of water harvesting. For instance, tank irrigation

systems in South India, well and pond irrigation systems in semi-arid areas had been known for their efficient working (Sengupta, 1993; Somaratne et. al, 2005). These traditional irrigation systems not only provided water for irrigation but were also instrumental in regenerating groundwater. Such traditional irrigation systems are still prevalent in some parts of India and *Pataaripur* is no exception. It was found that traditionally the village had two major systems of irrigation, namely, well and pond based irrigation. Villagers reported that most of these wells were dug by them. One of the key informants, aged around thirty years, told that when he was young he has dug many wells in the village and has also laid stone bricks on the interior surface of wells to prevent soil from falling into the well. Nevertheless, villagers reported that almost 80 to 90 percent of irrigation was done only through wells. In fact, till fifteen years back, wells were the only source of irrigation (available) in the village and farmers mostly had relied on them to irrigate their fields. It was found that almost 60 percent of the villagers have wells in their agricultural fields. A caste wise analysis of ownership of wells reveals that Lodhis own maximum of them (Table 4.2).

Table 4.2: Caste-wise Distribution of Wells

Caste	No. of Households Owning Wells
Lodhi	50
Aharwaar	13
Kushwaha	8
Nai	7
Lohar	4
Dhobi	3
Paal	3
Khangaar	2
Brahmin	1
Kutwaar	1

It would be pertinent to note that the well irrigation was used primarily for growing wheat as it was their staple food. However, those farmers who did not have wells were dependent on small ponds (located within fields) to irrigate their crops. When asked about the adequacy of pond water for irrigating wheat, villagers reported that since the traditional varieties of wheat requires one time irrigation, the water collected in ponds were sufficient to provide one time irrigation. Besides well and pond water, villagers in the past had also used water that gets collected behind the check-dams for irrigating wheat, the main *Rabi* crop. It would be pertinent to highlight that before the WSM programme came into picture, the soil and water conservation activities were under the minor irrigation department and the department had constructed check-dams and bunds across different villages of the State. *Pataaripur* was also the beneficiary of these programmes of minor irrigation department. Few check-dams in the fields of some farmers were constructed by the minor irrigation department. Few such check-dams and bunds that were constructed the minor irrigation department were noticed during the fieldwork. Nevertheless, the water accumulated behind these structures had been used for irrigating the Rabi crops. According to villagers, all these traditional sources of irrigation were quite effective.

Traditional Ploughing Resources

Draught animals were the main ploughing resources in the village. Villagers reported that till ten to fifteen years ago ploughing was largely done using oxen/bullocks. However, farmers were never able to plough their entire fields. This is because ploughing through animals is a time consuming and tedious activity and does not allow farmers to prepare large fields for sowing. Villagers reported that different steps have to

be meticulously followed to prepare fields for Kharif as well as for Rabi season. However, the time required to prepare the fields for Kharif crops is comparatively less than Rabi crops as the fields do not require much watering. Villagers told that immediately after receiving the first or second shower of monsoon, the field needs to be ploughed. However, if it rains heavily, field cannot be ploughed immediately as the heavy rains makes soil damp, which, in turn, makes it difficult for bullocks to walk through it. Hence, a farmer has to wait for three to four days so that the field becomes hard enough for towing bullocks on the fields. This stage, wherein bullocks can be towed on the field is referred to as *batar aana* in local language. After ploughing is done, farmers sprinkle seeds on ploughed fields and leave the field to allow the crop to grow.

Once the Kharif crops are harvested, the field remains vacant generally for a month, which, in turn, results in germination of weeds. Therefore, the first step to prepare field for Rabi crops is to remove these weeds. This is done through ploughing the fields. Villagers reported that ploughing uproots the weeds from the fields. In local terminology, this activity is known as *bhakhani karna*. Ploughing, besides uprooting the weeds from the fields, also kills all insects found in soil by exposing them to sunlight as ploughing overturns the inner layer of soil. The ploughed field remains untouched for two days so that soil gets exposed to sunlight for a good amount of time. In these two days farmers collect the uprooted weeds, put them in one corner of the field and burn them after two days.

Once the weeds are removed and soil gets sufficiently exposed to sunlight, farmers start watering the field. The watering activity is called as *palewaa karna*. Traditionally, the watering was done

either through the well or pond water. Once watering is over, the fields are again left for two to three days. After two days, farmers sow the seeds (mainly wheat) with seed drill attached to plough. When villagers were asked about the time involved in ploughing an acre of field, they told that on an average it takes around five to six hours (if farmer continuously ploughs the field - which is usually not possible). This time taking process of preparing the fields for Rabi crops and the requirement of intense manual labour had always restricted the villagers from cultivating large tracts of agricultural lands.

This being the case, since ploughing was largely done using bullocks, possession of these livestock was essential. Villagers reported that usually each household in the village had a pair of livestock for ploughing. However, there were few households who had more livestock than the others. Most of these households belonged to Lodhis and Kushwaha. Therefore, these groups were always in an advantageous position as they were able to cultivate more land and produce more.

Alternative Livelihood Resources and Strategies

It is apparent that land had been the major livelihood resource in the village and farming was the major livelihood strategy in the past. The other resources that were available in the village in the past and were used on comparatively larger scale can be broadly classified into following categories –

(a) Common property resources

(b) Private property resources

The common property resources were mainly forest and road side plantations while the private property resources were the private plantation of fruit bearing trees on the individual fields

of farmers. The availability, accessibility and utilization pattern of all these resources are discussed hereunder.

Forest had been an important resource for the villagers in the past and was an important contributor to their livelihoods. Villagers reported that a dense forest range had been located near to the village almost fifteen years ago. However, over a period of time, the size of this range has been reduced to few hectares. Nevertheless, it was reported that the forest range was very useful to all the villagers as it was the grazing ground for their livestock. Most of the villagers used to graze their animals there. The *Paal* (Gadariya/Pastoral) community members, whose primary livelihood activity was not farming, told that they had benefited quite a bit from this forest range in the past. Elders from Gadariya community mentioned that immediately after monsoon showers most of the land under forest range gets covered with wild green grasses and these grasses used to be fodder for their goats. In the past, many a time, they had visited the forest range to graze their goats there. There were no restrictions or discrimination in accessing the forest resources. However, no one was allowed to cut the trees, as the forest range was government protected. There were no restrictions on grazing animals and collecting fallen branches of trees. These branches were mostly collected by elder women and children.

On the other hand, the access to private lands where villagers had done plantation was restricted. It would be pertinent to note that there were many scattered patches of land that were covered with trees and shrubs. Most of these patches were privately owned and were located near to farm boundaries. Villagers mentioned that due to these trees, it used to be difficult to see village from a distance. It was reported that most

of the villagers on an average had three to four such trees on their farms. Most of these trees were fruit bearing trees, like *mahuaa* (Madhuca longfolia), mango and tamarind. The fruits of these trees were usually sold in the local market. Since the proportion of Mahuaa trees was more their yield is more than that of Mango and Tamarind. When asked for the reason behind planting Mahuaa more than the other trees, villagers reported that both the fruit and seed of Mahuaa have economic value in the market while this is not the case with mango and tamarind. In case of mango and tamarind, only its fruit can be sold.

The flowering of Mahuaa tree usually begins from the month of *chaith* and within few days the tree gets covered with flowers. However, after sometime, these flowers start shedding from the tree and keep on falling continuously for fifteen to twenty days. Each day villagers collect these flowers in the morning and evening. It is reported that from a single *mahuaa* tree around fifteen to twenty *pheles* (one phele is equivalent to 10 kilograms) of flowers can be collected. These flowers are dried at home. However, after drying a quintal of flowers reduces to fourty to fifty kilograms. These dried flowers are then sold in Lalitpur market. The selling price varies from Rs. 12 to Rs. 15 per kilogram. After blooming, the tree starts bearing fruits known as *gulenda* (in local terminology), which gets ripened during Jeth and Assad (May and June) months. Once the fruit gets ripen, children collect them and bring them home. At home, women take out the inner hard shell by removing the outer covering. This outer covering is fed to cows and buffaloes. This inner shell is called as *guli*. This *guli* is further broken with the help of a small stone to extract the seed called *dhapra*. The *dhapra* is dried in sunlight and sold in the market at Rs. 12 to 15 per kg. Interestingly, it was found that in spite of decline in the number

of trees and adoption of cash crops, villagers (across economic classes) still collect and sell these seeds in local market. Considering the economic value, access to these fruits was restricted only to the owners. Villagers reported that since Lodhis had maximum land in the village, they always had comparatively more number of such fruit bearing patches of land.

Nevertheless, villagers were allowed to cut grasses from these small patches of land but only after getting the permission of the owner. However, there is one pre-condition for cutting grasses. A villager who wishes to cut grass from these lands had to give one bundle to the owner for each two bundles of grasses he takes with him. The bundle of grass is referred to as *sailain* in local terminology. Usually, villagers used to agree for this arrangement as owner gets fodder for his livestock without any effort while the villagers get fodder for feeding their animals. This system is still being practiced by the villagers.

Besides the forest range and private plantations, villagers reported that the trees, like mango, tamarind and mahuaa, that were located on both sides of the national highway, which is very near to this village, were also useful for the villagers. They reported that the fruits of these trees provided them additional income as they used to sell them in the local market. Though these plants were under the forest jurisdiction, the fruits and fallen branches of these were allowed to be collected. However, many of these trees were cut due to road expansion, thereby depriving the villagers a source of livelihood.

II

DEVELOPMENT INTERVENTIONS AND INFLUENCE ON LIVELIHOOD RESOURCES

Having examined the livelihood resources on which villagers were dependent in the past and the strategies that they had followed in the past, there is a need to analyze changes in terms of availability, accessibility and utilization pattern of traditional livelihood resources due to different development programmes (including WSMP). Here, the attempt is to analyze the development interventions (in chronological order) and to highlight their influence on the availability, accessibility and utilization of livelihood resources. This section also highlights how the traditional disparities that existed in terms of availability, accessibility and utilization of livelihood resources help certain groups to be benefited more than the others.

Irrigation

Farming, to a large extent, depends on the available irrigation system in the region. Any change in irrigation system certainly has a bearing on farming practices. As discussed above, there have been three major irrigation resources, namely, ponds, water stored in the catchments of check-dams and wells. These irrigation resources can be broadly categorized into two, namely, surface water and ground water. It was found that the availability, utilization and accessibility to both surface and ground water resources has increased considerably after the introduction of tube/bore well technology and WSMP. The tube/bore well technology, on one hand, increased the accessibility and utilization of ground water, the WSMP on other hand, increased the availability of surface water.

It was found that most of the agricultural farms that are located towards the western side, unlike the eastern side, of *Pataaripur* don't have dug-wells because the water table (or aquifers) in these areas are found much deeper in the ground. The hard underneath soil strata found in these areas had further restricted the farmers to dug wells in earlier times as most of the wells were manually dug by the farmers themselves. Due to this, the farming in these areas was largely rain-fed and yields were low. However, a decade back the launch of deep tube-well scheme of Government of Uttar Pradesh changed the situation. It facilitated the farmers to have deep bore-wells on subsidized rate (yet expensive) which reduced the dependency of farmers on rain-fed cultivation and thus allowing them to produce more. The following case of Raghu Singh, who was the first beneficiary of the scheme, illustrates the point. He belongs to Lodhi caste and owns eight hectare of agricultural land. Like the other villagers, he too did not have any well in his fields located in the western side. One of his relatives informed him about the scheme and Raghu decided to go for the tube well. Raghu filled up an application form, got it endorsed from the engineer of Minor Irrigation Department, paid the registration fee (Rs. 1500) and submitted the same to the office of Minor Irrigation in Lalitpur. He told that after a month or so, three people came and inspected the location where he wanted to have tube well. They told him an approximate expenditure incurring towards drilling, pipes, pump set, etc. Before drilling tube well, the Minor Irrigation Department sought a geophysical survey and estimated expenditure report from a survey agency, which is hired either by ground water department or remote sensing application department, for the appropriateness of the requested place/location. Under the scheme, Raghu initially paid fifty percent of total estimated cost to the department

before getting it reimbursed from the Department. He told that he mortgaged his wife's jewellery to a moneylender at Lalitpur, took a loan of about Rs. 50,000 and deposited the money in the bank account of Minor Irrigation Department. After paying the money, it took three months to get tube well on his land. He recalled that when the huge drilling machine came to the village to drill the tube well all the villagers gathered around the site and watched the drilling process with curiosity. Almost after two hour or so of drilling, the water started gushing out from it. Villagers, who were present there, congratulated him and were indeed delighted to see good quantity of water coming out from the bore. According to the villagers, this instance was the turning point in the history of irrigation system in *Pataaripur*. Villagers noticed how Raghu could irrigate most of his lands even during deficient rainfall. The benefits in terms of access to groundwater, cultivation of Kharif crops on the west side lands and the additional income accrued to him by selling the water gradually influenced/motivated the other farmers to go for drilling tube well even with private drillers, as the government scheme is time consuming. The following case of Ram Charan, aged 31, who belongs to Lodhi community, illustrates the point.

Like many other farmers, he was also contemplating on having his own tube well. But successive low yields for the last four years have financially restrained him not to dig tube well. However, there was a good yield of Rabi crop during 2008. After repaying all his dues he managed to save sufficient amount of money for digging a tube well on his farm that was located on the western side of the village. It was observed that not even a single drop of water gushed out from the ground even after drilling 40 feet deep. In fact, it was all dry soil and stones that were pushed out by the drilling machine. Fearing that the drill

machine might get stuck inside the ground, the driller asked Ram Charan to pour at least 200 to 250 litres of water inside the bore to make the underneath soil soft so that the machine can drill further deep inside the ground. After the water was poured inside the bore, the drilling was started again. It was only after drilling further 50 to 60 feet the groundwater was gushed out. He was happy to see the water. He irrigated the next Rabi crop from the bore well water. He told that this time he will save more money as he need not purchase water for irrigation, which otherwise would have reduced his profit margin.

Ownership of Tube wells

Although owning tube wells gained momentum, but making an initial investment of such a huge amount of money from one's own pocket (before getting reimbursed from government in form of subsidy) and to wait for another two to three months (sometime more) initially restricted its adoption to only those villagers who have been economically well off (mainly medium and large farmers). It was found that most of the villagers who gradually decided to opt for the tube well technology are also semi-medium farmers.

Table 4.3: Distribution of Households Owning Tube Well

Caste	Marginal (0.01-1.00 ha)	Small (1.01-2.00 ha)	Semi-Medium (2.01-4.00 ha)	Medium (4.01-10.00 ha)	Large (>10.00 ha)
Lodhis	1	0	13	7	4
Kushwaha	0	0	1	0	0
Kalaar	0	0	1	0	0
Total	**1***	**0**	**15**	**7**	**4**

** The tube well belongs to his brother but located on his field.*

Villagers reported that though the first tube well in the village was dug around ten years back, the number of villagers owning tube wells has increased considerably in the last five years. It is apparent from the table that tube wells are mainly owned by the upper class groups, mainly belonging to Lodhi caste. Except two households of Kushwaha and Aharwaar, who are comparatively better off in their respective caste-class groups, other caste-class groups have so far not been able to own them (Table 4.3).

Ownership of Bore wells

It was found that the high initial capital investment and costs involved in owning tube well forced other farmers to look out for other options of irrigation resources like bore well which is as efficient as tube well, but comparatively less expensive and consumes less time in installation. Unlike tube well, the number of villagers owning bore wells has increased considerably in the last five years. The popularity of owning bore well was easily marked when it was observed that in merely 3 months time (mainly during post harvesting of Rabi crops, i.e., April, May, June) around 15-20 more villagers have made an attempt to dig bore wells in their fields. One of the main reasons behind its popularity is that the process involved in it consumes very less time as well as it is less expensive (also refer Chapter III). Therefore, with the introduction of tube and bore wells the access to groundwater and utilization has increased to a great extent in *Pataaripur*. However, a probe into the distribution pattern of bore wells across the households on caste and landholding basis would be worthwhile and would help in understanding the ownership pattern.

Table 4.4: Distribution of Households Owning Bore Wells

Caste	Marginal (0.01-1.00 ha)	Small (1.01-2.00 ha)	Semi-Medium (2.01-4.00 ha)	Medium (4.01-10.00 ha)	Large (>10.00 ha)
Aharwaar	1	2	1	0	0
Dhobi	0	0	1	0	0
Khangaar	0	0	0	1	0
Kushwaha	0	1	6	0	0
Kutwaar	0	1	0	0	0
Lodhi	0	0	8	9	2
Lohar	1	0	0	0	0
Nai	0	1	1	0	0
Total	**2**	**5**	**17**	**10**	**2**

It is clear that the number of caste groups owning bore wells (8 in this case) are comparatively more than those who own tube wells (only 3 caste groups) reflecting the affordability of bore wells particularly among economically weak caste groups, such as, Kutwaar, Lohar and Nai who found it difficult to own tube well. Interestingly, all of them are marginal and small farmers (except one household that belongs to semi-medium category). It also points out their desire to have some sources of assured irrigation which help them to face the monsoon vagaries and also help them to get good yields. Similarly, we find a more number of semi-medium and medium farmers having bore wells (Table 4.4).

Thus, it is evident that both tube and bore wells have increased the accessibility and utilization of ground water resources (though their ownership remain uneven, it increases both within and across different castes). On the contrary, the WSMP helped in adding to surface water. As stated earlier, surface water was also used for farming in the past. Under the WSMP, water

retaining structures like bunds and check dams[3] were constructed that has increased the availability of and accessibility to surface water besides regenerating groundwater. As mentioned in chapter III, the concurrent launch of NREGA programme has further increased the availability of surface water in the village. It would be apt to mention here that NREGA programme was initiated in *Pataaripur* in the year 2006, a year after the launch of WSMP in the village. It was found that under this programme too such water retaining structures (mainly check dams and farm ponds) were built for conserving, retaining surface and replenishing groundwater. This, in turn, further increased the availability and accessibility of surface water.

It was found that the beneficiaries of these structures were spread across different caste groups and landholders, as these structures were constructed across the village. It was also found that these structures made a significant contribution towards groundwater recharging. The water in Lalitpur is mostly found in creeks. Most of the surface water percolates down to the ground and stored in these creeks. Hence, surface water control structures play a significant role in water percolation. Indeed, few of the villagers pointed out that this incessant recharging of groundwater (as a result of increased soil and water conservation structures) is also one of the reasons for increase in number of tube and bore wells, as villagers have not noticed any drastic depletion of groundwater. It would be pertinent to note that most of the tube and bore wells are located near to these structures only.

However, in a semi arid region like Bundelkhand, dependence on a single irrigation resource is quite risky. Though, tube and bore wells can provide a safety net to an extent but beyond a

certain point they also fail. Therefore, farmers owning a combination of different irrigation resources (traditional -surface water stored in catchment of bunds check-dams and wells; and modern - tube and bore wells) are less prone to risk and remain in an advantageous economic position. This is because the availability and access to more than a single irrigation resource gives farmer a choice to use the resources judiciously and rationally both in deficient or normal rainfall.

Table 4.5: Household wise availability of Irrigation Resources

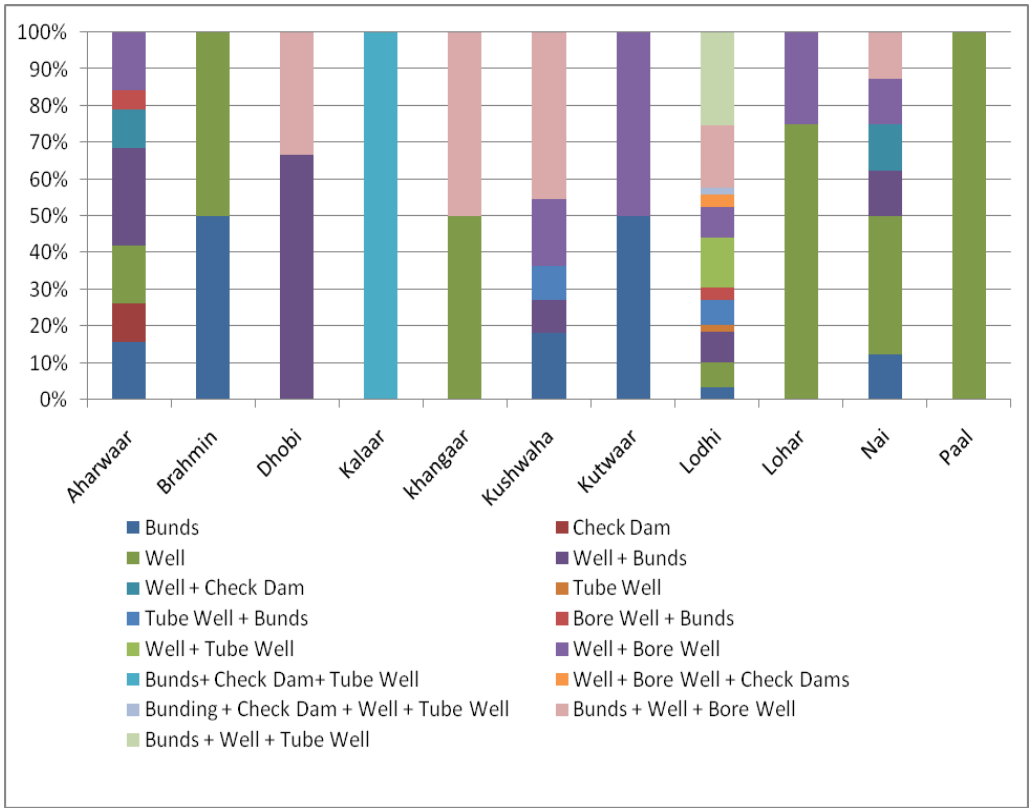
Caste	**Some Irrigation Resources Available**	**No Irrigation Resources Available**
Lodhi	59 (51.8 %)	5 (13.5 %)
Aharwaar	19 (16.7 %)	16 (43.2 %)
Kushwaha	11(9.6 %)	4 (10.8 %)
Nai	8 (7.0 %)	3 (8.1 %)
Lohar	4 (3.5 %)	4 (10.8 %)
Dhobi	3 (2.6 %)	0 (0.0 %)
Paal	3 (2.6 %)	0 (0.0 %)
Khangaar	2 (1.8 %)	2 (5.4 %)
Brahmin	2 (1.8 %)	0 (0.0 %)
Kutwaar	2 (1.8 %)	0 (0.0 %)
Kalaar	1 (0.9 %)	3 (8.1 %)
Sahoo	NA	NA
Kacherri	NA	NA
Total	114	37

This being the case, an analysis of availability, accessibility and ownership of different irrigation facilities/resources (surface and ground water) across the different communities attains a great significance. It was found that a good number of the total households in the village (24.2 %) do not own any sources of

irrigation and most of them belong to marginal and small farmers from Aharwaar, Kushwahas and Lohars (Table 4.5), while the others owned one or the other source of irrigation.

Further, caste-wise analysis of ownership of diversified irrigational resources revealed that farmers belonging to Lodhi caste own most diversified (traditional and modern) irrigation resources than the others which makes them more amenable to adverse conditions and this gives them better scope to get more yields than Kushwaha, Aharwaar and other caste groups. It is evident that their hereditary control over resources has helped them to procure modern irrigation resources and made them to stay one step ahead of the others (Chart 1).

Chart 1: Distribution of Combination of Irrigation Resources across Caste Groups



However, mere analysis of ownership pattern of diversified irrigating resources across the castes may not alone give a clear picture of real beneficiaries until this is seen with the landholding pattern. It was observed that marginal and small farmers who constitute 41 percent of total households owns merely 16 percent of total agricultural land whereas medium farmers, though consisting only 16 percent of total households, have 64 percent of total lands. Similarly, large farmers sharing merely 5 percent of total households own almost 50 percent of agriculture lands (Table 4.6).

Table 4.6: Distribution of Landholding

Farmers	**No. of Households**	**Area Operated (in hectares)**	**Average size per HH (in hectares)**
Marginal	18 (12.2%)	15.9 (3.0%)	0.9
Small	43 (29.1%)	69.7 (13.2%)	1.6
Semi-medium	56 (37.8%)	176.1 (33.5)	3.1
Medium	24 (16.2%)	159.4 (30.3%)	6.6
Large	7 (4.7%)	105.2 (20.0%)	15.0
Total	148	**526.3**	**3.6**

The distribution of irrigating resources across these classes shows that as compared to marginal, small and semi-medium farmers, the medium and large category farmers have more diversified irrigation resources (well and tube) and (well and bore) (Table 4.7).

Table 4.7: Distribution of Irrigating Resources across Landholdings

Irrigation Resource	Marginal (0.01 - 1.00 ha)	Small (1.01 - 2.00 ha)	Semi-Medium (2.01 - 4.00 ha)	Medium (4.01 - 10.00 ha)	Large (> 10.00 ha)
Bunds	2	3	3	2	0
Check Dam	0	0	2	0	0
Well	2	9	6	1	0
Well + Bunds	0	8	3	2	0
Well + Check Dam	1	0	2	0	0
Tube Well	0	0	1	0	0
Tube Well + Bunds	0	0	2	3	0
Bore Well + Bund	0	0	2	0	1
Well + Tube	1	0	7	0	0
Well + Bore	1	4	7	1	0
Bunds+ Check Dam+ Tube Well	0	0	1	0	0
Well + Bore Well + Check Dam	0	0	0	2	0
Bunds +Check Dams + Well + Tube well	0	0	0	0	1
Bunds + Well + Bore Well	0	2	8	7	1
Bunds + Well +Tube Well	0	0	6	5	5

Though the combination of intensive irrigation resources appear to be high in marginal, small and semi-medium farmer category, it needs to be highlighted that their ownership largely lies with Lodhis, Aharwaars and Kushwaha as the proportion of these caste group constitute around 60% of total marginal, small and semi-medium farmers. This suggest that though lower class farmers were able to own irrigation resources but could not reap

the benefit equivalent to higher class farmer due to inequalities in terms of ownership of lands as well as traditional resource of irrigation, thereby, making resource rich caste groups to be in more gainful position than the others.

Increase in Irrigated Area

It is apparent that due to the development interventions, the availability, accessibility and ownership of irrigation resources have witnessed an overall increase. This, in turn, has provided the farmers an opportunity to irrigate more and distantly located agricultural lands. It was noticed that the agricultural lands that an individual farmer possesses are not located at one place, but spread across the village. Each farmer owns various plots of agricultural lands. The size of each plot varies from farmer to farmer and can be largely determined by the total landholding he possesses. Each of these plots is of different size and varies from a minimum of half acre to a maximum of 3-4 acres. The case of Ramu Singh is a case in point. Ramu Singh, aged 40, belongs to Lodhi caste and owns 5 acres of land in total. He has one plot of agricultural land measuring 2.0 acres located on the eastern side of the village, while another plot of 1.25 acres is situated on the western side and the remaining portion of land is located in the south-eastern corner of the village. Like Ramu, many other farmers belonging to different caste groups similarly own agricultural plots in different places. The medium and large landowners own bigger agricultural plots (ranging between 2.5 to 3 acres) usually in one place.

It was also found that many of the traditional wells are largely located on the large agricultural plots of the farmers. The chief reason cited for this was the availability of larger area for cultivation at one place as compared to smaller agricultural

plots. However, villagers reported that though the size of agricultural plots played a determining factor while deciding the location of wells (where it needs to be constructed), the productivity of the agricultural land was also an important factor in determining its location. Thus, we find wells even in smaller plots that are highly productive. For instance, in case of Guddu, who is from Aharwaar community and owns 6 acres of land in three different locations, it was observed that the well is located in a comparatively smaller agricultural plot. He reported that, unlike few other farmers, though his well is located in the smallest agricultural plot, productivity wise this agricultural plot yields more than the other two plots.

With the introduction of tube well, villagers have brought even these distantly located agricultural plots also under irrigation. It was found that villagers have installed most of their tube wells in those agricultural plots which were without wells. For instance, Maakhan Singh, who belongs to Lodhi caste, possesses 35 acres of agricultural land in four different areas and almost half of it was without any wells. Maakhan installed the tube well on a 6 acre plot and transports water through pipes to his other plots. It would be pertinent to note that since most of the semi-medium, medium and large farmers own agricultural plots that are located away from the source of irrigation, water is channelled through the pipes to these distantly located plots. This was not possible in case of wells because the pumps which draw water from the wells cannot generate pressure to transport water to lands located distantly.

Undoubtedly, the tube/bore well technologies have helped in increasing the potential of irrigating the un-irrigated lands but the role of soil and water conservation structures constructed

under the WSMP and NREGA programmes cannot be undermined. It needs to be pointed out that these structures have played an important role in retaining the surface water during monsoon season besides proving to be useful in irrigating the distantly located agricultural farms. Since most of these structures were constructed on agricultural lands, we found that the land behind these structures gets submerged under water and subsequently gets watered. However, the amount of land area submerged under water depends on the quantum of rainfall received during the monsoon season. Fortunately, heavy rains were witnessed during the fieldwork in the months of June, July and August, which in turn led to the submergence of huge land area under water. Farmers were found to be using this stored water for preparing the distantly located un-irrigated fields to sow Rabi crops. The case of Jayraam illustrates the point.

Jayraam, aged 35, belongs to Kushwaha community. He owns around 3.6 hectare of land which is spread across the eastern side of the village. He has one agricultural plot measuring 1.5 hectare which is about 300 metre away from another agricultural plot of about 1.0 hectare. The rest of the land is located at an approximate distance of 500 meters. He does not have any source of irrigation in any one of his fields, except for one bund that was constructed under the watershed management programme. The bund was constructed on the largest (1.5 hectare) agricultural plot that he possesses. It was observed that due to heavy rainfall during the monsoon almost half of his 1.5 hectare agricultural plot was submerged under water and sufficient amount of water was retained in the catchment of bunds even after the month of September. He did not break the bunds to drain out water from his fields, but

decided to prepare his other two agricultural plots for sowing Rabi crops and used the stored water. He thus, not only utilized this water for preparing the fields, but also used it for irrigating the crops. After the stored water got emptied from his field he cultivated this land also. With increased sources of irrigation, the irrigated area also increased, bringing many fallow lands into production.

Irrigating lands with purchased water

Unquestionably, the farmers who possessed diversified irrigating resources, i.e., a combination of traditional and intensive form of irrigation resources (mentioned earlier) took lead and played a decisive role in bringing more and more agricultural land under irrigation. Most of these farmers belong to Lodhi, Aharwaar and Kushwaha caste and are semi-medium, medium and large landholding farmers. However, the other farmers who do not own such diversified irrigating resources did not lag behind. It was found that such farmers started purchasing water from those farmers who have source of water (particularly tube and bore wells). This led to the emergence of water market in the village. Jeevan, aged 45 years, belongs to Aharwaar and possesses 10 acre of agricultural land. He has no source of irrigation. He mentioned that since he does not own any irrigation source he has to depend on another farmer who owns tube well to irrigate his fields (particularly during *Rabi* season). In return, he pays the owner of the tube well about Rs. 120-150 per hour.

Like Jeevan, there are other farmers who purchase water to irrigate their fields. It needs to be pointed out that purchasing water was not only restricted to those farmers who do not own or have access to any form of irrigation. Even farmers who own

either the traditional or intensive sources of irrigation were also found to be buying water. Villagers reasoned that they buy water to irrigate those lands which are located at a distance and their terrain (uneven surface between the irrigating resources and the farm) makes it difficult to transport water from the sources they own. It is essential to note that through each of the irrigation resources available in the village, a farmer can irrigate the lands to a certain extent and beyond this it is not economically viable to transport water and irrigate the land. Therefore, in such cases, farmers prefer to irrigate their fields through purchasing water from those farmers whose irrigation resources fall nearest to these agricultural plots. Unlike in the past, the emerging water market has facilitated different categories of farmers to have access to irrigation resources, which, in turn, helped them in bringing under irrigation and cultivation as much land as possible and, in turn, influenced their income level.

Ploughing Land

It is evident that due to development interventions, the village had witnessed an increase in terms of availability, accessibility and utilization of irrigating resources, which in turn, has increased the potential of irrigating the un-irrigated lands in the village. A similar change was also witnessed in tilling lands. Since the livelihood of villagers was dependent on agriculture, any change in tilling, sowing and harvesting equipments and tools has implications on the farming system. With the new set of tools, a farmer can plough and cultivate large amount of agricultural lands with ease and in short time. It was found that, unlike in the past, farmers have started using tractors for ploughing the fields, seed drill for sowing purpose, and harvester for harvesting the crops.

It would be pertinent to note that though tractor came into the study village decade and a half years ago; their number has significantly increased during the last five to six years. Villagers reported that most of the farmers even ten years ago used to cultivate their fields using plough only. There were only 3 to 4 households in the village that had tractors and seed drills. All these households belonged to Lodhi caste. Gradually, the number of tractors increased in the village. When asked for the reason, villagers opined that increase in irrigation potential brought more cultivable land under irrigation, which led to the increase in income level of farmers who, in turn, invested this money in purchasing tractors and seed drill. Even those lands that were once rain-fed and cultivated only for monsoon crops are now being cultivated for Rabi crops. Unlike the past, even in times of drought, villagers are able to cultivate their fields. The increased cultivation of agricultural lands assisted villagers to produce more, which resulted in wealth creation. These savings, in turn, were invested in purchasing tilling machinery, mainly tractors and seed drills.

Table 4.8: Caste wise Distribution of Households Owning Tilling Technologies

Caste	**Tractor + Cultivator + Sowing Machine**
Lodhi	22
Aharwaar	4
Kushwaha	2
Dhobi	1
Total	**29**

However, it was found that ownership of these tilling resources varied across the caste groups. It was observed that out of the

total farmers only 18.9 % of them own tractor, cultivator and seed drill and majority (81.5%) of them belong to Lodhi caste group (Table 4.8).

It was obvious to note that Lodhi caste group owned most of these tilling resources as they owned maximum cultivable land and the adoption of intensive irrigation resources made them to produce more than the others which eventually led them to invest in purchasing these tilling resources.

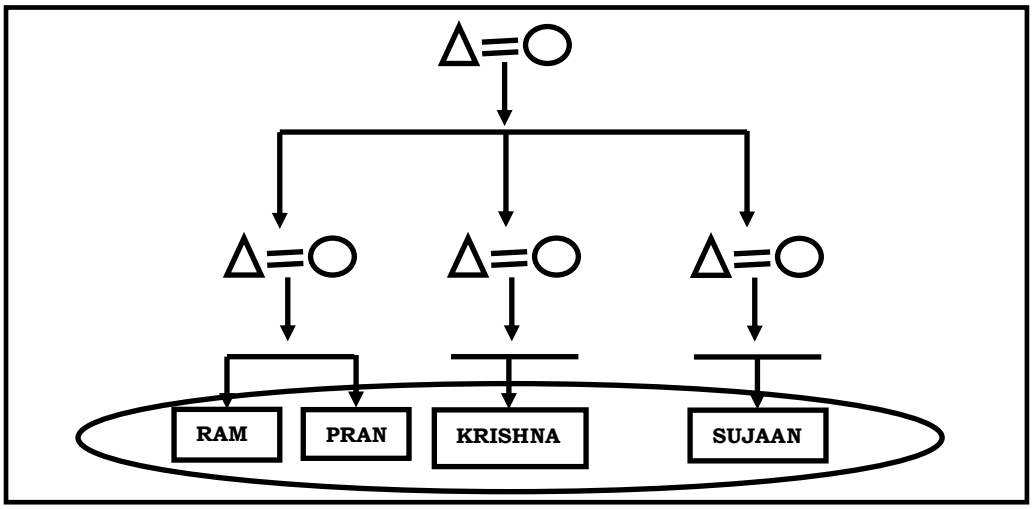
Table 4.9: Caste and Landholding Distribution of Households Owning Tilling Technology

Caste	Landholding				
	Marginal	**Small**	**Semi-Medium**	**Medium**	**Large**
Lodhi	0	0	7	8	7
Aharwaar	2	1	1	0	0
Kushwaha	0	0	2	0	0
Dhobi	0	0	1	0	0
Total	**2**	**1**	**11**	**8**	**7**

An analysis of landholding and ownership of the tilling resources indicate that almost 88 % of farmers who own these technologies are semi-medium, medium and large landholders which further substantiates the argument (Table 4.9). Among them, the proportion (75.9%) of Lodhis are highest followed by Kushwaha, Dhobi and Aharwaar. Since the cost of purchasing these tilling technologies was significantly high, few of the households have collective ownership of the tilling resources. It was found that some of the kin members belonging to same lineage came together and pooled their savings to purchase them. This trend is particularly noted among the marginal, small and semi-medium farmers. It was found that all the four households belonging to Aharwaar community, who own these

tilling machinery, have bought them collectively, and are related to each other (refer genealogical chart). Ram, Pran, Krishna and Sujaan own lands separately and stay independently of each other.

Genealogical Chart



However, they found it difficult to buy tilling equipment as the costs were significantly high and their individual savings were not enough to invest individually on tractors, ploughing and seed drill. Therefore, they decided to pool their savings and bought tractor along with other tilling equipments. Similarly, it was observed that few households belonging to both semi-medium and medium landholders also bought tilling equipment jointly. As a matter of fact, it was found that out of the total farmers belonging to Lodhi caste who own tilling equipment, around 36.4% own them collectively. Joint ownership is comparatively more among semi-medium farmers than medium and large farmers. No cases of shared or collective ownership of tilling equipments were found among large farmers. This is an opportunity discovered by the marginal, small and semi-medium farmers in the face of scarcity and economic adversity.

This has only strengthened the traditional, kinship and familial bonds among the less privileged.

III

LIVELIHOOD CHANGES DUE TO DEVELOPMENT INTERVENTIONS

It is evident from the above analysis that various development interventions at different points of time (mainly in the last one and half decade) have increased the availability, accessibility and utilization of livelihood resources in comparison to the past. As mentioned earlier, any such change in livelihood resource base certainly influences the decision of individuals regarding their choice of economic activity, which eventually lead to a change in their livelihood strategy. It was found that such changes in terms of availability, accessibility and ownership of the livelihood resource base have resulted in changes in the traditional livelihood strategies. These changes are discussed under this section.

Agricultural intensification

Farming, as stated earlier, has been one of the primary means of livelihood activities of the villagers and almost all the villagers have been involved in farming. Like in most of the other parts of the country, villagers grow their crops in two major cropping seasons, namely, *Kharif* and *Rabi*. The *Kharif* season generally starts in the last week of June and continues till the end of September while *Rabi* season extends from October to February. Villagers reported that increased availability, accessibility and utilization of irrigation resources have also led to the increase in cropping intensity. As noticed in previous sections that with increased availability and accessibility of irrigation resources, villagers were able to irrigate those agricultural lands that were once rain-fed and used for growing only monsoon crops.

Bringing such un-irrigated agricultural plots under irrigation was proved to be useful for villagers as it provided them the scope to grow *Rabi* crops in such lands. This can be seen in the case of Lochan. Lochan who belonged to Khangaar community is a medium landholding farmer. He has around 20 acres of land and half of his lands were without irrigation. However, with increased access to both surface (due to soil and water conservation structures that were built under the WSMP) and ground water (due to bore well which he owns) he could bring such un-irrigated land under irrigation, which, in turn, allowed him to grow *Rabi* crops on these lands, which was not possible earlier. Like Lochan, there are other farmers too, who are able to reap the benefits of assured irrigation by growing Rabi crops on un-irrigated and rain-fed lands. The increased availability of irrigation resources, in turn, has increased the cropping area of Rabi crops – clearly indicating that agriculture in the village has moved on to the path of intensification.

The increase in crop intensity was significantly noted with the semi-medium, medium and large farmers, as they own more combination of irrigation resources besides tilling technology (Table 4.10).

Table 4.10: Landholding wise Analysis of Crop Cultivation

Farmer Category	Agricultural Land (in hectare)	Land Area Under Kharif	Land Area Under Rabi	Total (in hectare)	Cropping Intensity
Marginal	15.7	10.7	9.5	20.2	128.5%
Small	68.9	57.6	65.3	122.9	178.5%
Semi-Medium	174.0	157.3	167.4	324.7	186.6%
Medium	157.6	135.5	155.4	290.9	184.6%
Large	104.0	93.7	102.5	196.2	188.7%

It would be relevant to note that though the trading of water has increased the access to irrigation resources among different farmers, particularly those who do not own intensive irrigation resources since the access involves cash payment; its utilization is comparatively risky and depends on the financial resources available with the farmers. The gradual increase in ownership of tilling technologies, whether individual or collective, has also paced up the intensification of agriculture.

Disappearance of traditional crops

It is evident that increased irrigation resources (both surface and ground water) and growing tilling technology not only increased the cropping intensity, but also brought a significant change in cropping pattern. Villagers reported that most of the traditional crops like *kodon, Sama* and *jonai* have either disappeared from the main agricultural produce or getting limited to the backyards of houses. Villagers attributed the increasing crop intensity as the major reason behind the disappearance of traditional crops. As mentioned earlier, cultivation of these traditional crops requires the agricultural fields left fallow (without cultivation) for a period of six months. Existence of such uncultivated lands is quite rare today, as farmers have brought more land under cultivation. With decrease in the availability of uncultivated land, the production of these traditional crops has declined significantly. Further, these crops are more labour intensive than the present one and take more time for ripening, which, in turn, delays the cultivation of cash crops of Rabi season resulting in economic loss to farmers are the other rationale for not cultivating traditional crops. Change in farmers perception of seeing farming not merely as production for subsistence level but to

make it profitable enterprise to increase his economic and social status is also acting as a catalyst for decline in traditional crops. Gradually, villagers stopped growing such crops or limited them to the backyard lands. These traditional crops have been replaced by new crops like *Urad, Macca, Moong* and Soyabeen.

A similar changing trend in cropping pattern during *Rabi* season has been reported by the villagers. Villagers reported that traditional varieties of wheat, which used to be the principal crop of *Rabi* season, have now been replaced by the hybrid variety of wheat. Villagers also told that the increased availability of irrigation, tilling resources and usage of fertilizers has made the farmers to cultivate cash crops, such as *Masoor, Matar, and Chanaa*, which fetches good market price when compared to wheat.

Increased Sources of Income Activities

Increased irrigation resources and irrigated area, new technologies for tilling, and agricultural intensification opened up diverse modes of earning income. This, in turn, benefited all farmers at different levels, while some have benefitted more than the others.

To start with, as the adoption of tilling technology was more prominent among large and medium landholders due to their strong financial background, they started renting out the tilling facilities to those who did not possess one. It was found that small and marginal farmers hire tractors on rent for ploughing their fields since it consumes less time and is not labour intensive. The owners of these tractors charge anywhere between Rs 250-300 per hour, and thus, their investments, in

turn, are reaping benefits for them as more and more farmers were found to be utilizing their services. The renting out of these tractors has gradually become an attractive business for large and medium landholder in the village. One of the key informants reported that it is for this reason that farmers from other caste groups are also investing their savings in purchasing tractor. The growing incidence of collective ownership of tractors by farmers belonging to semi-medium and small farmer is a reflection of this.

Similarly, due to their strong economic background, large and medium landholders were in a position to adopt intensive resources of irrigation. They were the earlier owners of tube and bore well technologies and initiated the trading of water in village. Gradually, it became a profitable enterprise and now almost all the owners, irrespective of their economic position, charge the users. Key informants reported that owners of tube or bore well make huge profits through selling water, particularly during deficit rainfall. They also told that the extra income generated through selling water also acted as a motivation for number of other farmers to own bore wells. Trading of water has emerged as another source of income in the village.

It was found that accumulation of wealth was not just restricted to large and medium landholders due to increase in the sources of income. Even marginal and small farmers have received similar benefits due to these development interventions but in an indirect form. It was found that with the onset of agricultural intensification, the labour demand has increased drastically in the village. Large and medium farmers seek labourers who can work on their fields. It was found that the demand of labour is

particularly high during post planting, harvesting and post harvesting phases of cultivation. When few of the marginal farmers were asked how they manage their own farming while they work on others farms, they reported that their family members take care of farming in their absence. However, this does not imply that the family members of other farmers (mainly who hire these labourers) do not work on their fields. Though they work on their own fields their work load increases during peak agricultural season so much that they are forced to hire labourers. It was also found that hiring labour became imperative, particularly for those large and medium farmers whose children are educated and who prefer to work outside rather than involving themselves in farming.

Nevertheless, it was reported that labourers are paid between Rs 100- Rs 120 per day. According to the large and medium farmers prior to the development interventions the labour charges in the village used to be Rs. 40 to 50 per day till 2003. However, after the NREGA programme, the labour charges within the village have gone up. Farmers from large and medium landholding category reported that since under NREGA these farmers receive Rs. 100 per day, they have to pay them the same amount (sometimes more), otherwise they do not come for work. Thus, it is evident that even in the cases of marginal and small farmers, the increase in income generating sources has also been observed. The additional income gained through these activities is found to be supplementing the primary source of income, i.e., agriculture. Some of these farmers invested the surplus money in petty shops, thus diversifying their livelihood strategy.

Shrinking area of CPRs

It was found that the intensification of farming and practice of mono-cropping had a bearing on PPRs and CPRs. Most of the trees that were located on agricultural field were cut down as villagers brought even these lands under cultivation in order to increase their margin of profits. Further, since these trees block sunlight reaching the main farm, which, in turn, affects the productivity of cash crops like *urad* made the farmers to cut these trees. Proper sunlight is very much essential for receiving good yield from these crops. Villagers told that the number of these trees have been reduced to a considerable extent in last one decade. In terms of CPRs, the village only have a forest range and road side plant avenues. The road side plant avenues were cut down as the road is being converted into four lane national highway.

IV

As mentioned earlier, agriculture has been one of the important livelihood strategies of the villagers from the past and significant changes were reported in agricultural practices in recent times. It is apparent that introduction of irrigation technology followed by watershed management and NREGA programme has increased the availability, accessibility and utilization of irrigation resources in the village. Watershed management and NREGA programme on one hand undoubtedly increased the availability of surface water through water and soil conservation structures, besides constantly recharging the groundwater, the introduction of tube/bore well on the other hand provided the farmers with an opportunity to extract groundwater. It was also observed that through the tube and bore wells villagers were able to irrigate their distantly located fields, which, in turn, increased the total area of irrigated fields and increased the

cropping area. However, it was noted that the ownership of these resources varied across castes and classes. It was found that the farmers belonging to traditional dominant caste group, Lodhis, and economically well off groups from other castes, are able to benefit more from these increased availability and accessibility of irrigation resources in comparison to the other castes. Nevertheless, Lodhis have benefitted more due to their traditional control over resources and strong economic base, which made them to readily accept these interventions. They were also the beneficiaries of water harvesting structures.

The possession of both traditional and intensive irrigation resources provided assured irrigation to them even during deficient rainfall as compared to the others who did not possess the combination of traditional and intensive irrigation resources. As a result, the economically dominant groups were able to bring more lands under cultivation and were able to earn as well as save more than the others. While on the other side, the emergence of water trade was very conspicuous in the village, which provided the irrigation facilities to even those farmers (mainly marginal and small farmers) who do not have any irrigation resource and who relied only on traditional irrigation resources. They were also able to cultivate their lands more intensively. However, these farmers were not able to get more profit as they had to pay for accessing the irrigation resources, while those who own both traditional and intensive irrigation resources were in an advantageous position. A similar thing was noticed in case of tilling resources. It was apparent that the utilization and ownership of tractors, seed drill, cultivators, etc., has increased manifolds in the last five to six years. The instance of collective ownership of tractors has also been gradually increasing in the village. Like the water market,

the selling and purchasing of the services of tractors and cultivators has also increased in the village.

Nevertheless, it was found that the whole process, in turn, has influenced the very nature of farming system. It was observed that due to the advent of the development interventions (particularly those which have influenced the irrigation resources) the traditional farming practices, which were once subsistence oriented, have taken the form of intensification. Mono-cropping and cash-cropping became widely prevalent across the village and led to the gradual disappearance of traditional crops. However, through these changes in farming pattern, farmers who were traditionally economically dominant benefited more and they invested their profits in purchasing more intensive irrigating and tilling resources. This, further, contributed to the intensification of agriculture. It is apparent that there have been marked changes in the availability, accessibility and utilization pattern of livelihood resources over a period of time due to development interventions, which, in turn, had implications to the entire system of production in the village.

ENDNOTES

1 When asked about the lineage name, Bhoopat Singh referred to his clan name. It is because lineage does not have a name in *Pataaripur*. Mayer distinct such lineages as "lineages of cooperation, wherein, lineage tends to be five or six generations depth from its founder" and people don't know the "names of all the ascendants through whom they are linked but they know at least the approximate depth of these ties" (1960:169)

2 With the 44th amendment to the constitution of India which amended the right to property as shown in Article 19 and 31,

the zamindari system was abolished in some states soon after the Independence. This amendment further allowed the states to make their own "Zamindari Abolition Acts.

[3] Check-dams are small barriers built across the direction of water flow on shallow rivers and streams for the purpose of water harvesting. The small dams retain excess water flow during monsoon rains in a small catchment area behind the structure. Pressure created in the catchment area helps force the impounded water into the ground (http://www.dainet.org/livelihoods/checkdams4.htm).

CHAPTER V
SOCIAL STRUCTURAL AND CULTURAL CHANGE

Different development interventions in the village led to changes in accessibility, availability and utilization of livelihood resources, which, in turn, had a bearing on farming system. The farming system has shifted from subsistence to intensified mode with the increased usage of technological inputs for land augmentation followed by increased mechanization of production. It was observed that in the process, large and medium farmers benefited more as compared to semi-medium and small landholders due to inequitable ownership and patterns of resources distribution among them. These changes in the systems of production had a bearing on some aspects of social structure and culture.

This being the case an attempt is made in this chapter to understand the social-structural setting of the village that existed when villagers relied exclusively on traditional livelihood resources to derive their livelihood strategies and how this setting got altered due to changes witnessed in livelihood resources and strategies (systems of production). To understand social and cultural changes, Epstein's framework has been used as an analytical framework, wherein, she has analyzed i) structural changes through observing economic, political, familial, ritual and organizational change and ii) cultural change in terms of changes in economic and prestige value due to economic development in two South Indian villages, namely, Wangala and Dalena (Epstein, 1962). Since availability, accessibility, and ownership pattern of the livelihood resources were different in the past, the socio-economic-political relationships were different too. But when the availability, accessibility, and ownership of resources got changed, the

relationship among different community members also got influenced accordingly. This changing process gained momentum with changing livelihood strategies or farming systems. The crux here is to highlight the changes witnessed in social, political and economic organizations in the village due to changes in systems of production which occurred due to development interventions. The data pertaining to the nature of relationship that existed in the past was collected through case studies, interviews with elders, instances that were reported and observed during the fieldwork.

I

Economic Change

It was found that village has witnessed a considerable amount of economic changes. With the introduction of development interventions, the relations of production got altered, leading to the disintegration of the Jajmani system, which was one of the striking features of Indian villages in the past. Jajmani system, here, basically refers to economic interaction between the resource rich/land owning and resource poor/landless caste groups which usually take place within the framework of non-commercial, non-reciprocal and asymmetrical type of relations. It was observed that the wide range of development interventions had eroded this system. Village elders reported that when the irrigating resources were scarce or limited (well irrigation) and the farming system was largely rain-fed, the small, marginal and landless (lower caste-class) in the village had to maintain the patron-client relationship with the large and medium landowners (higher caste-class), as it used to assist them in getting help (in terms of securing food grain) during less productive seasons/droughts. The small, marginal and landless farmers provided labour services during weeding, irrigating fields, guarding and harvesting crops, besides

traditional occupational services to their clients. In return, either a set amount was paid or some proportion of production was shared with the patron after the harvesting season. Villagers told that both the assistance and payment from the patron was guaranteed in the traditional system as the moral claims against established patron-client relationships could be raised.

However, the changed ownership and accessibility of irrigating as well as ploughing resources, has increased the income of farmers belonging to lower caste-class hierarchy. This has its ramifications on the traditional patron-client relationships. This is clearly noticeable from the following case of Rati Ram.

Rati Ram who is around 33 years old from Nai (barber) community stays in his semi-pucca two room house along with his old parents in the village. His parents in the past used to provide customary services to upper caste Lodhis and sustain themselves. However, with most of their four acre of land being rain-fed and in absence of any irrigating source, they were finding it difficult to sustain themselves with the increasing family members. Therefore, Shrawan, his elder brother, moved to Lalitpur along with his family members and opened a hairdressing saloon there. He regularly visits the village and looks after the 4 acre of land with him. According to them, with the earnings from agriculture and labour they were managing their families. But things started changing since last 3 years when Sher Singh (a Lodhi farmer) had drilled a bore well in his fields. They now buy water from Sher Singh and irrigate their fields and cultivate their four acres land. They says if weather conditions remains normal (particularly in Rabi season when there is scope for crops getting destroyed due to heavy fog or sudden downpour), they are able to save enough even after

paying irrigation charges to Sher Singh. Like him, there are many other farmers in the village who do not own irrigation sources, but have been able to increase their income. Similarly, farmers from lower caste-class had also been able to purchase irrigation sources (particularly bore wells) as a result of gradual increase in their income. Further, the introduction of NREGA scheme and WSM programme in the village also strengthened the economic independence of farmers of lower economic caste-class by ensuring labour during off seasons. This, in turn, has unbound the dependencies of the farmers who once relied on resource rich upper caste-class farmers, thus terminating their relationship with their clients on traditional patron-client basis.

However, it does not imply that the economic relationship between higher and lower caste-class farmers has ceased to exist in the village. The linkage between lower and higher caste-class groups are still being maintained as the upper caste-class farmers take the labour of the lower caste-class farmers or agricultural labour, though they no longer are obligated to engage them as was the case in the past. The relationships are now more guided by money and self interest than on reciprocity and obligations. It was found that with the emergence of demand for utilization of agriculture intensive technology, the requirement of labour services of small, marginal and landless farmers has increased considerably in the village. As agriculture intensive technologies are purchased with the loan money, the owners insist on making cash payment for using these technologies by the others who hire them so that they can repay their loan. This, in turn, forced farmers from lower economic category to demand higher money for their labour service as they also wanted to use these technologies. By hiring them, they are able to use these technologies. These conditions, in turn, had encouraged the cash based transactions in the local

economy, and thus, dissolved the obligation and reciprocity based relationships, thereby making it more transactional. Thus, the entire agricultural operations and relations have become capitalistic.

Though the development programmes influenced the traditional pattern of economic relationships, it was observed that the economic role of men and women did not alter largely. Both men and women continued to work on the land. Like earlier, women from the affluent caste-class do not work on field. They assist their male counterparts only during harvesting and post harvesting activities. However, women from the lower economic class not only assisted male members during cultivation of their land but also involve in labour work on others fields. Similarly, it was found that the customary services particularly given mainly during birth, marriage and death ceremonies by Nai community to their clients to a large extent remained unaltered. It was observed that they continue to serve their clients (mainly Lodhi) in exchange for a fixed annual return.

It follows from the above account that the decline of the Jajmani system, reallocation of livelihood resources, creation of alternative sources of livelihoods and vertical economic mobility of lower caste-class farmers had a bearing on economic relationship which has become more formal, professional and commercial than earlier. However, since the village economy largely remained agricultural based, the livelihood of men and women remained largely unaltered in spite of these development interventions. But certainly, these changes have influenced the economic structure of the village.

Political Changes

The changes witnessed in production system also impacted the political life of the village. There have been significant political changes in *Pataaripur*. It was observed that with the gradual weakening of Jajmani system and declining dependency of lower caste-class farmers on their clients, the higher caste-class farmers are no more proactively involved in settling any disputes within the village. Most of the disputes are reported to local police station, wherein police personnel try to settle the cases (if possible); otherwise the cases are settled through court. Hardly there are any cases resolved at village level now-a-day.

Similarly, it was observed that the clout of traditional political leadership is also declining. In *Pataaripur*, the political leadership was enjoyed by one of the three different lineages of dominant caste Lodhi from time to time. Each of these lineages belongs to separate clans and is identified with their traditional titles like *Maate*, *Muqaddam*, and *Lambardar*, respectively. The members of these lineages enjoy dominance in social, economic and political sphere by virtue of their superior hereditary status and control over productive resources. They compete with each other for power so long as their power is not challenged by the other caste leaders (Siva Prasad, 1987:76). The seat of Pradhan, symbolizes higher political and economic status in *Pataaripur* and winning the seat reflects the political dominance of the caste in the power structure of the village. This competition was largely restricted among these three factions of the dominant caste. It was told that the seat was interchangeably held among Muqaddam and *Maate* families. Leaving one Panchayat election, the last four elections were won by *Maate* family only. Villagers told that there are two major factors which are instrumental in limiting the competition among these two families. First, these lineages hold large tracts of agricultural land in the village than

the others. Second, each of these families has large horizontal extended kin members who come together whenever they find that the political dominance of their lineage is being challenged in spite of having differences among them. Siva Prasad rightly points out that "the caste unity emerges in times of a threat from outside its source (*which is*) true, in general, in the national sphere also. Where there is any threat from any external source, or when a natural calamity occurs, the entire nation will act unitedly in spite of political and other differences between the states and parties" (1987:76). There is one more reason that these groups try hard to retain the seat of Pradhan. According to a key informant, since most of the development programmes are channelized through Panchayat (in accordance with decentralization policies), being a head of Panchayat gives one a upper hand in controlling most of these programmes and also it provides an opportunity to distribute favours to his supporters and also earn illegal money by siphoning off the financial resources.

However, after the interventions of development programmes, as well as due to the introduction of adult franchise and reservation of position for the disadvantaged sections in the Panchayats and other elected bodies, this traditional political leadership has faced tough competition from other members. Village has witnessed an increase in number of contestant fighting for Panchayat elections. These contestants, unlike in the past, belong to other clans and other castes. It was told that during the last Panchayat elections, seven contestants fought for the seat of Pradhan. Among them, only two were from *Muqaddam* and *Maate* family, while the rest were from different Lodhi families as well as from other caste groups. However, the proportion of contestants belonging to other caste group was minimal. There were only two non-Lodhi contestants, one from

Kushwaha and the other one from Aharwaar community. All three Lodhi contenders (other than from *Maate* and *Muqaddam* family) are medium and large farmers. These have enhanced their economic status and position considerably, which propped them up to contest for the political positions. These economically growing groups were seen as competitive groups by the traditional power holders. Similarly, the non-Lodhi contenders gradually accumulated the resources and moved up in class hierarchy (reflects their economic mobility), which had enabled them to actively participate in the political system of the village.

It follows from the above account that the clout of traditional local power holders is slowly diminishing and members from other castes and clans from the dominant caste Lodhi, other than those of *Maate* and *Muqaddam*, are gradually endeavouring to make their way into the political system of the village. The involvement of lower castes too in the political organization of the village is also an encouraging change. Through this they are attempting to achieve higher social, economic and political status (position). However, these changes, though significant and path breaking, have not drastically shaken off the political and economic dominance and base of traditional local power holders. In spite of increasing competition in Panchayat election, the seats of village headman are still being occupied by the lineages of *Maate* and *Muqaddam*. The nexus between caste, class and power is thus quite evident in the village.

Change in familial relations

The family structure is closely associated with particular mode of economic system (or subsistence pattern) practiced by any society. They are largely intertwined with each other and the

relationship between them is quite evident in rural societies. Any changes in the economy would certainly have an implication on familial change, which, in turn, may lead to changes in the pattern of family structure. The familial change here refers to change in relations within the family. It was found that in *Pataaripur* the changes in farming system (production system) have severely influenced the kin relations. Village elders told that unlike in the past, the aspects like mutual respect, family obligation, devoutness, care, financial and practical support, solidarity and social ties are rarely being noticed now-a-day, particularly among the kin members of extended families. The relationships are more guided by materialistic behaviour and values.

Village elders reported that earlier kin members belonging to same lineage helped each other in various agricultural activities (like preparing fields, sowing, and irrigation). In their traditional form of livelihood system, which was more labour intensive and demanding, the cooperation from each family member was a necessity. The family members used to cooperate with each other in various activities of agriculture. The cooperation was mainly in the form of sharing/ exchanging cultivation resources, mainly bullocks, well water, seeds, etc., without any payment. However, it was observed that presently members who are even consanguines charge money from each other for ploughing the field with tractor or providing water for irrigation. The case of Bhim Singh family is a case in point. Bhim Singh was the eldest son in the family and has three sons, Mohan, Devendra, and Kuldeep, while his younger brother, Jagdeesh has two sons, Bhagirath and Raman. They were part of extended family. But after the demise of Bhim and Jagdeesh, each of their children shifted to their individual households, except Mohan and Devendra who still have joint residence. They mentioned that

since the ancestral house was getting crowded due to increasing family size, they shifted to their new house along with their respective wives and children. Four years ago, mortgaging their land to the bank, Mohan and Devendra took loan and bought a tractor. Since both of them had to repay the loan amount they charge money even from their extended kin members for ploughing their fields with tractor. They justified their actions saying that if they do not charge their kinsmen and other villagers, it would be very difficult for them to repay the loan. The case of Mohan and Devendra was not the only case in the village. It was noticed that most of the villagers who own tractors do charge money from their relatives and other villagers so that they can repay their loan amount.

The change in farming system has also increased conflicts and quarrel among kin members resulting in weakening of kinship ties and breaking off joint families. Rupain Singh who is in his mid-30s belongs to Lodhi community. He is married and has three children - a boy who is around eleven years old and two daughters aged around nine and six years. He has one elder cousin (his father's elder brother's son), 40 years old Khair Singh, who has four children – three sons and a daughter. All the family members were staying together till 2007, when Rupain decided to part away from the family and shifted to another residence which he constructed near to his agricultural field. According to Rupain, the trouble started over sharing the returns from agriculture production. Both the brothers together own approximately nine acres of land. Most of his brother's land is located away from the well. Therefore, it was not economically feasible to channelize water from the well to those fields which his brother owned. Therefore, in the year 2003, they decided to dig a bore well on the fields of his elder brother Khair Singh. Rupain also contributed a substantial amount of money for

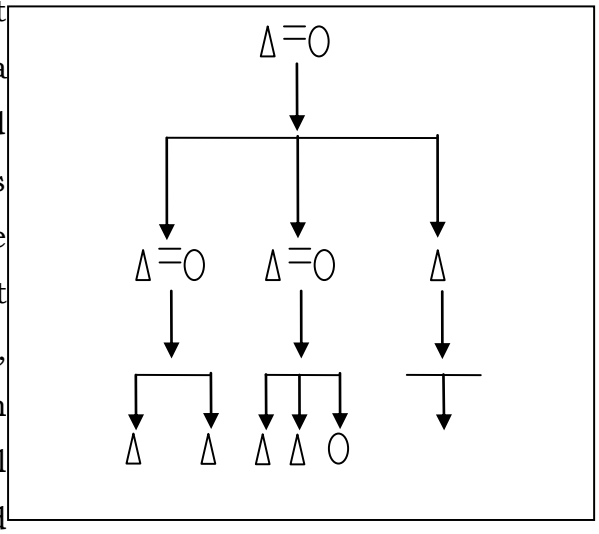
digging the bore well thinking that it would be an alternative irrigation source during deficient rainfall, as it was also difficult for him to irrigate all their lands through the well. Two bunds were also constructed on his brother's farms under WSM and NREGA programme. With this increased and assured availability of water, there was an increase in production. Rupain told that the saving that was generated from the initial increase in crop yield was used in repaying the loan amount which they took to dig the bore well. Gradually, his brother started creating trouble in allowing Rupain to take water from the bore well on one or the other pretext. In fact, he started asking Rupain to pay him in advance for drawing water from the bore well. Khair Singh also stopped sharing the profits with his brother. All these instances infuriated and disappointed Rupain and he broke away from the joint residence and moved into an independent house. Like Rupain, there were other farmers who too left their ancestral joint residence due to increase in conflicts on sharing of profits.

Contrary to the above, in some cases, it was found that in spite of conflicts the kin members have not left their joint residential households. Instead, they have partitioned the house with mutual consent and started living in different rooms under the same roof. In such cases each kin member and his family own separate kitchen. But they participate in each other's social functions. Most of these families are vertical extended families wherein family members belonging up to three generations and above were staying together. It was found that the conflicts in such cases was due to uneven sharing of jointly owned property, particularly agricultural land, among the kin members belonging to younger generations. Elders from these families reported that such conflicts have increased considerably among the kin members particularly after the changed farming system.

The changes in farming system have shifted the perception of villagers about land. Unlike in the past, land is no longer viewed as a means of merely obtaining livelihood, but is seen more as a source of profit making. Therefore, each kin member in the family wants to have equal shares of ancestral lands. Conflicts arise if there is an unequal distribution of land among the family members. Even if one of the kin members were given more land in the past by the head of the family was found to be getting questioned from other kin members. The case of Harnaam illustrates the point.

Harnaam, aged 53 years, belongs to Lodhi community. He has three sons aged around 34, 31 and 19 years. Two of his elder sons are married while the youngest one (Dileep) is unmarried. The eldest son (Ramswaroop) has two sons, aged 13 and 11 years, respectively. The second son, Himmat also has two sons. Eldest among them is about 12 years old while the second one is around 9 years. He also has an 8 year old daughter.

Harnaam has altogether 21 acres of agricultural land which he inherited from his father. This land is equally divided among the three brothers. Each brother owns approximately 7 acres of land. Harnaam told that long time ago he bought a piece of agricultural land measuring about 3 acres and announced in the family that he had bought the land for Ramswaroop, his eldest son. Since then that piece of agricultural land was considered belonging to him. However, Harnaam never transferred the land



legally to Ramswaroop. Initially, none of his brothers bothered about that land. However, with land becoming an important asset of profit making, his younger brother (Himmat) asked him about his share in that land. Ramswaroop denied any division of that land on the ground that their father had purchased this land for him. Therefore, that land belongs to him. Himmat objected to his claim on the ground that since the land was not transferred legally to Ramswaroop and remains still on their father's name, it should be distributed equally among all brothers. Ramswaroop was not very keen to share the land with his brothers as he was cultivating it right from the beginning. Harnaam told that the issue became the bone of contention between brothers. Himmat got annoyed with his elder brother and stopped speaking to him. Slowly, he curtailed his ties with his brother and moved to one portion of their ancestral home. He even decided not to share the kitchen with his elder brother and asked his wife to cook food separately. Similarly, Ramswaroop moved and occupied another portion of the home and established separate kitchen. However, this did not resolve their problem. On the contrary, it further deteriorated their relationship. There were frequent quarrels between the brothers on one or the other pretext. To avoid the situation from getting worse, Harnaam decided to cultivate that land himself along with his youngest son Dileep. Harnaam told that for the time being the issue has been resolved but he feared that the situation would get complicated after his demise. Therefore, he planned to divide the land (along with the hereditary land) legally among his three sons equally. Such kinds of conflicts were also reported from other caste groups

It is evident from the above account that some attributes of the joint family system in *Pataaripur* has witnessed changes. Decisions pertaining to important family matters are not any

longer taken in joint consultation in cases where families have moved out of their ancestral houses, while families who still reside in the extended family households continue to be opting for joint consultations for important decisions.

Changes in ritual relations

It was found that the traditional roles and relations, mainly at occupational level, between the extreme groups on social hierarchy were not like the ones which were followed almost two to three decades back (much before the changes witnessed in agriculture system in the village). Unlike earlier, the lower caste (Aharwaar) no longer performs their customary roles like taking cattle for grazing, cleaning the cattle sheds, guarding agricultural fields, etc., to the upper caste Lodhis due to various supportive policy level decisions and actions of both the State and Central Government meant to uplift them. Now, none of them were found to be associated with their customary form of relationship with the upper castes and their relations are more on professional and need basis.

On the contrary, during the life cycle rituals, the customary roles and relationships between upper castes and lower castes are active. It was observed that the castes which provided customary services during life cycle rituals still maintain their customary ties with their clients. The patron performs customary ritual services for his client for which he receives payment in kind. For instance, Nai caste members still provide the post delivery care and services to their clients and receive four *phele* (40 kg) of wheat as annual reward. Similarly, the clients still use the services of male Nai as a messenger for inviting villagers to attend events like birth, marriage, death, etc. Lodhi caste group do seek services of Brahmin priest for performing rituals on auspicious occasions.

Changes in social organization

Village elders reported that social ties and interaction pattern between the villagers were caste and hereditary based in the past. The groupings of inter-social nature were not usually seen earlier except with members involved in patron-client relationship. In this, the relationships between the members from different social groups were personal, caring, reciprocal and hereditary in nature, thereby, allowing the inter-caste based interactions. Though this form of relationship gives scope of inter-caste interactions, the traditional practice of purity and impurity norms are followed. For instance, members of lower caste were forbidden to enter into houses of their clients, generally from upper castes. They were also not allowed to sit near to their client and a physical distance was maintained. However, with changing agricultural and socio-political system of *Pataaripur*, the caste and hereditary based social groupings or interaction pattern was found to be diluting. The increased competition among higher caste-class farmers, redistribution of resources, economic mobility and work guarantee under MGNREGA has diluted the iniquitous traditional socio-economic ties, including the practice of untouchability.

It was found that members from lower caste, who at one point of time were not allowed to enter into upper caste households, are no longer prohibited. In fact, they found to be sitting (yet not at the same level) within the premises of upper caste household, some even watch television in upper caste houses. It was observed that in the house of village headman (Pradhan), who belongs to Lodhi community, few individuals belonging to Aharwaar caste families were allowed to enter into the premises and also into some of the rooms to watch television as they had cordial relationships with the headman. Most of these persons

generally come to meet the headman, and if he is busy in some other work then these persons enter into the room where someone from the family is watching the television. However, these persons still sit on the ground and are not allowed to come in the vicinity of kitchen and are not allowed to eat food along with the household members.

Similarly, it was found that the tractor owner belonging to upper caste group does not hesitate to plough the field of a farmer who belongs to lower caste group using his tractor for which he gets paid. It was learnt that the changing agricultural system demanded such kind of changes. The intensification of agriculture increased the demand for labour in the village, particularly during post sowing, harvesting and post harvesting time. Villagers reported that since people belonging to lower castes form a considerable proportion of labour, it becomes a necessity for those belonging to upper caste large landholders, who have less human resource to cultivate, to seek the labour of lower castes in various agricultural activities. Expressing or showing any kind of discrimination or disrespect towards the lower castes would mean losing their services, which is very essential in the changed scenario of production.

Many of the villagers from higher castes reported that due to various government schemes people of lower castes, unlike in the past, have more opportunities to get work within as well as outside the village. Upper caste people opine that if relationships with the lower castes are not amicable, then chances of losing their services are quite high. If lower caste people feel that they are being discriminated, they will opt to work in some one else's fields. Finding work for them is no more a problem, as most of the landowners actively seek their labour during pre- and post-harvesting time. It was told that

maintaining good relationship with them comes handy during the times of labour scarcity. It is for this reason that few farmers from the upper castes, including village headman, allow persons from lower caste to enter into their household premises. Most of these farmers are semi-medium or large landholders and they lack workforce in their families.

Thus, it is evident that the changes in the village have increased nonhereditary, impersonal and professional ties, and interactions and groupings between various social groups. The principle of organization has no more remained hereditary and exclusively caste based. This has also diluted the restrictions on territorial mobility and social distance has become quite flexible. However, a low caste person cannot enter the place where food is being cooked, as villagers belonging to higher caste feel that the sanctity of the place will be affected. Similarly, inter-dining, inter-caste marriages are prohibited and seldom encouraged. In one case, a Lodhi boy who wanted to marry a Khangaar girl did not materialize as boy's family did not favour inter-caste marriage. It is, therefore, apparent that though the village has shifted to 'class based' organizational principle due to changes witnessed in the production systems, it is confined to a utilitarian level (occupational and need based). Thus, it has not led to structural changes in the village.

II

Changing Outlook on Social and Economic Values

Village elders reported that land is no longer merely seen as a source of earning livelihood. Rather, it has become an important source of earning money. The technological inputs and mechanized farming has substantially increased the income level of famers including marginal and small farmers. Unlike in the past, this has strengthened the economic value of land and

farming across different caste-classes. However, the increased economic value has influenced the farmers' behaviour to undertake risk for maximization of output and profit. It was observed that farmers across castes and classes have mortgaged their lands and other properties in order to procure the farming technologies. The competition to own these technologies was quite evident among farmers. In most of the cases, it was found that farmers invest first to procure irrigation resources than tilling technologies due to cost variation. In comparison to tractor, digging a bore well is comparatively affordable. Further, owning bore/tube well makes the farmer self reliant against deficient rainfall. This ensures that farmers need not to pay for irrigating agricultural lands, thus saving money. It, therefore, provides one with an alternative of selling water to others. Thus, by owning irrigation resources, a farmer not only saves money but earns money over a period of time, which, in turn, is invested in buying tractor.

However, a huge risk is involved in digging a bore well, particularly when it is done through private drillers. It was found that due to the topographical and geological condition of the study area, continuous strata of underground water is unlikely to be found. The groundwater is located, generally, between empty spaces or gaps of rocky strata wherein water gets deposited through number of interconnected fissures. As mentioned in chapter IV, due to high cost and time involved in digging government assisted deep tube wells, villagers preferred to engage private drilling machines for digging bores. Therefore, unlike the government scheme, groundwater survey is not conducted and drilling is done wherever farmer wishes or asks them to do. In the absence of technical groundwater survey there is an uncertainty of getting water on those locations or points. This leaves the farmer vulnerable as the private drillers

do not give any kind of assurance that farmer will get water at the location or point where he has asked them to drill. However, the farmer has to pay full amount to the private driller even if he does not get water. If the farmer is fortunate he gets water, otherwise his investment goes in vain. If he avails a loan (which most of the farmers do) his condition becomes worse. It would be pertinent to note that during the time of fieldwork around twenty bore-wells alone were drilled in three months - April, May and June. These months are preferred for drilling as agricultural fields remain without any crops and dry, which makes it convenient for drilling machine to reach the locations. Besides, farmers do not object if the machine moves through their field as the field remains vacant. However, famers object in the other seasons due to chances of crops getting destroyed as drilling machine moves over their field. Nevertheless, it was found that out of twenty bore wells drilled, half of them failed. In such a situation, economically weak farmers incur heavy losses. Economically weak farmers with limited savings and borrowings are able to invest for drilling one bore whether it yields water or not. Unlike the rich farmers, an economically week farmer cannot opt for drilling another bore immediately if the first one failed to yield water. The following two case studies illustrate the point.

Ghumman Singh, aged around 30 years, is a young Lodhi farmer. He is married and has two children. He owns 10 acres of agricultural land. But he neither had any traditional irrigating source (well) nor any other sources like tube/bore well. The only source of irrigation was a check dam which was constructed on 4 acre plot by the Minor Irrigation Department during '90s. He was irrigating his field through the water stored in the check dam. Since last three to four years he was also purchasing water. Last year, he decided to have his own bore-well so that

he would not be depending on others for irrigating his fields. It was in the month of May when he contacted the private contractor for drilling the bore. Finally, the date was fixed and the drilling started on his desired location/spot. Unfortunately, even after drilling till 50 feet, only layers of stones were noticed. It appeared that huge rocky layer was lying underneath the soil strata, which is a usual phenomenon in the study area. Realizing this, Ghumman Singh thought of changing the drilling location/spot and asked the contractor to drill in another location. Fortunately, on this location, water was available underneath, and after drilling around 80 feet, water gushed out. Though the first attempt did not fetch water, he had to pay for drilling in the two locations. Since he was economically sound he could bear that extra expenditure.

All the farmers in the village are not economically sound like Ghumman Singh. Natthuraam, who belongs to Aharwaar caste, is 35 years old, married and has three children. He has one younger brother, Kaliyaa who is 30 years old, who is also married and has two children. Both of them stay in the same house and together own 4.5 acre of agricultural land. They did not have any irrigation resource with them until last year when they decided to dig a bore in their field. Since they were planning for it for quite sometime, they saved some money for that purpose. They borrowed some money from the moneylender by mortgaging half an acre of their agricultural land. They thought that if they get water they can repay moneylender and take back their land. Like Ghumman, they too opted for a private contractor to drill the bore well. The first drilling was not successful as in the case of Ghumman Singh. It was observed that while the drilling was going on, driller suddenly got stuck at 40 feet depth. Somehow, the operator managed to pull out the driller. Fearing that the driller would get stuck again, the

contractor refused to drill thereafter in that point. He asked Natthuraam to suggest any other location/spot where he can drill. Natthuraam got into difficult situation as he did not have enough money to pay the contractor for another drilling. Knowing well that the contractor would ask money for two drillings, he decided not to opt for the second drilling. Nevertheless, he paid for the first drilling to the contractor. He has to wait for another year so that he can arrange some money, besides repaying the loan taken for the drilling. Though he agreed that drilling bore well by taking loan involves risk, he also opined that fearing risk cannot hold back the desire of having own irrigating resources, which over a period of time would save a good amount of money. It is this reason that we find farmers across the castes and classes were increasingly taking risk of owing their own bore/tube wells.

It was found that the increased economic mobility across various caste-classes has gradually challenged the prestige of those farmers with ascribed status by those with achieved status. The three traditional dominant Lodhi clans in *Pataaripur* were facing stiff economic and political competition from newly emerged economically strong groups which has gradually acquired wealth and resources. This, in turn, has challenged the hereditarily status of these clans and intensified the struggle for prestige. Unlike earlier, the prestige is no longer merely associated with ownership of large tracts of lands, though it remains a critical factor in maintaining the dominant status. With changed scenario, the prestige has been linked with ownership of technological resources, particularly tractor and thresher. It was found that ownership of tractor and thresher gives a sense of pride to farmer as well as reflects his higher social and economic status in his peer group. Similarly, participation in Panchayat election was found to be a prestige

symbol. The contestants, unlike earlier, were no longer belonging to dominant clan. The economic mobility had created new economic hierarchy which, in turn, has led other groups to participate in Panchayat elections.

Along with the ownership of these technological resources, owning cemented house and household assets, like motorcycle, television with DTH, mobile phone; organizing religious events, like oration of *Ramayana*; and educating children in private school further adds on to prestige of a farmer. It was found that almost 30 percent of the households in the village had colour televisions. Most of these televisions sets were bought in the last 3 years. However, the proportion of households belonging to medium and large landholding category owning colour television set was large as compared to small and semi-medium landholding households. Out of total households having colour television sets, the share of small and semi-medium landholders was only about 25 percent, but it is gradually increasing. Further, those households who had colour television earlier were found to have Direct to Home (DTH) connection. These farmers have purchased set-top boxes of Tata Sky for their televisions. However, the proportion of such households owning both colour television and set-top boxes was very low. Altogether, there were 11 households in the village who have such DTH connections. All these villagers were either large or medium landholders.

Similarly, it was informed that most of the farmers in the last 3 to 4 years have purchased mobile phones and motorcycles. The proportion of households having mobile phones was comparatively high as compared to those who own motorcycle, as mobile phone is cheaper as compared to motorcycles. Out of total households in the village, more than half (60%) had mobile

phones and a considerable proportion (40%) had motorcycles. While motorcycles were used largely by the elders, the mobile phones were carried largely by younger generation, mostly in their 20s. Most of the villagers were of the opinion that carrying mobile phone has become a status symbol and one can find at least a person in the family having a mobile phone.

Educating children in private school also is seen as status symbol. It was found that with higher income at their disposal, current generations of farmers had enrolled their children in private schools in the village itself. There were basically three schools in the village: one was government upper-primary level school, while the other was secondary level private school, managed by an individual. There is another private school (referred to as Shishumandir by villagers) managed by an individual who stays in Virdha block. He has been running this school for the last 17 years. Unlike the government school, Shishumandir did not have its own building, and half of classes are conducted in community hall and other half under tree. Parents have to pay a monthly fee of Rs. 100. In spite of having government schools, where the education is free, parents prefer to send their children to Shishumandir as the quality of education is much better in it than in the government schools. The head Master of the school told that he has been witnessing increase in the enrolment number in his school. In few cases it was found that parents have de-registered their wards from government school and enrolled them in the private school as they could afford school fee due to increase in household income. As in the case of Rati Ram, many others withdrew their wards from the government school and enrolled them in Shishumandir. Organizing oration of *Ramayana* on major occasions or important events of the family, reflects the higher economic status of the farmer, as arranging such events

requires substantial money. It was found that social groups lower in caste hierarchy, but who became economically sound, spent good amount of money in organizing such events.

III

It is evident that change in production system had a bearing on social structure and social behaviour. The increased economic mobility has though resulted into uneven allocation of livelihood resources across various caste-classes but it has certainly altered the economic roles and relationships. The relationship between lower and higher caste-class farmers has become more professional and commercial. As relations of production, patterns of resource ownership and income level changed, the conflict at the familial level gradually increased. The solidarity between kin-groups has weakened and conflict widened due to uneven distribution of benefits. This has also resulted in changes in living arrangements of household members. The inequalities in power structure were being challenged by the recently emerged economically strong sections. The increased competition to capture power of village headman evidently reflects that power is no longer the exclusive domain of dominant groups. However, it has not led to structural changes in the village. Similarly, ritual roles and relationships between extreme groups on social hierarchy at occupational level were no more on hereditary lines. However, at life cycle ritual level the customary relations between communities continue to exist. However, one notices changes in social and economic relations among communities. Thus, some aspects of social structure were found to be influenced by the changes witnessed in village. Nevertheless, one notices continuity in the structural elements in the midst of rapid socio-economic and political changes.

CHAPTER VI

CHANGING LIVELIHOOD RESOURCES, STRATEGIES AND COMMUNITY PARTICIPATION

This chapter attempts to understand the influence of changed livelihood resources/strategies due to development interventions on community participation in different stages of watershed management programme (WSMP). As observed in the preceding chapters, over a period the farmers across the study village have witnessed changes in availability, accessibility and ownership of different livelihood resources. As mentioned earlier, that these changes started taking place much before the WSMP, and the implementation of the WSMP and NREGA further accentuated these changes. However, it was also noted that these changes were not uniform across different sections of farmers; some sections garnered huge benefits while the others received only meagre benefits. Furthermore, these changes were not witnessed simultaneously in different sections of the villagers, which imply that some sections, due to their traditionally dominant economic position, were able to harness the benefits of different interventions little earlier than the other groups. Nevertheless, these changes also induced changes in their livelihood strategies (mainly farming). Given this, the chapter attempts to explore the influence of these uneven and asynchronous changes in availability, accessibility, and ownership of livelihood resources and strategies across different sections or groups of community on their participation in different stages of WSMP.

Ever since India attained independence, there have been many initiatives to tackle various developmental issues. However, most of the earlier approaches were inclined towards economic

growth with a top-down approach and it was assumed that the benefits will trickle down to the needy people. Whatever programmes introduced by the government were mostly welfare programmes, and they did not seek active participation of the beneficiaries. Moreover, these approaches were so dominated by the technical or economic factors that the characteristics of the given social organization and the very actors of development were considered as an afterthought (Cernea, 1990). Unfortunately, these approaches failed to show any impressive results. As a consequence, there was a search for alternative approaches that were more people centric. As Muraleedharan (2002) stated, efforts were made to consider the question of distributional equity, poverty, basic needs provision and adoption of appropriate technologies. These efforts, according to him, were to redefine the aim of development towards fostering fairer distribution of income and resources, encouraging local participation and promoting socially and environmentally appropriate technologies. In other words, the attempt was to make development programmes more participatory and inclusive. As a result, we find that the term 'Participation' started attaining popularity from 1970s onwards when a paradigm shift from "top down" to "bottom up" approach took place.

With this paradigm shift, it was also recognised that the fundamental aspect of any new developmental programme lies in the active participation of the community, which, in turn, depicts the success of the programme. The Fifth Five Year Plan for the first time very explicitly stated that the involvement of the people and their elected representatives is a prerequisite for effective planning. The same view is being reiterated in almost every Five Year Plan. Now, it is widely shared among the policy

makers, administrators and researchers that participation is the key ingredient to the success of any programme and the lack of it results in poor outcomes of development.

This shift in development approach also brought influence on the functioning of WSMP in India. In mid nineties, community involvement in all the WSMP was made mandatory. It received wide appreciation from the development practitioners and was considered as a landmark decision. This is due to the fact that the watershed approach requires an integrated and holistic development of the whole area coming under its jurisdiction. For this to happen, it is required that the inhabitants of the area accept, follow, and implement the watershed management plan. This, in turn, calls for a collective action of the community members, as there are great possibilities of multiple users residing in watershed area and using its different resources with conflicting interests. Therefore, a common platform of understanding and thinking is needed within the community for a successful and sustainable programme. This can be possible only through active participation of the community members. Thus, community participation gradually became one of the critical components in WSMP and presently considered as essential for the success and sustenance of the WSMP.

However, the term “community participation” lacks a uniform or generalized understanding among its users. It has been defined and used in different ways by various researchers, planners, and administrators. Since late 1970s, there has been a range of interpretations of the meaning of participation in development. Phrases such as “planning from below”, “involving the people”, and “incorporating people’s knowledge” became synonymous to participation in various projects. The more refined

understanding of the concept has been evolved over a period of time. Thus, it becomes an arduous task to confine it to one single definition. However, it would be worthwhile to understand the concept from the point of view of various perspectives which will enable us to have a comprehensive idea about it.

Cohen and Uphoff, within the context of rural development, define it as "people's involvement in decision-making processes, in implementing programmes, their sharing in the benefits of development programmes and their involvement in efforts to evaluate such programmes" (*1977: 6*). For some scholars it is "an active process by which beneficiary or client groups influence the direction and execution of a development project with a view of enhancing their well-being in terms of income, personal growth, self-reliance or other values they cherish" (*cited in Leyland, 1991:12*). While for others it is "organized efforts to increase control over resources and regulative institutions in given social situations on the part of groups and movements of those hitherto excluded from such control' (*Pearse and Stifel, cited in Clayton et. al., 1998:5*). On similar lines, Ghai defines participation as a "process of empowerment of the deprived and the excluded. This view is based on the recognition of differences in political and economic power among different social groups and classes. Participation in this sense necessitates the creation of organizations of the poor which are democratic, independent and self-reliant" (*cited in Clayton et. al., 1998:5*).

Similarly, various development institutions have also defined the concept in different ways. For instance, OECD within the context of development defines it as "partnership which is built upon the basis of dialogue among the various actors, during

which the agenda is jointly set, and local views and indigenous knowledge are deliberately sought and respected. This implies negotiation rather than the dominance of an externally set project agenda. Thus people become actors instead of being beneficiaries" (*cited in Clayton et. al., 1998:6*). Participation is also viewed as "a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affects them" (*World Bank, 1994*[1]).

Some of the basic objectives of participation include making known local wishes; generating developmental ideas; providing local knowledge; increasing the capability of communities to handle their affairs; extracting, developing and investing local resources (Chambers, 2005). It is considered both as a means and as an end. It helps maximize the use of human capabilities and is thus a *means* of increasing levels of social and economic development. Participation which allows people to realize their full potential and make their best contribution to society is also an *end* in itself (UNDP, 1993). Participation can assume various forms, like coerced participation, induced participation and spontaneous participation. United Nations (1981) condemns coerced participation, regards induced participation as the second best and as far as spontaneous participation (or bottom up participation) is concerned, it believes that this kind of participation comes closer to the ideal mode of participation, as it reflects voluntary and autonomous action on the part of the people to organize and deal with their problems. The above views not only reflect the broad nature of participation, but also illustrate the fact that it takes different forms in different contexts.

Given the broad nature of the term and the issues involved in it, it appears that the interpretation of the term is closely linked with the perspective of a researcher or agency about development. A universal interpretation or understanding or models of participation that can be applicable to all development programmes and projects seems to be a difficult task. Therefore, it is evident that many development agencies categorically state about their understanding of participation. It also helps them in determining their methodology and strategy, which they use in the development projects. In the present context and for our analysis, we adopt Cohen and Uphoff's (1977) understanding of participation, as their interpretation assists in identifying the key-phases (planning, decision-making, implementation and post implementation) of development programme, where community involvement could be observed. Therefore, in this chapter an attempt is made to analyse the community participation in each of these stages, namely, planning, decision making, implementation and post implementation, i.e., maintenance phases of the WSMP within the context of changes that are witnessed in terms of availability, accessibility, ownership and utilization pattern of the livelihood resources and strategies.

I

PLANNING PHASE

Planning phase is considered as the backbone of any development programme and is one of the decisive aspects behind the success and sustainability of the programme. Different studies revealed that the programmes which pay more attention on planning phases are more result and target oriented than the others. This phase is preparatory ground for the project and the participation of villagers at this stage is of

utmost importance for identifying and relating the programme with their own needs and limitations. Planning can be centralised in nature where few intellectuals sit together and prepare plans related to development programmes. However, the centralised planning cannot be successful with the entire programme and particularly in case of community based development programmes where community involvement is considered as the driving force behind successful functioning of such programmes. Watershed development programme is no exception to this where local communities play central role in identifying resources, defining development priorities, choosing and adapting technologies and implementing management practices. Watershed programme focuses on the involvement of community right from the planning to the execution and post execution phase of the programme. Within this context, villager's participation has been seen in various stages of planning phase of the WSMP in the study area.

One of the significant aims of planning phase of any development programme is to create awareness about the programme among the targeted community members. A proper emphasis on creating awareness ensures community participation as well as success and sustainability of the development programme. In general, mass media is considered as one of the effective tools for creating awareness about any programme. However, this particular tool has a restriction in WSMP as the nature of the programme demands one to one and continuous interaction among the community members and the stakeholders who are involved in implementing the programme. Accordingly, watershed development programmes emphasizes on alternative and innovative methods, such as, holding consultation, conducting participatory rural appraisal and

holding community meetings during initial stages of the programme. These methods not only assist in creating awareness about the programme, but also help people to get well versed with the project activities, its objectives and outcomes, which, in turn, increase the community participation in later stages of the programmes. Therefore, analyzing the involvement of villagers in these stages would certainly be worthwhile.

Consultation

In general, it is believed that consultation with people during planning phase of the watershed development programme by the implementing agency leads to better understanding of the programme among the villagers. It also intensifies the possibilities of greater participation of people in later stages of the programme. The Participatory Rural Appraisal (PRA) exercise in watershed development programme provides one of the initial platforms for holding such consultations with the village community. The guidelines of watershed development accordingly specifies that the Watershed Development Team (WDT) – a multidisciplinary team, consisting of officials from different disciplines – should visit and conduct Participatory Rural Appraisal (PRA) for the micro-watersheds under its jurisdiction. The WDT was entrusted with important responsibilities like conducting the participatory base-line surveys, training and capacity building, preparing detailed resource development plans, including water and soil conservation or reclamation, etc., to promote sustainable livelihoods at household level, undertake engineering surveys, prepare engineering drawings and cost estimates for any structures to be built, and so on. All these responsibilities need active participation of the villagers. The PRA, thereby, not only

facilitates interaction with villagers, but also provides opportunity to understand villagers' perspective, perception and priorities. This PRA exercise should result in in-depth and precise data on physical, geographical, socio-economic conditions, important problems and a common understanding of the village community's priorities.

In view of the above prescribed guidelines and philosophy of the policy, a multi-disciplinary team was formed in the study area. This team consisted of four members belonging to the disciplines of forestry, animal sciences, engineering and social sciences. Soil Conservation Officer of DPAP acted as the team leader. It was found that this team prepared a report-cum-development plan, which described about the different processes involved in the development of watershed and provided detailed information about physical and geographical conditions; community problems and their priorities under the micro-watersheds. One section of report also described about the PRA exercise conducted by the WDT members. Therefore, in order to assess the involvement of community members (*in other words, whether they were consulted or not*) in this exercise, it was thought that probing on the awareness/knowledge of villagers about the WDT members, their visit to the village and interaction with them would help in reflecting the involvement of villagers during initial stages. Accordingly, each head of the household was asked two questions, namely, their awareness about the visit of WDT in the village and their interaction with its members. It was found that an equal proportion of the heads of the households (38%) of the total farmers reported their awareness or lack of it with WDT members during the initial stages of the programmes. Among those who reported not aware about the WDT members visit, most (69%) of them were

landless, marginal and small landholders, a clear reflection of their limited involvement in initial stages of the programme. Those who reported their being aware of WDT members visit have categorically denied of having any interaction with WDT members. They told that they came to know about WDT visit from others, thus rendering them similar to those who were neither aware nor interacted with WDT, as they could not interact with the team members and shared their opinion and views. Of the total farmers, nearly one fourth (24.2%) were aware as well as interacted with WDT members. It was found that a majority (75.7%) of them were semi-medium, medium and large farmers (Table 6.1).

Table 6.1: Awareness about WDT Visit

Indicator	Landless	Marginal and Small (0.01 - 2.00 ha)	Semi-medium (2.01 - 4.00 ha)	Medium and Large (>4.01)	Total
Not Aware and No Interaction	3 (5.2 %)	37 (63.8 %))	12 (20.7 %)	6 (10.3 %)	**58**
Aware but No Interaction	2 (3.4 %)	15 (25.9 %)	27 (46.6 %)	14 (24.1 %)	**58**
Aware and Interacted	0	9 (24.3 %)	17 (45.9 %)	11 (29.7 %)	**37**
Total	**5**	**61**	**56**	**31**	**153**

According to the key informants, most of those who participated are close allies of Pradhan and, interestingly, they were also early users of the tube and bore wells. Considering that, the watershed structure would help in recharging the groundwater, which in turn would help them in withdrawing the groundwater incessantly and it was quite obvious to see their active interaction with the WDT members.

Thus, it is apparent that the involvement of farmers (*in form of consultation during PRA exercise*) was limited to few farmers reflecting the limited participation of the community in initial stage of the programme. Further, the involvement of landless, marginal and small farmers in interacting process was found to be comparatively very less than semi-medium, medium and large farmers. Even among semi-medium, medium and large farmers, an active participation of few farmers (who are close to Pradhan) was only noticed. Therefore, the claim of WDT members that the data for the watershed development planning was collected in a 'participatory way through the involvement of the whole community' is found to be contentious. It was found that the PRA methods conceived by the planners as a tool for elaborate and active participation of the community members have been reduced to mere ritual to be routinely followed at the ground level. Regular village meetings with a few participants are labelled as participatory exercises. Moreover, the participation usually involved economically dominant and influential people in the village, thereby, leaving just meagre benefits for the poor.

It was also found that even during the initial phases of the programme, when the concerned officials conducted land survey in order to identify the potential locations in watershed area, where technical structures like construction of check-dams, bunding, etc., could be carried out, farmers were not consulted. Majority of the villagers pointed out that no consultations were held with them during the land survey. Key informants reported that prior to the implementation of the project activities officials (including *'Bandi Babu'*) visited the area to conduct land survey. However, their visit was restricted to the fields and Pradhan's (village headman) house only. They never visited the villages nor

consulted any villager. Only a few villagers were aware of the survey and most of them were close allies of Pradhan. A small proportion (10%) of the farmers belonging to different castes answered positively when asked about the land survey. However, these villagers reported that the officials did not inform them about the survey. It was merely their accidental presence in the field at the time of survey that gave them the idea about the survey. Though they were aware of the land survey, they had no idea about the programme for which the survey was being carried out. This further reinforces the fact of limited participation of villagers in early stages of the planning phase. PRA is, in a way, twisted to suit the needs of the dominant sections. This further reinforces the existing power structure relations.

Community Meetings

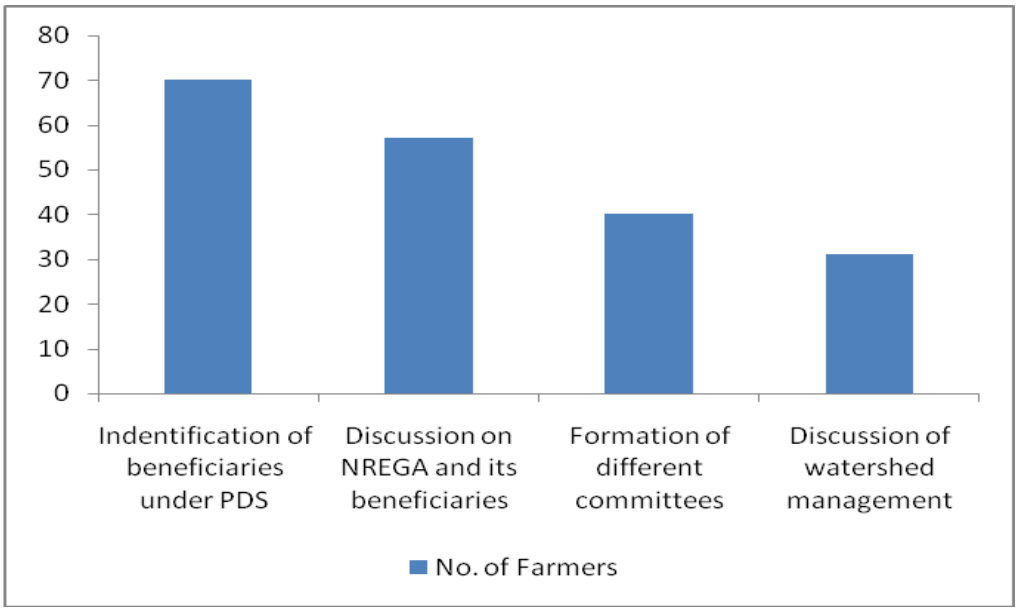
Community meetings are another effective means for creating awareness about the programme. This tool is widely used in most of the rural development programmes, including WSMP, as it provides an opportunity to project officials to have face-to-face interaction and communication with the whole community. Hariyali guidelines, which was followed for developing the *Pataaripur* watershed, also emphasises on such community meetings in form of Gram Sabha meetings. Under the Hariyali Guidelines, Gram Sabhas had been devolved with the responsibilities of monitoring and guiding the watershed development work. It is not only entitled to monitor the progress of physical works carried under watershed development and executed by village Panchayat, but also is responsible for approving the watershed development plan. Accordingly, the guideline makes it mandatory for Gram Panchayat Secretary to convene Gram Sabha and Gram Panchayat meeting at least two

times in a year for facilitating the decision making process in the context of watershed development project. Thus, the Gram Sabha meeting is certainly a good platform to become aware of the project activities. Given this, it would be pertinent to look into the involvement of community members in such meetings.

In the study area, it was observed that both the concerned agencies (village Panchayat and PIA[2]) and officials (Panchayat secretary and village Pradhan) did not put in sufficient efforts in this direction. It was found that only one Gram Sabha meeting was held between 2005 (when WSMP commenced in the village) and 2008 (when the fieldwork for the present study was initiated). This Gram Sabha meeting also happened to be the first meeting of the village Panchayat after 2005 general Panchayat elections[3]. According to the key informants, being the first Gram Sabha meeting after the Panchayat elections a significant proportion (58.8%) of farmers attended the meeting. However, they informed that the issue of watershed management was sidelined and the focus was on identification of beneficiaries under PDS schemes, discussion on NREGA job cards and formation of other committees, such as education committee, water and sanitation committee, etc. This observation of the key informants corroborated with the data on the awareness of farmers about the programme and issues discussed in the meeting.

Farmers were asked to recall the issues discussed in the meeting. The analysis of their responses revealed that a significant proportion of the farmers who attended the meeting told that the beneficiary identification under PDS[4] and resolving the associated problems was the foremost issue discussed in the meeting (Chart 6.1).

Diagram 6.1: Issues Discussed in the Gram Sabha held in 2006

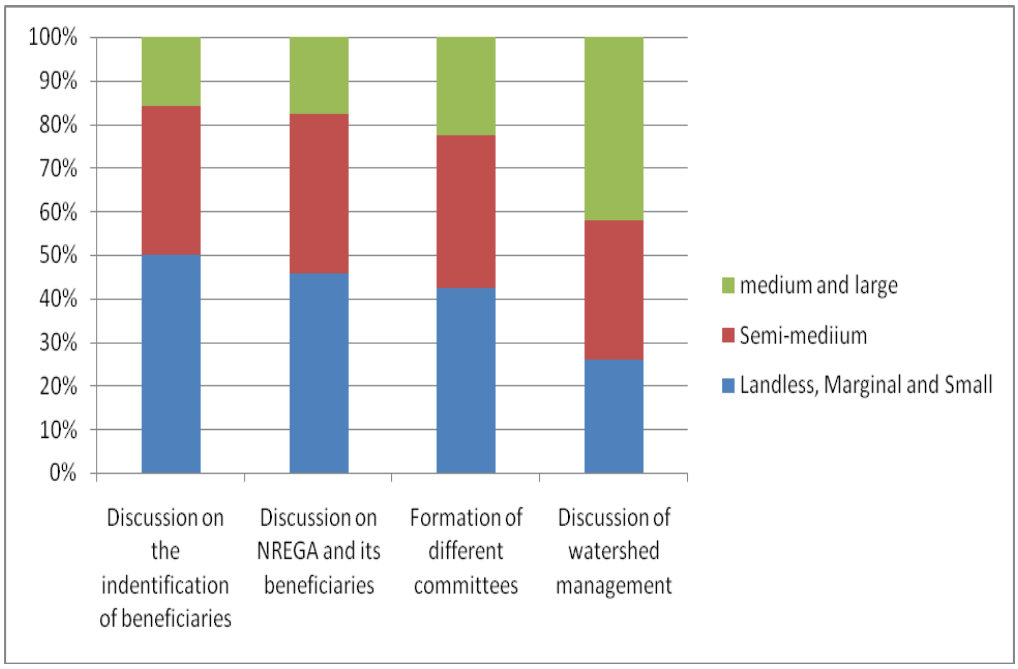


The issues that were subsequently discussed were the issues pertaining to NREGA scheme and its beneficiaries, formation of different committees, and, at the end, the WSMP. It is apparent from the responses that the discussion on WSMP was relegated to low priority in the wake of other issues that were considered significant for the farmers (Diagram 6.1).

A further analysis of these responses in relation to the landholding of farmers was made in order to understand the priority and interest of various categories of farmers. It is evident from the Diagram below (6.2) that the percentage of farmers who have told that issues other than watershed management were discussed in the Gram Sabha meeting largely belong to landless, marginal and small farmer categories. This may be due to the fact that both these schemes, namely, PDS and NREGA, take care of their immediate needs. For instance, PDS ensures a minimum of fixed quantity of cereals for these farmers/landless, while NREGA ensures minimum 100 days of

work and income to the farmer/landless using his/her labour. It would be pertinent to note that though the NREGA activities were not initiated in the village till that time, the identification of beneficiaries was started much earlier. Further, the significance of the scheme might have forced these farmers to discuss and know the details about the scheme in Gram Sabha meeting.

Diagram 6.2: Landholding wise Categorization of Farmer's Responses



Therefore, it was reasonable to see only a small percentage of such farmers reporting about the issues related to WSMP being discussed in the meeting. In spite of significant number of farmers attending the Gram Sabha meeting, the meeting failed to act as an awareness source for the WSMP as other issues and programmes dominated the meeting. Further, not holding Gram Sabha meeting and unwillingness of few large farmers to disclose the details of the programme during the Gram Sabha meeting further limited the awareness about WSMP among the

community members. No Gram Sabha was held exclusively for WSMP.

Besides community meeting and consultation, another mode which is quite instrumental in generating awareness about the programme and its activities is lower level project staff (mainly *bandi babu*) of implementing agency, officials who assist in smooth functioning of administrative work of Gram Panchayat, mainly Panchayat Secretary and village Pradhan. Their role is significant, particularly in those WSMP that are implemented under the Hariyali guidelines, as they are the critical component in programme implementation. These officials are expected to disseminate as much knowledge as possible. However, it was found that these officials played a limited role in creating awareness about the programme.

Apart from the field level functionaries, it is Pradhan who stays closely with the community and is expected to act as the first source of information about any programme, including WSMP. However, it was found that due to internal caste and class dynamics of the village, his interaction was restricted to only those with whom he shared close rapport and with those people who have supported him in Panchayat elections. The election alliance was reported to be a major issue in the village. Villagers, irrespective of their caste and landholding, reported about such discrimination (in terms of inequitable distribution of benefits under different government programmes) being meted out to them as they belonged to different political alliance and supported the opposition candidate. Besides village Pradhan, Panchayat Secretary and *bandi babu* are the other two officials who can also be instrumental in creating awareness. However, it was found that both these officials hardly spend

quality time in the village and restrict their visit to Pradhan's house that is located on the periphery of the main village settlement. Since his house is accessible from the connecting road that does not pass through the village, these functionaries ignored the villagers during their visit to the village. During fieldwork, it was observed that Panchayat Secretary as well as *bandi babu* usually take this road to visit the village, sit under the neem tree (is also temple site) and visit Pradhan's house, thereby, avoiding other villagers. In case some villagers by chance pass through that way or visit temple, these officials interact with them, provided the passing villager initiates talk. They don't make any voluntary attempt to speak with them or share information with them.

From the above analysis, it is apparent that the participation of the community was very little during initial stages of the programme. It is clear that the villagers belonging to medium and large landholding category participated actively in the initial stage of the programme as they perceived the long term benefits (mainly in the form of groundwater recharge and availability of surface water). However, even among them, the participation of villagers who are elites, economically strong and close associates of Pradhan was more as compared to the others during the initial stages. It was also noticed that the Gram Sabha meetings which has a great significance in WSMP, particularly in view of the Hariyali guidelines for implementing the programme, were rarely conducted. Further, the lackadaisical attitude of officials, their less interaction with all the villagers, their confinement to few, and indiscreet communication with the villagers about the programme further influenced the involvement of other farmers.

II

DECISION-MAKING PHASE

Decision-making is another important phase in most of the WSMPs, which emphasizes the involvement of community. According to Uphoff (1977), one can find decision making taking place at global, regional, national and local (community, group, household and individual) level. The decision making at local level that involves communities, groups, households and individuals are of great significance. Uphoff argues that the decision-making at local level are quite different from other levels in terms of processes involved in it. The decision-making at local level is based on interpersonal relationships, which is comparatively more frequent and intense because communities exist as social entities. At local level, people know each other personally, share mutual rapport and have great sense of obligation than at higher level, wherein the interpersonal relationships are defined more formally or legally. Decision making at this level are based more on authority than on consensus, which grows out of discussion and mutual understanding. The latter (consensus based decisions) has always better chances at local level.

The possibilities of such consensus-based decision taking are high in those instances where communities are entrusted with the responsibility of implementing development programmes. Our study is one such case wherein Hariyali guidelines had devolved significant responsibilities of implementing WSMP to the communities through the medium of Gram Sabha and village Panchayat. Though the guidelines envisage an active role to Gram Sabhas in terms of decision making, it was found that it did not play or perform the desired role due to lack of participation of villagers in it.

It was found that the decision made by the Gram Sabha largely revolved around construction of structures such as bunds and check-dams in the watershed areas. Except for construction of soil and water conservation structures, no instances were reported wherein the Gram Sabha took any collective decision with regard to WSMP. Again, these collective decisions were not taken by consulting all the members or villagers. Given the fact that only one Gram Sabha meeting was held after the initiation of WSMP, which lacked a uniform involvement of all the villagers, it was obvious to find that the decision were largely influenced by the dominant groups of the village. The involvement of farmers belonging to large, semi-medium and medium landholdings was more in planning phase as compared to the others. Therefore, limited involvement of other farmers in decision making phase was obvious. Key informants as well as the other villagers reported that the decisions were highly influenced by the village Pradhan, his close associates and *bandi babu*. In fact, most of the farmers (mainly marginal and small farmers and landless) reported about having interaction with the WDT, denied any kind of involvement in decision making. They told that though they interacted with the WDT members in the Gram Sabha meeting and had idea about the programme, but rarely got involved in any kind of decision making, specifically pertaining to location of structures. Many respondents informed that there are hardly any instances where all the farmers sat together to make decision regarding watershed structures, their location and expenditures involved in it. They told that the location and kind of structures were largely decided by the Pradhan in consultation with his few close aides.

Normally Pradhan informed the beneficiary that a bund or check dam was planned on his land under the programme before the work began. No Gram Sabha meetings *per se* were held for this. When asked that how far the location identified for constructing the structures are appropriate in such cases, key informants reported that since most of the farmers are generally aware of geographical conditions of their surroundings, any farmer can easily identify or tell the location where constructing a structure would be useful. Therefore, it is not always necessary to involve all the villagers in identifying such locations. However, they were of the opinion that if Gram Sabha meetings would have been taking place regularly, the villagers might have the chance to participate in decision making. But in the absence of such meetings, the question of their involvement hardly arises. Thus, it is apparent that like the planning phase of the programme, decision making also witnessed limited involvement of the community. The villagers from the lower class were sidelines in decision making process by the vested interest group who happened to be from privileged class and close allies of Pradhan.

It was also found that the participation of women in decision-making process was also very limited. The women members though are being empowered through the reservation policies in PRIs, it was found that they still lag behind in their active role in decision making (in general and watershed management in particular). It was found that the two female ward members seldom had any information about the WSMP. Being entrusted with the responsibilities of ward members, an active role in Gram Sabha meeting is expected from them. However, it was found that they hardly had any knowledge about the watershed development plan or its activities. They were only aware about

the construction of bunds and check-dams. They told that they were never a part of decision taken under the WSMP. However, it was not surprising to see their limited role in decision-making phase, as women in many rural societies are still not considered as potential decision makers. In rural societies, women, in general, have been treated as subordinate to men. This subordination of women is culturally constructed, which is maintained or manifested at both social and economic levels. The position, roles and responsibilities of rural women are largely defined by these traditionally operative cultural and social norms, values and processes, which, in turn, also define a clear cut division of labour between men and women. The women in the rural societies are largely attributed with the responsibilities of carrying out household activities, looking after parents and family, feeding and socializing children, and assisting men in farming by undertaking various supportive activities. Women are restricted to appear in public sphere and are discouraged to take authoritative/decision making positions as compared to men. Such socio-cultural norms and values exclude women from public life and restrict their participation (in terms of decision making) even when they are PRI members and *Pataaripur* village was no exception to this.

III

IMPLEMENTATION PHASE

Implementation phase refers to a stage where different activities directly or indirectly related to programme are executed or implemented at the village level. Generally, a watershed development programme undertakes different kinds of activities ranging from Self-Help Group (SHG) formation to the construction of different kinds of physical structures. However, the emphasis on these activities largely varies from region to

region. In the study area, it was found that the construction activities pertaining to soil and water conservation had been given more attention and emphasis as compared to the other activities, such as tree plantation, SHG formation, and so on.

(a) Construction of soil and water conservation structures

Construction of structures for soil and water conservation by the Gram Panchayat was the major and well recognized activity among the farmers. It was observed that the Gram Panchayat has paid comparatively more attention on the construction of such structures rather than on the other activities of the programme. Under the soil and water conservation activity, Gram Panchayat mainly undertook the construction of bunds and check-dams. The construction activity provided the farmers an opportunity to earn during off season. It would be pertinent to highlight that constructing such structures requires a considerable amount of manual work. To construct the structure, farmers are supposed to dig out mud from the field using crowbar, put it into the *pan*, dump it on the given location and trample over it. Farmers have to repeat the same process again and again. Dumping mud layer by layer and subsequent trampling over it results into the formation of a thick and broad hump on the given location. Farmers continue to dump mud on this hump and trample over it till the time the hump attains a height and shape of 3 to 4 feet mud wall or bund. Gram Panchayat paid a fixed amount of wages to the farmers who were involved in constructing such structures. It was told that a farmer was entitled to receive Rs. 80 if he dig a pit of size of 10 feet long, 10 feet wide and 1 foot deep (the mud of which was used for constructing physical structures, like bunds and check-dams).

Since the construction activity of soil and water conservation structures required a good amount of labour work, the labourers were taken mainly from the village. Interestingly, it was found that the involvement of farmers belonging to large and medium category was very minimal as compared to other farmers. It was found that out of the total farmers who reported that they themselves or one of their family members were involved in construction activity of the programme, a significant proportion (58.5%) of them were landless, marginal and small farmers for whom the wage labour is a source of getting cash instantly (Table 6.2).

Table 6.2: Landholding and Awareness wise Distribution of Farmers who were involved in Construction Activity

Farmers	**Landholdings**			
	Landless, Marginal and Small	**Semi-medium**	**Medium and Large**	**Total**
Not aware, not interacted but involved in constructing structures	22 (57.9%)	5 (23.8%)	2 (33.3%)	**29 (44.6%)**
Aware, not interacted but involved in constructing structures	10 (26.3%)	9 (42.9%)	3 (50%)	**22 (33.8%)**
Aware, interacted and involved in construction activity	6 (15.8%)	7 (33.3%)	1 (16.7%)	**14 (21.5%)**
Total	**38**	**21**	**6**	**65**

It is relevant to note that though they participated in constructing these structures, most of them could not tell about the programme under which the structures were constructed. It is because of their limited participation in planning stage. Large

majority (78%) of these farmers were neither aware nor had any interaction with the WDT members in initial stages. Some of them who were beneficiaries of these structures told that (unlike most of the medium and large farmers) they and their family members actively participated in constructing the bunds on their fields. They not only constructed the structures on their fields, but also on the fields of medium and large farmers for earning additional wages. However, most of the medium and large farmer beneficiaries seldom participated in construction activity due to their affluence. Besides this, these farmers were found to be very cautious about their social reputation, which, in turn, deterred them from getting involved in construction activity. Involving in manual labour is widely perceived as demeaning oneself, particularly among the upper caste-class farmers. Kishan Singh, aged 28 years belongs to Lodhi caste group and is the youngest son of Tejpat Singh who has around 7.3 hectare of agricultural land. During one of the conversation on his involvement in constructing such structures, he told that the economic status generally deters him to get involved in construction activities. He told that if he constructs these structures and gets paid for it, other farmers might comment him and ask him the reasons for working as a labourer when he is already well off. The case of Kishan is not the only case in the village. There were other farmers too, who reported similar reasons for restraining themselves from constructing the structures themselves. It is apparent from the above discussion that the involvement of small, marginal, semi-medium farmers in implementation phase was considerably more than the other farmers. It follows from the above account that there is a clear relationship between caste-class hierarchy and villagers' involvement in construction activity. The farmers who are in the

lower rung of caste-class hierarchy were largely involved in manual labour.

(b) Tree plantation

Horticulture is another important aspect focused in most of the watershed development programmes. It was found that the villagers planted saplings that were distributed under the programme. As compared to construction work, the Gram Panchayat paid less attention towards plantation of trees. The saplings included both fruit bearing and other trees. It was planned to plant these saplings near to bunds or check dams, as it would help in their growth since these structures can ensure water availability and soil moisture that are critical for their survival. However, it was found that farmers planted non-fruit bearing saplings near to bunds while fruit bearing saplings were mostly planted in backyards of their houses or near to bore or tube wells. Planting non-fruit trees on bunds and fruit bearing trees in the backyard or near bore wells is based on some rationality, which has economic concern too. Farmers felt that fruit bearing trees if planted near bunds cannot be protected from animals and others, as they also fetch them income.

(c) Formation of Self Help Groups

Formation of Self Help Groups (SHGs) is another important component in most of the WSMPs. Their success largely depends on the sincere and committed involvement of implementing agencies as well as active involvement of women. However in our case, it was found that neither the implementing agency nor women themselves played any active role in making such groups successful. Detailed interviews with the head of the Gram Panchayat and women members across the village revealed that there was lack of interest from both ends towards the formation of SHGs. Pradhan reported that though he took

initiative to form the SHGs, women members did not perform their initial duties. He told that as per the guidelines (that are generally adhered while forming SHG) he informed few women members to save some amount of money for a period of six months. He told that once they can maintain a minimum amount of money, they will receive seed money of Rs. 5, 000 initially. This assistance from the programme may also increase gradually depending on their performance. According to him, women members did not form any such group. When asked for the reason he reported that women wanted to have seed money first and then they wanted to pool in their savings. Nevertheless, he tried to form one or two groups by providing seed money of Rs. 2,000 initially, but the group could not sustain after a month or two mainly due to defaulters and increasing interference of male members in its functioning.

On the other hand, women members alleged that the officials provided inadequate information pertaining to formation and functioning of these groups which have resulted in failure of SHGs in the village. It follows from the above account that members from both sides lacked seriousness and commitment towards group formation and its functioning. Officials participated for the sake of completing the formalities, while women members' participation was limited due to inadequate information and awareness about its functioning.

IV

MAINTENANCE OF ASSETS

Successful watershed management is an important achievement and dream of every project implementing agency – be it government, non government or PRIs. There are number of studies, which focused on and recommended different factors

that are critical for successful WSMP. For example, proper attention towards capacity building of targeted communities, sufficient awareness about the programme among the beneficiaries, transparent and effective implementation of work, formation of assets for sustainable livelihoods, and last but not the least, sincere and honest cooperation of different officials involved in the programme. Although these factors are critical for successful and sustainable WSMP, significant among them is the active involvement of community members in post implementation phase and particularly in the maintenance of assets (both physical and non-physical) created during the programme. Maintenance, thereby sustainability, of the assets is one of the criteria for a successful and sustainable programme. As noted in the previous sections, the assets mainly included soil and water conservation structures, and development of horticulture, formation of SHGs, etc.

(a) Maintenance of physical structures

Regular maintenance of soil and water conservation structures is essential for a successful watershed development programme, and particularly, those where structures are mud built, i.e., non-masonry in nature. This is because lack of regular maintenance would result in cracks, which, in turn, lead to breaching of structures during monsoon season. Therefore, it is essential that these cracks wherever necessary need to be filled up with mud. The repairing work mainly takes place during the summer or before the monsoon season.

In the study area, most of the soil and water conservation structures were non-masonry. Based on their locations, these structures can be divided into two types: one located in the individual fields while the others shared by two or more farmers. It is a common phenomenon to see that bunds and

check-dams cut across the agricultural fields of two or more farmers. It was found that the farmers periodically undertook repairing work for both types of structures. Most of the farmers regularly pack up the small cracks and breaches on the structures with mud. However, in the case of major cracks or breaches (mainly due to heavy downpour) it was observed that only economically sound farmers took up repair work while others could not. This is because repairing such major cracks or breaches requires considerable amount of money as well as labour.

It would be apt to highlight that the study area received heavy rainfall during 2008, the year when the fieldwork for the study was undertaken. There was rainfall for continuous five days. As a result, huge quantity of water was collected behind the soil and water conservation structures and the water level reached up to the brim of many of these structures. However, small bunds could not withstand such inflow of water and were breached while the check-dams remained intact. It was noticed that the economically sound farmers were able to repair the structures while the others could not.

Karan Singh, who belongs to Lodhi caste, has 5 hectares of agricultural land in the village. On one of his two hectare agricultural plot, a bund was constructed. The bund proved to be useful for him as he was able to utilize the stored water for irrigation purpose and has receiving good yield from that plot due to increased soil moisture. However, due to heavy downpour, the structure got breached. Something similar happened with Shyamlaal, aged 40, from Aharwaar caste group. He has one hectare of agricultural land on which a bund was constructed under the programme. Like Karan Singh, he was

also receiving the benefits due to bunds, but it also got damaged in 2008 monsoon rainfall. It was noticed that even after a period of three months Shyamlaal was not able to repair his structure while Karan Singh did. Shyamlaal told that he did not repair the bund as he was not having any surplus money, which he can spend on repair work. He told that he has to wait until next harvesting season as only then he can manage to save some money, which he can invest in repairing work. The case of Shyamlaal is not the only case in the village. Like Shyamlaal, there are other farmers also who were not able to undertake the repair work for the major breaches or cracks in their structures due to lack of financial resources. They were waiting for the time when they will have surplus funds to repair the damaged structures. Some of them are also expecting financial assistance from the government for the maintenance works. It is evident that the repairing work of major breaches and damages on individually owned structures primarily depends on the availability of surplus money. However, on the other hand, in the case of shared structures that cut across the agricultural fields of two or three farmers, it was found that the repair work was promptly undertaken, even in the cases of poor farmers. However, the promptness was found to be dependent on the proximity of the farmers who are sharing the structures. It was observed that the farmers who are close relatives or friends, the repair works were undertaken through sharing the cost or through sharing the labour work. But in case where the farmers belong to rival political groups, the repairing work gets delayed.

(b) Sustenance of plant and trees

Tree plantation and their maintenance is another significant component of a watershed development plan. As mentioned earlier, tree plantation was carried out under the WSMP. Farmers planted fruit bearing trees in the backyard or near to

their homes, while the other saplings were planted near the bunds and check-dams. It was found that farmers, in general, paid more attention towards maintaining the fruit bearing trees than the others, as these trees were close to their houses. Most of the farmers were of the opinion that planting saplings near to bunds and check-dams require proper fencing which was not done under the programme. Nevertheless, in few cases it was noticed that farmers instead of planting saplings near to bunds had planted them near to their tube or bore wells and had done a proper fencing for them. These farmers told that once these plants are grow they provide them shade, a place to rest mainly during agricultural season.

(c) Sustenance of Self Help Groups

As mentioned earlier, right from the beginning there was a lack of coordination, awareness and enthusiasm between the implementing agency and women members with regard to SHGs, which in turn, resulted in the failure of this initiative.

V

From the above, it is apparent that the participation of community members lacked uniformity in different stages of the programme. The participation of economically dominant or large landholding farmers was high as compared to small, marginal and landless farmers during initial stages of planning and discussion meetings of the programme. They were well aware about the benefits of these structures (mainly in recharging the groundwater and increased availability of surface water for irrigation purpose) which in the long run would benefit them, as they were the early users of the groundwater extracting technologies. Therefore, it was obvious to see their active participation in these stages. It was also found that most of them were either close friends or relatives of village Pradhan or

belonged to his political camp. On the other hand, the participation of landless, small, marginal and semi-medium farmers was quite high in implementation stage as compared to medium and large farmers. These farmers were involved in constructing the soil and water conservation structure not only on their fields but also on the fields of large and medium farmers. This was mainly due to the fact that the wages that they had received for constructing these structures provided them source of instant cash and supplemented their primary source of livelihood. It is well evident that wage labour constitutes important livelihood resources for the small, marginal and semi-medium farmers. Similarly, in post implementation phase it was observed that all farmers took care of these structures by taking up periodic repair work. However, in cases of heavy damages (as happened in year 2008) the economically sound farmers were able to repair the structures as compared to the other farmers. Thus, it is apparent that each stage of the programme witnessed different levels of participation of different groups of farmers with each one having different rationale and incentives for participating. Undoubtedly, these rationales and incentives were influenced by the changing livelihood resources and strategies.

End Notes:

[1] http://lnweb18.worldbank.org/ESSD/sdvext.nsf/66ByDocName/ParticipationatProjectProgramPolicy Level.

[2] Project Implementation Agency (PIA) provides technical assistance to the gram Panchayat in the preparation of watershed plans, monitors and reviews overall project implementation and maintenance and development of assets created during the project period.

[3] It is pertinent to note that the general Panchayat elections were also held in the year 2005 across the State.

[4] It needs to be noted that the beneficiary under the targeted distribution scheme (such as Antyodya, etc.) the beneficiaries are identified by the village Panchayat.

CHAPTER VII
SUMMARY AND CONCLUSION

The interaction between human beings and environment is a multi-dimensional and complex phenomenon. Human beings have constantly interacted with the environment for their survival. In some societies this interaction is cordial and harmonious, i.e., human activities have not harmed environment, while in some it affected the environment. In the last few decades, activities deteriorating the environment have unprecedentedly increased resulting into the degradation of natural resources. The natural resources are overexploited on the pretext of development. In few ecological settings, the development programmes aided the communities to access and utilizes the natural resources at the pace which the communities had never imagined. In the process, the livelihood systems were altered and natural resources were destroyed faster than their replenishment rate. Simultaneously, on the other hand, concerns to protect and restore the natural resources have also been heard across the world in the last few decades. Development planners have emphasized on sustainable development and the need to have more comprehensive conservation programmes. This underscores the need to check the degradation process by putting back the interaction on symbiotic path with an emphasis on conservation programmes.

The present research work attempts to address this dynamic nature of human-environment relationship by understanding the role of conservation and development programmes in the whole process of change, its influence on livelihood resources, strategies and social-cultural settings of the community, besides

understanding the role of socio-economic factors. The study also attempts to understand the implications of these changes on the community participation in the conservation programmes.

The fieldwork for the research study was carried out in *Pataaripur* village, located in Virdha block of Lalitpur district of Uttar Pradesh, between January and December 2008. The district falls under the Bundelkhand (All the districts in Bundelkhand lag behind other regions of the State), a mountainous, under-developed, poverty prone and backward region of the State. The region suffers from acute ecological degradation and natural resources always remain under extreme pressure. The region lags behind in development as compared to the other regions of the State. Based on Composite Development Index (CDI), these districts are classified into five categories, namely, most developed, high-medium developed, medium developed, low-medium developed, and most backward. Keeping the research problem in perspective and considering all these factors, Lalitpur district was selected, which is neither most developed nor most backward and is representative of Bundelkhand region. Since the study attempted to analyze the dynamic aspects of human-environment relationship within the context of development programmes, selection of a watershed village was imperative as it had an edge over the other villages in terms of having development programmes directly targeting natural resources and other development programmes.

This study argued that human environment relationship is not static, but dynamic in nature. To understand this dynamic nature, 'change' is regarded as multi-causal. The multi-causal perspective allowed a better understanding of the process of change in its totality. Since the attempt of the research work is

to understand the process of change, it looked at multitude of factors that have contributed towards the changes. It was found that in *Pataaripur*, particularly during the last ten years, different development interventions under various programmes have been implemented that had implication on natural resources utilization, conservation and management. It was noted that the deep bore well scheme and credit facilities got introduced in *Pataaripur* almost in the same time period facilitating the farmers to have easy access to groundwater. The private drillers further provided the farmers an opportunity to extract groundwater. This was followed by the continuation soil and water conservation activities, undertaken initially by the Department of Minor Irrigation, under the WSM programme and NREGA.

These interventions, in turn, resulted in two fold benefits to the people of *Pataaripur*. On one hand, farmers could augment rainwater in their fields through number of soil and water conservation structures and used the stored surface water for irrigation purpose. On the other hand, these structures continued to play a significant role in recharging groundwater. The installation of power sub-station later on at the block further helped the farmers to use tube-wells more intensely with increased hours of electric supply. Along with these interventions, other development programmes (mainly social welfare programmes) were found to be largely supporting livelihoods of poor in the village (mainly marginal and small landholders) in terms of food and social security.

It was found that these development programmes had a bearing on the availability, accessibility and utilization of natural resources and the livelihood strategies of the people in

Pataaripur. The development interventions pertaining to natural resources ensured the availability of water resources during water scarcity by increasing the access and utilization of groundwater and surface water. This has led to increase in the total irrigated area, increased cropping area and consequently shifted the production system from subsistence oriented to intensified cash crops mode in *Pataaripur*. Mono-cropping and cash-cropping, like, *Urad, Masoor, Channa, Soyabean, etc.,* became widely prevalent across the village and led to the gradual disappearance of traditional crops like *kodon* and *sama*. It was also noticed that the dependence on CPRs also reduced to an extent.

It was observed that the farmers have not benefited uniformly. In the whole process, traditionally dominant high caste-class farmers, due to their control over resources and strong economic base, benefited more as compared to the others. This inequitable ownership as well as uneven allocation of resources among farmers made the high caste-class farmers to own both traditional and intensive irrigation resources keeping them in an advantageous position. The lower caste-class farmers though could access the irrigation resources but have not benefitted equally, as they had to pay to access these resources which decreases their profit margins.

The increased usage of technological inputs for land augmentation was followed by increased mechanization of production in *Pataaripur*. It was found that the traditional dominant upper caste-class farmers who benefited more invested their earnings in buying more intensive ploughing resources, like tractors, drill machine, cultivators, etc., in the last five to six years. However, lower caste-class farmers were

also found to be collectively purchasing these resources. Nevertheless, marked changes in the availability, accessibility and utilization pattern of livelihood resources over a period of time due to development interventions, which, in turn, had implications on the entire system of production, is apparent in *Pataaripur*.

These changes in production system were also found to have a bearing on the social structure and social behaviour. It was found that though the benefits are not uniformly distributed across the caste-class, the changed ownership and accessibility of irrigating as well as ploughing resources, has increased the income of farmers belonging to lower caste-class hierarchy in *Pataaripur*. This has influenced the economic roles and relationships between caste and class, both inter and intra. The relationship between lower and higher caste-class farmers are no more patron-client oriented. Occupational services are no longer offered and taken in kind but have become more professional and commercial and dissolved the obligation and reciprocity based relationships, thereby making it more transactional. With changes in relations of production, patterns of resource ownership and income levels changed, the conflict at the familial level gradually increased. The solidarity between kin-groups has weakened and conflict widened due to uneven distribution of benefits. This has also resulted in changes in living arrangements of household members.

Similarly, it was found that the clout of traditional local power holders is slowly diminishing. The inequalities in power structure were being challenged by the recently emerged economically strong sections. The members from other castes and clans from the dominant caste Lodhi are gradually

endeavouring to make their way into the political system of the village by contesting Panchayat elections. The increased competition to capture power of village headman evidently reflects that power has no longer remained the exclusive domain of dominant groups. However, these changes, though significant and path breaking, have not yet drastically shaken off the political and economic dominance and base of traditional local power holders. In spite of increasing competition in Panchayat election, the seats of village headman are still being occupied by the lineages of Maate and Muqaddam. The changes observed have not led to structural changes in the village. At life cycle ritual level the customary relations between communities continue to exist. Some aspects of social structure were found to be influenced by the changes witnessed in village. Nevertheless, one notices continuity in the structural elements in the midst of rapid socio-economic and political changes.

Within these changes, the participation in different stages of WSMP was also analyzed. It was found that the participation varied across caste and class in different stages of the programme. The participation of dominant caste-class was more as compared to small, marginal and landless farmers during initial stages of planning. This was mainly due to their closeness with village Pradhan and due to the obvious reason that they get benefit in longer run as these structures aid in recharging groundwater and in turn would avoid their tube and bore well from running out of water. On the other hand, the participation of lower caste-class farmers was quite high in implementation stage as compared to high caste-class farmers, as wages received for constructing these structures provided them source of instant cash and supplemented their primary source of livelihood. Similarly, in post implementation phase it was seen

that all farmers, irrespective of caste-class, took care of these structures by taking up periodic repair work as they have an interest in their upkeep. However, in cases of heavy damages (as happened in year 2008) the economically sound farmers were able to repair the structures as compared to the other farmers. Thus, in each stage of the programme, different caste-class groups participated with different motives and incentives.

The above findings largely substantiate the theoretical argument put forward in the research. It was argued that there is an intricate relationship between human activities and the environment. This relationship is very delicate and prone to change. The development programmes play a catalytic role towards this change as they have the potential to alter the pattern of resource use or abuse by accelerating or decelerating the access, availability and utilization to them and influencing their livelihood systems. These programmes tinker with the decision making system of communities by providing them the range of alternatives to overcome limitation. This, in turn, disengages the communities from their environment and alters the human-environment relationships. In the whole process, certain section of the community benefit more than the others due to different socio-economic conditions which debilitate the uniform community participation in the development programme. However, these changes have limitations in bringing the changes at the structural level in short span of time. In a sense, the system remains by and large intact. Put differently, while the changes that have come about have affected the socio-economic conditions of different categories of people, the structural distance that existed among them still persists. In a way, we notice some continuity in the structure in the face of socio-cultural changes that have been taking place.

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PLATE 1: A BROKEN BUND

PLATE 2: A CHECK-DAM

PLATE 3: A BUND DAMAGED DUE TO HEAVY RAINS

PALATE 4: WATER STORED IN THE CATCHMENT OF CHECK DAM

PLATE 5: FARM POND WITH RAINWATER

PLATE 6: BUNDS ON AGRICULTURAL FIELDS

PLATE 7: BUNDS HOLDING RAIN WATER

PALATE 8: RECENTLY CONSTRUCTED CHECK-DAM

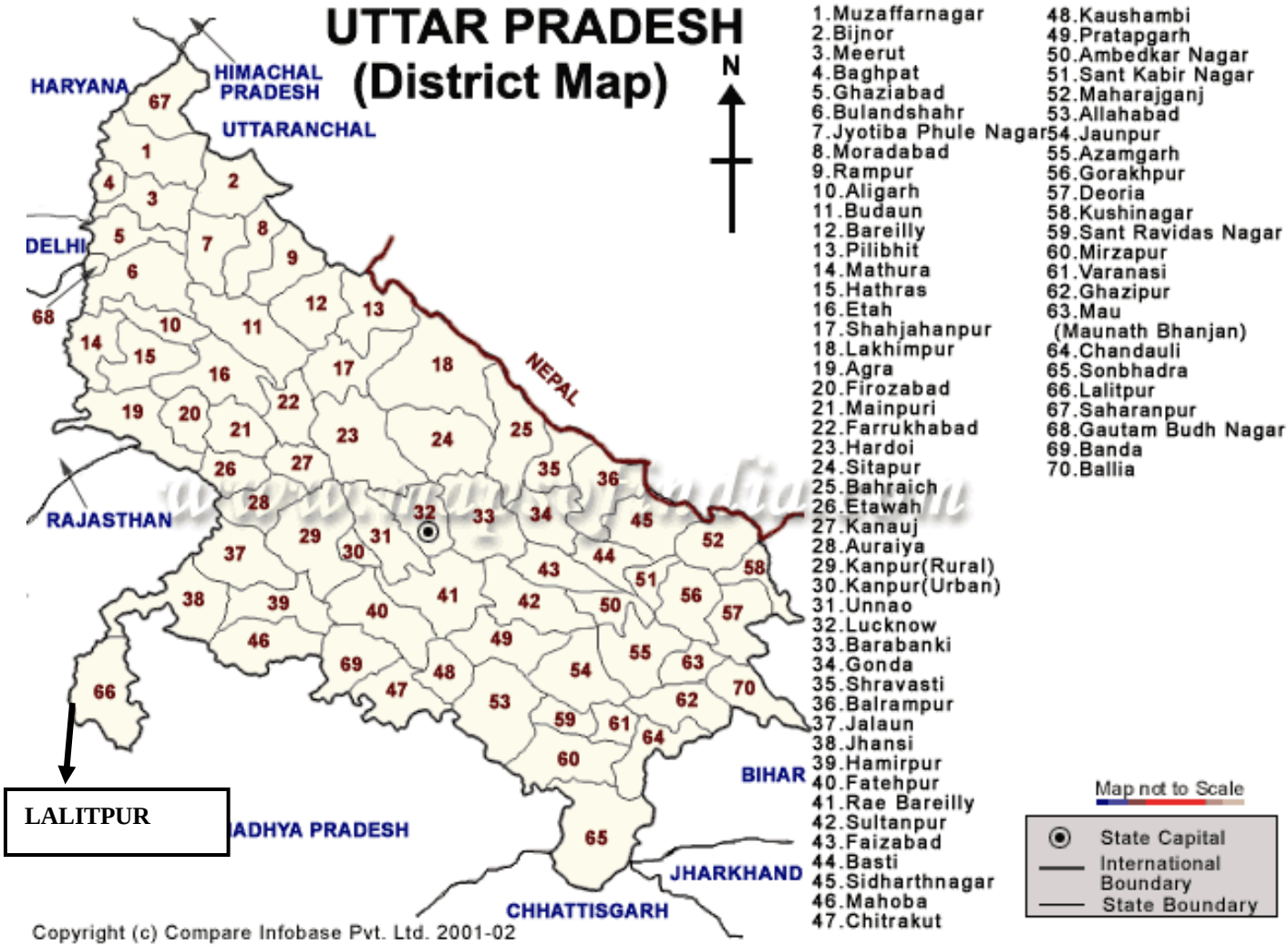
PALATE 9: FARMER'S FAMILY IN THEIR FIELD

PALATE 10: DRILLING MACHINE

PALATE 11: VILLAGERS DIGGING FARM POND

PALATE 12: WOMEN WORKING UNDER NREGA SCHEME

DISTRICT MAP OF UTTAR PRADESH



LALITPUR DISTRICT MAP