CHAPTER ONE

INTRODUCTION

1.1 Background

Human being lives in the society and occupation is imperative for human survival. Marxist perspective holds the notion that it is the economy which acts as the mirror that depicts the social status of an individual. Environmental economist Horst (1998) holds the notion that in the natural resources management perspective, economic development, economic status of people and environmental conservation are playing a pivotal role. There exists a trade-off between economic development, environmental conservation and the natural resources. The environment and locally available natural resources fulfill many functions for the economy which is embedded within people's occupation.

Fox and Harse-Biber (1984) say that an activity of expenditure of energy that produces service and products of value to other people is an occupation or work. Further, it may be considered as the effort of activity of an individual that is undertaken for the purpose of providing goods or services of values to other (Hughs, 1950). Division of labor and occupational structure are important indicators of nature of society in the analysis of urbanization or modernization. Change of occupational structure and occupational mobility has been analyzed as a significant element in the process of urbanization. The traditional social structure is usually associated with distribution of occupation in the basis of descriptive characteristics. Majority of population in urban area depends upon non-agricultural sources of income and this fact has been well brought out by several scholars (Sovani, 1966; Sarikwal, 1978; Patil and Talati, 1956). In the context of urbanization and modernization, it has been observed that there is a greater differentiation and occupational mobility in the population.

The occupation alteration in general refers to the movement of an individual or a group's economic activities from one position to another in a stratified society. Generally, two terms are more commonly in use—open system and closed

system—in defining mobility. The open system (horizontal) implies that the position of each individual is influenced by the person's achieved status while the closed (vertical) in ascribed status (Dahal, 2004). Generally, mobility measures from intra and inter-generation. Intra-generation mobility shows the occupation change from the same generation (parents to parents) but inter-generational mobility is a measure of the changes in the social and economic status which occurs from the parents' to the children's generation. It can affect anyone in the population, as one's economic standing can increase or decrease from the position they were born into.

Traditionally Podes or Jalaris of Pokhara are associated with their fishing and manual occupation. The community, traditionally depending on fishing activities for their livelihood, led a nomadic life along with the rivers and lakes, carrying cast nets to feed their families. Most of their economy was supported by their traditional occupation and they were hardly able to solve the hand-to-mouth problem by following this occupation. Traditionally, they are engaged in fishing activities; they go to Suroudi Khola, Phurse Khola, Kali Khola, Mardi Khola, Yamdi Khola, Seti River, and other nearby lakes. In the beginning, they use the hand net, fish hook and Tayari Jal for fishing. However during the few decades, their system and practice of using tools and techniques of fishing has been shifting from traditional to modern slowly and gradually signifying alterations in their Indigenous Resource Management Practices.

In Nepal, the various ethnic groups had their ways of conserving, managing ,sustaining, practising and reproducing the resources that provided the basis for their substance according to each one's culture (Thapa, 1995). Each ethnic group has developed a specific mode of production from the natural resources. This mode of production results from the long history of development of technology and ideas, and relates each group of people to the natural resources and social conditions. Because the mode of production relates people to their natural environment, its develoment also implies ecological change (Hardcastle, 2002).

Historically, various ethnic people controlled many resources and properties communally, such as the kipat lands of the Rais, Limbus, Sherpas,Tamangs, Majhis and so forth (Timelsina, 1995). These groups had their own identity due to their cultural practices and other numerous characterstics. However, social processes brought them into contact with other groups, and these diverse groups intermingled with each other in a sort of melting pot of culture. Among the trible groups, Majhis have been influenced by their enviroment since their origin. They have depended on the river and lake, and the river and lake have been the center of the culture. Their culture has been the symbol of group identity and resources for subsistence. The Jalari (Podes) have also adoped a specific type of life-style based on water resources. They traditionally practice boating, fishing, and some extent agriculture for their survival. They are influenced by the natural environment such aslakes,rivers,brooks and surrounding groups. However, in the recent days, there has been a change and mobility in their occupational structure and their indigenous resource management practices.

1.2 Statement of the Problem

Biodiversity conservation and the process of indigenous resource management system are the closly related factors in the context of local conservation and subsistance. Local people can contribute more to preserve both floral and faunal species by their trial and error methods for fighting and coping with the condition. In the Nepalese context, tribal groups depend on natural resources by using them with the specific cultural behaviours. They must live in the certain environment by their effort to well manage the existing resources. Cultural ecological model by Julian Steward (1902-1972) forwarded the concept of ecology in relation to human being. He analysed the effect of environment upon the culture. The process of adaptation to the given environment is the principal meaning of ecology. Pode or Jalari communities are one of the socio-culturally and even economically so-called backward and lower castes of Nepal. Jalari community particularly live their life behind lakes and rivers. For their subsistance, they need to preserve their environment as well as bio-diversity. By the effect of the technological, socio-

cultural, ecological condition of the lake and the political situations, their occupation has been affected within the inter-generation (between the parents' and the children's) between ten years period from 2001 to 2011.

Because of the expansion of urban lifestyle and the effective use of technological devices of the modern sciences, an occupation of jalari has been changing. By the availability of the technology and the skills of the resource users, the occupational structure is being changed. Upward occupational mobility supported them with their lifestyle by changing the old one. However, they needed to preserve their traditional occupation by struggling with the new situation. They have adopted a specific type of life-style. They traditionally practiced boating, fishing and agriculture. Among them, especically, they have been in the practice of fishing for their subsistance. They have been influenced by the natural environment and surrounding groups. In the past, around the Phewa Lake, there was only the Jalari group who occupied the natural resources for their survival. However, in the present, there are various groups of people who have been competing and influencing the available natural resources with the Jalari community and opportunities of non-caste occupation. The Jalari community's occupation embedded with their indigenous resources management practices is being influenced by the assortment of causes which has created a serious threat to their economic existence. It is realized that they need to preserve their occupations challenged by the new one.

It is universal that the society has the intimate relationship with biodiversity, either promoting the resource by using indigenous knowledge or using the species by their anthropogenic values, such as religious or cultural use. Jalari community of Phewa Lake is facing pressures from both natural and social factors. Hence, they are changing their traditional occupation since the last one decade. So the major problem that this study wants to focus is to explore the changes in the occupational practices of fishing that has been adopted by the Jalari community of the Phewa Lake in the socio-natural context.

Especially, this study has focused on searching the answer to these research questions:

1. What are the traditional fishing practices of the Jalari Community of Phewa Lake of Pokhara valley between the inter generations?
2. What is the reason behind continuity and alteration in occupational structure?
3. Why and how their rights over the utilization of lake resources have been curtailed/limited?
4. What are the competing claims to manage and harvest the common property resources of the lake?
5. How the Jalari community is coping with the pressures of diverse opportunity of the occupational pattern?
6. What modern approaches and practices of fishing the community has adapted in the changing context of lake resources and Jalari community itself?
7. What are the preferred occupations for the new generation?

1.3 Objectives of the Study

The major objective of the study is to explore the occupational mobility and alterations in the indigenous resource management practices of Jalari community of Pokhara valley.

The specific objectives of the study are as follows:

1. To explore the indigenous fishing practices, inter-generational occupational mobility of the Jalari community.
2. To explore the reasons behind the continuity and alterations.
3. To examine resource management and utilization pattern of the Jalari community.

1.4 Basic Assumptions

The following are the basic assumptions of the study:

1. The indigenous or traditional occupation has been playing a crucial role since their origin.
2. The Phewa Lake is an example of "Tragedy of unmanaged commons".
3. The traditional technology and methods can be reduced and replaced by new one.
4. Only the cage fish is the subsistence strategy of Jalari community.
5. Inter-generational occupation mobility is increasing day by day, owing to the modernization and non-caste based occupational opportunity.

1.5 Rationale and Significance of the Study

Several researchers have reported or stuided that there are several indigenous natural resource management systems existing and performing well in different areas of Nepal. In general, the descriptive knowledge of natural resources among the farmers in Nepal has been shown to be quite thorough. They possess a wealth of information about climate, vegatation, wildlife, tradational veterinary medicine, animals' diseases,water harvesting, forage fodder harvesting, intergrated plant protection, etc. Not surprisingly, the indigenous natural resource management varies from group to group and from area to area, depending upon the particular local conditions, paricular responses to the problems, and the extent of the geographic and social isolation from adjoining groups. Many scientific techniques of natural resource management are included in the indigenous natural resource management and have been practiced by the local users for centuries.

This study covers the modern management of biodiversity to preserve their conventional occupation among the Jalari community of the Phewa Lake. Neither any development programmes nor other conservation programmes can be implimented without the knowledge of the existing situation of the biodiversity

and the cultural values of the local people. On the other side, the problem of the biodiversity and the knowledeg of the specific people for their existing situation is becoming a major issue for conserving the biodiversity. It can also provide us with information about the local habitat that helps for the government as well as NGO/INGOs. This study might be helpfull to know about the condition of the biodiversity and the altering occupation of the Jalari community around the Phewa Lake. From this study, concerned agencies may benefit in the issues like the subsistance strategy of the Jalari community, changing pattern of their occupation, causes and consequences of such occupational mobolities which can be helpful in the study of other similar groups in other places. In addition, for the coming generation and the scholars trying to get an in-depth knowledge about the changing lifestyle of the Jalari community, this study would be helpful. This study would also be helpful to the aspiring scholars seeking to carry out a research on fisharies and boating as prime occupation amongst Majhi or other riversiders living around the adjoining lakes.

1.6 Limitation of the Study

The study is an academic research for the partial fulfillment of Master of Arts in Anthropology. It is based on the particular objectives, hence, the finding may not be implimented or generalized for another place or at the national level. Because of the limited historical document about the Jalari community living around the Phewa Lake, it is pretty difficult to find out the traditional occupation and the process of indigenous management of the local biodiversity. The next problem is that, being an objective-oriented study, it may not be able to give a detailed description on every aspect of the Jalari community. For this purpose, about six months have been spent in the field for the collection of data.

1.7 Operational Definition of the Terms

I. Habitat

Habitat, refers to the place or type of site where an organism, population and acqua-plant (grass) naturally occurs around Phewa Lake.

II. Anthropogenic values

Anthropogenic values, refers to the culturally and religeously valuable plants and their specific uses by the Jalari community.

III. Pode or Jalari

The group of people that was traditionally dependent on fishing activities for their livelihood, led a nomadic life along the rivers and lakes, and carrying cast nets to feed their families.

IV.Occupational mobility

Occupation mobility refers to movement of a Jalari individual or the group's economic activities from one position to another in a stratified society within the inter-generation.

CHAPTER TWO
LITERATURE REVIEW

In recent years, anthropologists have increasingly recognized the importance of local ecological knowledge in advancing theory (Gragson and Blount, 1999), improving natural resource management (Rhoades and Harlan, 1999; Berkes, 1999; Nazarea et al., 1998), empowering local communities (Posey, 1999), and resolving conflicts (Haenn, 1999). These authors have also identified and understood knowledge systems in local populations as the first step in these endeavors (Gragson and Blount, 1999; Atran, 1999). The deductions of these authors are predisposed to guide the current study on the occupational trends, indigenous resources management pattern, local knowledge systems of the Jalari community of Phewa Lake.

Small scale fishers, especially those on inland waters, are among the poorest of the rural poor in developing countries facing apparently insurmountable obstacles in the existing economic and social power structures as they attempt to better themselves (Berkes et al., 2001). However, a participatory approach can overcome these obstacles (Jiggins and de Zeeuw, 1992; Van de Fliert et al., 1999). Ideally, a participatory approach to fishery creates an integrated development strategy by fostering new relationships, ways of thinking, and structures and processes (Campbell and Salagrama, 2000). The participatory approach paradigm in research and development completely differs from the conventional top-down approaches, and is an essential part of Sustainable Livelihood (SL) programs (FAO 2000). It is a customer-focused program where the targeted group participates in the entire process, learning about the situation, identifying problems, discussing alternatives, selecting solutions, designing and implementing activities, evaluating and disseminating results (Chat, 2000). In these processes, target groups share their traditional knowledge to identify problems and solutions, ensuring the poor and uninformed will not be excluded from development opportunities. This also

creates a forum where outsiders can work with the community and help to improve their specific capacities (Chat, 2000).

Nepal is rich in water resources, and fishing is a longstanding tradition. The communities involved in fishing activities are mostly Tharu, Majhi, Malaha, Danuwar, Kewat, Bote, Mushar, Mukhiya, Darai, Kumal, Dangar, Jalari, Bantar, Rai and other poverty-laden ones. Swar (1980) estimated that there were about 80,000 fishers; however, it is estimated that there has recently been a three-to five-fold increase in the fishing population due to the increasing population and deepening poverty in Nepal (Gurung, 2003a). As a result of lack of appreciable management, most water bodies of Nepal are over-fished and environmentally degraded threatening the biodiversity and livelihood of traditional communities (Bhandari, 1998; Karki and Thomas, 2004). The same tendency prevails in the milieu of Jalari community of Phewa Lake in the context of sustainable fishery management practices which has been altering the livelihood of the Jalari.

Indigenous knowledge and management of natural resources has existed in Nepal for centuries. The survival of the people in the hills and mountains of the country were primarily based on indigenous management of natural resources. Most of the species have specific anthropogenic value of the specific communities. The successful practice of crop production and animal husbandry has, to date, depended on the “indigenous natural resource management system”. Bio-diversity conservation models for protected area begin with a focus on single species and expand to ecosystem strategies that involves the paticipation of local people that include conservations efforts, protecting habitat or protecting ecosystem. Jalari comunity have a body of accumulated wisdom evolving from years of experience and trail and error problem solving by the groups of people working to meet the challenge they face in their local environment, drawing upon the resources they have at hand. They have a universe of experience that could provide many valuable lessions for mobilizing and sustaining collective action for self help management in the management field.

Robert Chambers (1987) has expressed that rural people's knowledge and modern scientific knowledge are complementary in their strengths and weaknesses. Combined, they may achieve what neithers would alone. Indigenious systems are the systems of protection and management of natural resources (biodiversity) including forests by local communities in different parts of Nepal without external sponsership. These indigenous systems have been existing in Nepal for generations and are widely distributed today in the country. Like other communities, Jalary community of Phewa lake are deprived groups but they have local capacity to preserve the natural resources. Every society has its own types of subsistence, even though not all are specifically subsistence economies. They all have specific ways of producing food, shelter, clothing and income. Most of the preliterate societies had an economic deterministic style. There is no society without methods of production, distribution, consumption and some form of exchange (Herskovits, 1974). Jalari community of Phewa lake possess their own methods of resource managment, production, distribution, consumption. Hence, all these past studies are supposed to guide the current study on Jalari community of Phewa lake.

2.1 Theoretical Overview

2.1.1 Tragedy of the Commons

The concept of the Tragedy of the Commons is extremely important for the understanding of degradation of our environment. The concept was clearly expressed for the first time by Garrett Hardin in his new famous article in Science in 1968, which is "widely accepted as a fundamental contribution to ecology, population theory, economics and political science". Common property resources, particularly forests and pastures are rapidly decreasing and deteriorating in developing countries like Nepal resulting in many unintended and unanticipated environmental problems. For many, particularly neoclassical economists, population growth resulting in poverty have exerted pressure on common resources thereby creating what is known as the tragedy of the commons (Hardin, 1968). They argue that because of growing population pressure, resources held in common are subject to destruction as individuals maximize individual gains

without bearing the costs. They suggest that the proper solution of the overexploitation of common resources, therefore, is to internalize its costs by making the public aspect of resources private (Runge, 1985). With the private property, an individual maximizer will rationally manage resources at its best and highest use and thus remain competitive within the market. They further assume that markets are always best means of allocating public resources and that competition necessarily leads to appropriate management (Vernon 1988).

The basic idea of Hardin (1968) is that if a resource is held in common for use by all, then ultimately that resource will be destroyed. "Freedom in a common brings ruin to all." Hardin contends that this class of problems includes many of those raised by human population growth and the use of the Earth's natural resources. To make the case for "no technical solutions", Hardin notes the limits placed on the availability of energy (and material resources) on Earth, and also the consequences of these limits for "quality of life". To maximize population, one needs to minimize resources spent on anything other than simple survival, and vice versa. Consequently, he concludes that there is no forcable technical solution to increasing both human populations and their standard of living on a finite planet.

Hardin's key assumptions and problem formulations are:

1. The world is biophysically finite:
   - The more people there are, the less each person's share must be.
   - Technology (i.e. agriculture) cannot fundamentally alter this.
   - We can't both maximize the number of people and satisfy every desire or 'good' of everyone.
   - Practically, biophysical limits dictate we must both stabilize population, and make hard choices about which 'goods' are to be sought.
   - Both steps will generate opposition, since many people will have to relinquish something.
2. Over-population is an example of the Tragedy of the Commons (To**C**):
   - Commons are un-owned or commonly-held 'pool' resources that are 'free' or not allocated by markets.

- Hardin's ToC model assumes that individuals are short-term, self-interested 'relational' actors, seeking to maximize their own gains.
- Such actors will exploit commons as long as they believe the costs to them individually are less than the benefits.
- The system of welfare insulates individuals from bearing the full costs of over-reproduction.
- When every individual believes and behaves in this manner, commons are quickly filled, degraded, and ruined with their rest-while exploiters.
- A laissez-fair system (letting individuals choose as they like) will not "as if by an invisible hand" solve over-population (Hardin, 1968).

Some writers have tried to show that the decision-making rules will inherently tend to break down and bring about the destruction of the Common Property Resource. Garrett Hardin's formulation is the most celebrated and the most widely criticized. His thesis, named the 'Tragedy of the Commons', was originally published in 1972 and is essentially a restatement of Malthus' dilemma. However, Hardin also applied his general principles to the situation of a herdsman who owns livestock which graze on common lands. The herdsman derives a positive utility of one unit (or nearly one) with each additional animal he grazes on the common, but a negative utility of only a fraction of one unit is felt by the herdsman in a case of overgrazing. Adding together the component partial utilities, a rational herdsman adds one more animal, and one more leading to the 'tragedy' of the common.

The persuasiveness of Hardin's argument has led many to urge privatization of CPRs (e.g. Johnson, 1972; Picardi, 1974). Given the assumption that actors rationally pursue their short-term gain, game-theoretic approaches can be used to demonstrate the inefficiency of common property arrangements. However, Runge (1983) and others have shown that this 'free-rider' solution does not exhaust possible modes of rational behavior; where long-term benefit is to be maximized, a voluntarist 'mutual assurance' allows for co-operation and regulation. Important in this analysis is the approach of Coase (1960) who argued that adversely affected parties can 'bribe' an instigator to reduce the effect, and that this would leave both

parties better off. Cose's theorem, and associated 'voluntarist' approaches to management of use of common property, has led to a prolonged argument mostly built around the problems of pollution.

From this point, Hardin switches to non-technical or resource management solutions to population and resource problems. As a means of illustrating these, he introduces a hypothetical example of a pasture shared by local herders, which he calls a commons. The herders are assumed to wish to maximize their yield, and so will increase their herd size whenever possible. To avoid the ultimate destruction, we must change our human values and ideas of morality or he concluded that the common could be privitized or kept as public property to which right to entry a use could be allocated. Jalari community around the Phewa lake, manage the resources by themselves to making the well-functioning committee. But the common resources around the lake degrades or destorts for the personal benefits. To arrange grass and food for the fish, they harvest it around the lake. They usually invest time for fishing. The increasing population degrades the resources.

In the neo-Malthusian pamphlet, Hardin (1968) has restated this position under the expression 'the tragedy of the commons'. He focused on the subject of livestock herding on common grazing land; Hardin views the herdsmen as victims of a basic human impulse which leads them to maximize benefits even in the face of declining resources and diminishing social controls. According to the theory popularized by Hardin, all resources owned in common are, or eventually will be, overexploited. When resources such as trees are "free" or open to everyone, costs arising from their use and abuse can be passed onto others. The rational individual has the incentive to take as much as possible before someone else does. No one is motivated to take responsibility for resources. Because they belong to everyone, no one protects them. Causes of overpopulation, environmental degradation, resource depletion may be found in freedom and equality (Upadhyay, 2007).

2.1.2 Common without Tragedy

The next, Common without Tragedy, is a critical essay on ovrpopulation and ecologial distraction. Andelson (1991), complied an impressive list of counter examples, far from being an unregulated freedom free-for-all, were mostly operated according to agreed upon rules that ensured a fair distribution of opportunity. In 1926, Malinowski saw the ownership of large canoes used for fishing by Trobriand Islanders. He saw that common property with joint owners included not only equal right of use but also complex and variable system of right duties, functions and obligations. In Phewa Lake, the Jalari community practices the participatory fishing activities for well adjustment with the new situation. They stabilised cooperative fish farm, cage culture, for proper utilisation of the common resources.

In recent years, social scientists, particularly cultural anthropologists, have engaged themselves in analyzing and understanding various cultural strategies adopted by local communities to manage their common resources. Many empirical studies suggest the communal system of management as the best solution to the problem of common property resource management. Their assumption is that people who depend upon natural resources for their survival have always developed certain cultural systems and socio-political institutions to regulate their relations with nature. These cultural systems and socio-political institutions that Julian Steward (1955) refers to as the "cultural core" are closely related to the subsistence activities and economic arrangements and serve as dynamic adaptive mechanisms to the environment unless they are threatened by external forces.

Anthropologists invariably suggest community forestry as an appropriate and effective solution to the problems of common property resource management in developing countries. Community management strategy is attractive because of the fact that local residents have both the most stake in, and most information about natural resources (Uphoff, 1986). However, the success of community management system has achieved its success primarily in small-scale homogeneous society that has stable population and environment. It is less

applicable in more diverse ecological conditions and complex as well as heterogeneous society. Therefore, community management system cannot serve as a universal prescription of efficient and equitable resource management (Runge, 1985). Therefore, we should analyze and understand a set of interrelated dynamics in broader economic and historical perspective.

Cultural anthropologists and many other social scientists, particularly political scientists and political economists agree that the economic development of a society depends upon the efficient management of natural resources that are perceived as common. They further agree that local institutions can play effective role for resource management. But they differ in their opinions that all social institutions cannot manage and sustain all types of common property resources effectively and equitably. Norman Uphoff (1986) distinguishes five kinds of natural resource management, such as forest management, rangeland management, irrigation water management, watershed management, and soil conservation or cropland management. The management of these resources involves many organizational options. For example, local administration is an appropriate institutional channel where the preferred management practices are quite technical and complex (e. g. watershed and soil conservation management). In the same way, peoples prefer to manage their forest resources by themselves through their community institutions. User groups' association can manage water resources better than others.

Uphoff (1986) further illustrates that the management of common property resources depends upon the types of social structure of resource users and the nature of resources to be managed. As stated earlier, community management system is appropriate as well as effective if the resource users constitute an identifiable society. When the resource is more uncertain and the set of users are ill defined, higher level of institutions like elected local government have greater role to play in resource management. For example, user groups can be more effective for irrigation management because users are geographically delimited and resource can be distributed with some precision. Rangeland management, on the other hand,

by user groups is less effective because herders have greater mobility to seek alternative grazing sources, and the users for a particular rangeland resource are more difficult to identify. Some high level authoritative decision-making institutions are desirable to deal with memberships and resource ambiguities. With the forest management, the resource is geographically fixed and bounded, but the persons having access to it are not as limited or limitable as with irrigation water. Users' associations are harder to form and maintain on a voluntary basis. An authoritative and inclusive body such as local government becomes more effective in the situation where the resource is more bounded than the set of users (Uphoff, 1986).

2.1.2.1 Property Right Regimes

Property right means the right of someone to utilize something that is recognized by law and all others have a duty to respect it (Irwin, 2001). The rights are enforced by members of society to use and control valuable resource. Generally, the right includes such as: exclusivity, inheritability, transferability, and enforcement mechanisms of resource use (EPA, 2003). As Dejene (2002) explains formal and informal rules limit an individual or groups right over a given resource, including the rights to consume, to obtain income and/or transferring assets. Property right systems only occur when use of the resource by one party has the right to exclude others who do not have right to the resource in question (Irwin, 2001).

Literatures usually mention four categories of property rights (Dejene, 2002 and Wouter et al.1995). They are: I) private, ii) state, iii) Common property and IV) Open access resources.

Table 2.1

Property Right Regimes

Regime Type	Owner	Owner Rights
Private	Individual	Socially acceptable use
Common (res communes)	Collective	Exclusion of non-owners
State (res public)	All citizens	Determine result (formal)
Open access (res nullies)	None	All can capture

Source: Dejene, (2002) and Wouter et al. (1995)

Yeraswork (2000) indicates that these four categories are not exhaustive. But for the purpose of this study it is better to limit to the usual classification. Private property is owned and used by an individual who decides how to use the resource. Private property is usually defined in terms of exclusivity and transferability. State property is the property owned and used exclusively through central regulatory policies and legal frameworks and the state exercises governance as in the case of rural land in Ethiopia (EPA, 2003).

As Schlager and Ostrom (1995) discuss, whilst private and state property rights are clearly understood, many people even prominent scholars conceive the other two categories with confusion. However, common properties and open access resources are completely different property regimes as indicated above. Open access (res nullius) is the condition of no property claim or state of "non-property" as there are no right holders (Irwin, 2002). Thus, with open access, ownership is anarchy by which anybody can capture the benefits of a resource. Hence, the resource is depablelet subject to use by any person who has the capacity and desire to enter to extraction of it and its extraction results in symmetric and asymmetric negative externalities (Steven, 1991). This occurs when rights to natural resources are absent, unendorsed and individuals do not bear the cost of resource degradation (Adhikari, 2001). Free riding and over exploitation or "Tragedy of the Commons" occurs as a result. This may be in the case of Jalari community of Phewa Lake owing to the overuse of Phewa lake resources.

In contrast to the open access resources, common properties (res communes) include a right to use something in common with other users; or a right not to be excluded from the use of something but have the right to exclude outsiders. They are also referred to as local community properties and shortly, commons. It also includes some expression of equality in the allocation of rights and may signify a situation in which people have user rights but not exchange rights (EPA, 2003). Collective management by communities who have the sense of ownership safeguard common goods and their user group membership may be by ascription or residence. Common goods (sometimes called common pool resources) are different from public or toll goods. Shephered (1998: 57) explains that public goods or toll goods are those from which no one can be excluded like roads, street light, etc.. If benefits of public goods are positively allocated to a restricted membership, the essence of common goods may overlap with public goods. But in most CPRs, resource units are subtractable and this distinguishes from public goods, where appropriation problems do not exist.

As Bruce (1996) states, although there are different arrangements, all common property regimes have the following components:

i. Common property regime is concerned with either single or multiple resources in one area.
ii. There is property-owning group that may vary in size, nature and international structure. The property-owning groups (user group) are social units with definite membership and boundaries with certain common interest, with at least some interactions among members. The group holds customary ownership of certain natural resources such as farmland, grazing areas, and water resources;
iii. There exists institutional arrangement especially designed to regulate conflict;
iv. All common pool resources are governed by rules: formal rules; and others governed by informal rules.

Generally, communal properties are similar to that of private, as they are collectively owned; and owners have power of exclusion of non-users and duties

of maintenance and constrain rates of use. However it is different in the context of Phewa Lake where the Jalari community as the Phewa resource users is not only the sole users of Phewa resources owing to the encroachment of the outsiders.

2.1.2.2 Implications of Common Property Resource Management

Common property arrangements have many social and economic implications. First, it has guaranteed the continuous supplies of natural resources that are essential for subsistence economy of rural people. Second, it has constituted a mechanism of social control to protect common resource. Individual exploitation is kept in check and local resources are protected from destruction by individual beneficiaries. It is not only equitable but is based upon a number of considerations, such as family needs, communal responsibility, respect and welfare (Shrestha, 1990). Under this common property arrangement, each individual family can meet their basic needs of timbers, fodders and fuel-woods without destroying or degenerating their resource bases. Joint ownership provides checks and balances to prevent over harvestings by illegal means, such as stealing. It also provides incentives and motivates people to protect their forest resources. Common property arrangement contributes directly to the profitability and sustainability of both agricultural and non-agricultural enterprises. Poor management can have detrimental consequences for rural infrastructure of economic development and health (Uphoff, 1986).

Common property arrangement has policy implications as well. The diversified and differentiated property arrangements practiced by the local people have several positive effects in managing the use patterns--availability, distribution, and conflicts associated with forest and pasture resources and should be supported and strengthened rather than replaced with a monolithic or exclusively private system of ownership (Acharya, 1990). Local system of management should be identified and recognized by the policy makers and planners for the effective and equitable resource management. Local systems of resource management are effective, enduring and productive. They are locally preferred approaches and therefore they

should be supported and strengthened. The blueprint approach cannot fit into complex local situations. Planners and policy makers should appreciate the social reality. This is what a social scientist can tell planners and policy makers about the management and maintenance of common property resources. The same may be in the context of the Jalari community of Phewa lake.

2.1.3 Human Ecology

Human Ecology, in general, is the study of relationship between human beings and there environment in different cultural contexts. It investigates how human beings interact with specific natural environment through their culture and social organizations. Human ecological studies enable us to understand human life and activity in different ecosystems and cultures not only in the present but also in the past. This leads to a better understanding of the factors influencing human-environmental interaction. Anthropologists make use of Human Ecology to study the interaction of human beings with their environmental components including cultural organizations and patterns originated in the course of studies (Steward, 1955).

Ecology, defined as the study of interrelationship between the living organisms existing in their natural habitats and the various factors of their environment, was coined by Ernst Haeckel in 1869. This term was derived from two Greek words i.e. *Oikos*-house and *logos*-study. Ecology enables us to look at the environment as an ecosystem of interlocking relationship and exchanges that constitute the web of life.

"Since ancient times, there have been many attempts to explain events in terms of environmental influences on human behavior" (Rambo, 1983). Though totally ignored by modern astronomy, environmental factors have been linked to human actions by astrology continuously since the ancient past. Explanation about man, both an agent for environmental change as well as a bearer of influence of its environment, can be found in the writings of ancient Greek philosophers. We can

also find illustrations about influences of climate on personalities of people in the writings of these philosophers.

Cultural anthropologists, beginning with the cultural ecology of Steward (1949) and White (1949), attempted to develop ecological models of human systems. Although these models included energy and (implicitly) matter, they tended to exclude much of the non-human environment. Like bio-ecology, they also tended to avoid addressing the need to model information. Other cultural anthropologists, like Rappaport (1968), and archeologists (Flannery, 1968; Kowalewski et al., 1983), attempted to formalize the modeling of human systems, but this approach began to lose favor by the early 1990s. Current bio-cultural and life-history approaches (cf. McElroy, 1990; Hill, 1993) have tended to downplay the systems approach and limited the scope of analysis to a few useful understanding of human ecology.

As a matter of fact, human ecology is comprised of concepts from ecology like interconnectivity, community behavior, and spatial organization. From the beginning, human ecology was present in geography and sociology, but also in biological ecology and zoology. However, it was the social scientists who applied ecological ideas to humans in rigorous ways. Throughout the 20th century, few biological ecologists really tackled human ecology, but they tended to focus on humans' impact on the biotic world--which is only half of the picture. Paul Sears is the perfect example of this, an ecologist who realized the disastrous effects that humans were having on the environment and called for human ecology to act as a means to solve them. However, some social scientists expanded human ecology to include also the physical environment's impact on people. Human ecology as human-environment interaction is an ancient idea in geography. In the modern era, the term appears as early as 1908 in the discipline (Titles and Abstracts of Papers Presented to the Association from 1904 to 1910, Inclusive). Harlan Barrows addresses the topic in his presidential speech to the Association of American Geographer in 1923. Barrows' speech is an attempt to redefine geography as the

science of human ecology, emphasizing its study of humans' relationships with the land instead of just a regional study of the physical land.

In the early 1950s, anthropologists, led by Julian H. Steward, began to further develop this human ecological study of culture, asserting that it is the intermediary between humans and their environments and what makes humans unique. Or Steward's cultural ecology focuses on reciprocal causality between two objects or processes (i.e. between environment and components or core). **"**Adaptation" the word, in general, gives two meanings--genotype and phenotype. The genotype refers to the hereditary potential of an organism for adaptation in an environment. Phenotype, on the other hand, is the product of interaction between the genotype and environment where the organism is located. The concept of 'adaptation' came into discourse along with the publication of Charlse Darwin's 1859 book, " The Origin of Species". As a natural scientist, his main focus was on the genotype adaptation. Generally, adaptation is a process of interaction of a living organism in an environment (Hawlev, 1986). It is a viable relationship between population and environment. Human ecologists argue that adaption is a never-ending process because environment always changes and the humans adapt in the environment with modern technologies in the changing context. Fishermen have been changing their occupational (fishing) system in this changing context. They need to take to participatory system with changing environmental context. Geertz's concepts (1973) focus on complete set of mutual causality that is between man, plants and animals along with non living environment. Similarly, the Jalari community has specific relationship with the available resources around them. Geertz believed in that ecological system in which human population's participation can be studied in the same general ways as those in which humans do not. Geertz talked about the system, but the real system theory came from the efforts of Rappaport and Vayda. They suggested that instead of talking how culture is adapted to the particular environment, we should pay close attention to the relationship of specific population to specific ecosystems.

Marvin Harris (2001), an ecological determinist, assumes that there is constant pressure due to human reproductive potential on the carrying capacity of any given ecological setting. Ecologists use the term "carrying capacity" to refer to the maximum number of people that can survive at a given standard of living on or from a given amount of land, given the available level of technology. Because of the fixed potential capacity by the Phewa Lake, Jalari community shifted to foreign employment, official job, paid labor according to the changing situation. There is always a pressure to enlarge or expand the amount of land, increase its productive capacity (usually through technological innovation) and/or to reduce the size of the population dependent in the land. Historically, when none of these solutions or adjustments can be made in the whole culture and societies, Harris study claims that geographical explanation is ruled out because all nearby territories are claimed; and although more intensive agricultural methods (intensification) yield higher subsistence capacity, an increase in the population size usually follows, thereby putting even more pressure on the delicate ecological balance among population size, land, resources and technology.

Ethno-ecologists rgue that a better way of studying ecology is to understand people's knowledge and perception about their environment. From this perspective, Dwyer (1996) studied Kubo community of New Guinea and found out that there is no separate concept of nature and culture. He writes, "the jungle is the totality as a material and spiritual world is cultural space". The market economy and political power, in the present, have affected the present societies in the world. There are no more seperate communities, which have no effects of the other communitees. Ways of life of most of the people have been influenced by the modern western technology and market products. Present societies are constructed on the mosaic principle. The concepts of "cultural area" and "natutal area" are not uesful any more from the human adaptation's perspective. It is a fact that environment threats the humans, and humans threats to the environment are a majour source of concern throughout the world. Developing countries have been facing a great problem of environmental degradation: deforastation, erosion,

landslide, etc., due to the pressure of population. Developed countries' activities such as industrial products, developed technology, use of nuclear weapons and so on, are also theratening the global environment. In this present circumstance, what human efcologists can contribute to its development is a main concern of anthropology. Milton (1997) writes that human ecologists have to study the present societies in the reference of their relationship with the environment that should be helpful for realizing the situation and its development. He further stresses, we have to study the real situation of people--how they have adapted in an environment and what factors affect their adaptation pattern.

Prominent human ecologist, Fredrik Barth (1965), who first of all applied the concept of niche in human ecology analogue to the biology, clears the concept of adaptation applying in the multiethnic communities. His concept of niche in human ecology and the concept of adaptation may be relevant , rationale and play a guiding role in the study of Jalari community.

2.1.4 Cognitive Anthropology

Cognitive anthropology, an extremely broad field of study, is closely aligned with psychology, and has adopted theoritical elements and methodological techniques from structuralism and lingustics (Frake,1961). Cognitive anthropologiests view anthropology as a formal science. They maintain that culture is composed of logical rules that are based on ideas that can be accessed in the nind (Moore, 1999). There are four basic categories in cognitive anthropology: semantics, knowledge structures, models and systems, and discourse analysis (Andrade, 1995). Semantic studies of terminology systems formed the basis of early cognitive anthropology. The analytical and ethnographic methods developed in these studies provided the foundatiion for ethno-science.

Cognitive anthropology not only focuses on discovering how different people organize culture but also how they utilize culture. It does not claim to predict human behaviour but attampts to describe what is socially and culturally expected

or appropriate in given situations, circumstances and contexts (Moore, 1999). To the core of ethnographic semantics and ethnosciences practiced in the 1950s and 1960s, decision models and narrative grammars were added to the agenda of cognitive anthropology in the 1970s (Colby, 1996). D'Andrade, 1995, states that the lingustic preoccupation in cognitive anthropology has given away to more psychological approaches. The primary theorical underpinning of the ethnoscientific approach was that culture exists only in people's minds (Applebaum, 1987). The methodology of ethnoscience attempted to remove the ethnographer's categories from the research process. The principal research goal identified by cognitive anthropologists was to determine the content and organization of culture as knowledge. From the late 1950s to the 1970s, research was strongly oriented towards method, formalization, and quantification (Andrade, 1995).

Ethno-science was introduced in anthropology as a new ethnographic method from the 1950s onward and accepted it in human ecology later as an approach to atudy native's knowledge about their environment. The prefix "ethno" gives a meaning of general study of an ethnic group. Ethno-science as a concept was developed and used in descriptive lingustic, systematic biology, and psychology at first to the exploration of systems of knowledge and cognition in other cultures (Conklin, 1962; Frake, 1962).

Ethno-science has been accepted in anthropology for the study of local knowledge from the native's terminology and classifications. Ethno-botany and ethno-ecology are accepted as sub-disciplines of anthropology nowadays, which emphasized on the study of the ethnic groups and their pratices in the native's perspectives. Cogntive anthropology came into existence with a set of methodologies used to record the knowledge systems of a given community from an emic perspective during 1960s. Ethno-ceology is a science that studies the ecology from the native understanding and knowledge. Or it is an environmental knowledge that belongs to particular cultural traditions and is valid only in the context of those traditions and be relevant in the context of the study of the Jalari community of Phewa lake.

2.2 Review of Previous Studies Related to Occupation

Timelsina (1990) studied the Majhis of Amchaur, in the Kavhre Palanchok District of the Bagmati Zone who were experienced about the local resource management. The Majhis have been influenced by their natural environment since their origin. They have depended on the rivers, and the rivers have been the centre of their culture, this culture has been the group identity and resources for subsistence. But with social changes such as the fall of the Ranas, the introduction of the Panchayat system and other social reforms, the Majhis have been losing their traditional privileges.

Most of the Majhi people were struggling for mere subsistence and suffered from abject poverty, although they have some sort of natural resources for their survival. Predominantly, they have practiced agriculture (occupation), but this does not fully supply their needs. The Majhi communities received the land as *jagir* in compensation for their boatman service. But their land only provides crops sufficient for four months out of the entire year. That is why, for the survival, they adapted another source of subsistence i.e. animal husbandry, fishing service and porter age. The overall finding of this study suggests that the Majhis are suffering from extreme poverty, illiteracy and economic backwardness. Their conservative cultural values also pull them down through traditional occupations. These social evils are negative forces in the Majhi community. The economic, social, cultural backgrounds give a clear picture of the Majhi future that they have ahead of them. Their adaptation process by changing the traditional occupation plays the crucial role for their survival.

Gurung (1998) studied the interrelationship among pasture, animal husbandry and agriculture on Tara Village in Baglung District, with emphasis on *riti-thiti* (local management) system. The ethnic composition of the Village consists of Magars, Brahmin Chhetries, Thakalis, Kamis, Sarkies and Damais. The village is considered the richest in natural resources in entire Baglung district. The forest and

pasture land and water have been exploited by village people throughout the ages. Different types of forest and trees provide them with fodder, fuel, wood, timber, etc. Grazing animals under the shadow of trees was the prime occupation of the villagers by indigenously utilizing the resources. In the village, almost all the herders have a rich knowledge of ethno botany. This suggests the intimate relationship between the peasants and the world of the plants. For many years, generations of village people have heavily depended on natural resources for their agricultural economy. They are aware that the agricultural economy of the village is directly or indirectly related to the quality and quantity of natural resource availability. They say *"javasamma ban tabasamma dhan"* (as long as there is forest, there is wealth). Because of the general awareness, village people and forest management have somehow taken steps to protect the forest by adopting various old established procedures, such as grazing on rotational basis, fencing the major passes of grazing lands and imposing fines for someone who violates the communal rules for grazing. Hence, Tara village provides a useful example of local resource management practice through the traditional and indigenous occupational practices. The overall study shows the occupation which is determined by the available and existing resources. In the Baglung district, there is a rich forest resource around the Tara village stakeholders, and because of the availability of resources they have been practicing animal husbandry and agriculture. These deductions are prone to guide the current study on the Jalari community of Phewa Lake.

Kattel (n.d.) studied Arun Valley that lies on the Koshi Basin of eastern Nepal which is generally known as the Kirat area. The Kirat region is generally divided in to two sections on either side of the Arun River--Khumbuwan, lying on the west and Limbuwan, lying to the east. The Rais dominate the Khumbuwan section while the Limbus dominates the Limbuwan section. After the unification of Nepal in the late 18th century, the valley has undergone a rapid change. Brahmin, Chhetris and other occupational caste groups, even Newar from Kathmandu, settled and the Hindu societies have eventually intergraded themselves with the

indigenous societies. According to Kattel (n.d.), environmental perception of the people and their ecological needs are expressed not only in farming systems but also in traditional rituals and rites. On the bottom of the valley, Kumale, an occupational caste group traditionally known as potters, are to be found in the Kumal gaon near Tumlingtar. The entire valley people lived traditionally before the Arun IIIrd Hydroelectric Project was established in the area. But after it, the lifestyle of Arun valley has changed. Except agriculture and traditional occupation (making pottery), they have been involving in off- farm activities to support their own day to day life, as well as to bring in cash income for commodities like cloths, salt, kerosene, spices, utensils, and so on.

Furer- Haimendorf (1964) notes the presence of *Shingo naua*, or forest guards as part of village organization "in-charge of the preservation of protected forests" (1964:110). These officials derive their mandate from the village assembly and are "responsive for the protection of the reserved forest close to the village to permit limited felling in the protected forest for special purposes, such as house building and wood required for funeral pyres". He further notes that (1984) today the *Shingo naua* system is no longer in operation perhaps because of development of the Sagarmatha National Park, among other things. However, another study points out that Furer-Haimendorf's recent account misses some important points (Stevens, 1989). According to Stevens, the *shingo naua* system is just one of a number of local systems operations among the Sherpas, and its present ineffectiveness should not necessarily mean a general decline in forest protection and management practices among the Sherpas.

Campbell et al. (1987) discuss the socioeconomic factors in traditional forest use and management in forty-seven communities of the Dhading, Kaski, Parvat and Baglung districts and note that "there has been reduced usage of the forest, a reduction in livestock per household, an increases in stall feeding , and an increase in private planting such that the average household in this sample now has 42 trees on its land" (1987:52) Their conclusions clearly indicate that people in the hills of

Nepal are doing their best to protect the forest cover in their respective localities. This deduction may prove a landmark in the study of the Jalari community who has been managing Phewa lake resources for centuries with the basic alterations in their traditional occupation in the due course of time.

2.3 Anthropological Perspective and Indigenous Knowledge in Biodiversity Conservation

Upadhyay (2007) asserts that perspective is the mental image of any object, subject, issue etc. Perspective is the point of view or angle to look at any discipline. It is a lens –using the anthropological lenses for the perusal of the core issue of Anthropology. Hidden assumptions about culture are embedded in human cultural discourses and institutions. Such assumptions shape how humans perceive social and cultural realities. It is imperative to see these cultural and social realities through anthropological lenses or perspectives, that is, to look at cultures through anthropological lenses or perspectives, to acknowledge, understand, and question the assumptions we make about any sort of issues—biodiversity or any thing else.

Biodiversity can be defined as a fundamental natural resource on which humans are dependent for their livelihood and socioeconomic development from ancient to present times and extending to the future generations (Shenghi, 1996). This statement stated the contribution of biodiversity for human beings. Biodiversity which we see in our surroundings in everyday life has a closed interlink. Our social cultural economic and religious rules and regulations are formulated in accordance with biological diversity. In other words, biodiversity is supporting the human existence and contributing to human welfare. In spite of this, there are other numerous non-anthropocentric reasons for biodiversity conservation. According to Skip (1992), there are five reasons for maintaining biodiversity via ethical reasons, maintaining ecosystems, material and economic benefits to people, maintaining evolutionary process and aesthetics.

Famous anthropologist Julian Steward (1902-1972) forwarded the concept of "Cultural ecological model". In which he added the concept of ecology in relation to human beings. He analyzed the effects of environment upon the culture. The process of adaptation to the given environment is the principal meaning of ecology. Since the time of Darwin, environment has been conceived as the total web of life wherein all plant and animal species interact with one another and with physical features in a particular unit of territory. Similarly, according to Webster, the biological meaning of ecology is "the mutual relations between organisms and their environment".

Water resource is an important reservoir of biodiversity in Nepal and is directly associated with rural lives. Rural communities are dependent on water resources for various products. Similarly, water resources, forest resources are also the sources of bio-diversity. In our context, groups living in or vicinity of lakes or rivers and forests achieve the nutritional needs in the form of fish and forest products. The tribal community of Raute and Kusundas are also dependent on forest for the habitat purpose. Most of the Chapang communities of lower basin of Mahabarata range are also heavily dependent on forest resources for their livelihood and they did shifting cultivation activities for the subsistence of their lives. In another words, we can say that the poorest of the poor are must dependent on biological resources for their survival. In Indonesia, for example, the poorest rural people are must dependent on biodiversity for livelihood and also suffer first and must at the lost of biodiversity (Anon, 1993).

The use of natural herbal drugs and medicine reflects the long history of human interaction with biodiversity. In Nepal, out of 7,000 flowering plants at least 700 plant species are being used in tradition medicine (Manandar, 1989) and 510 such species are reported to occur in wild state (Malla and Shakya, 1984). The rural people have an in-depth knowledge on the use of different medicinal herbs to cure diseases. Similarly, many plants and animal species are important for religious and cultural values in our society, for example, papal and *bel* have the cultural and

religious values in our society. Majpuria (1984) has described 56 plants species of Nepal as important from religious point of view. The Jalari community also possesses a vast stock of knowledge related to plants species found in the vicinity of lake.

Since the very beginning, aboriginal populations all over the world have designed and formulated strategies for natural resource utilization and management based on long-time accumulated knowledge to sustain them and to maintain their cultural identity. However, this knowledge has recently been recognized as an important means for sustainable development. The term “indigenous” often appears in various literatures and in different context but the final experience of the word refers to system that is generated by initiatives within local community itself (Fisher, 1992).

Chamber (1987) chose to use rural people’s knowledge instead of indigenous knowledge, which is a more inclusive term. According to him, rural people’s knowledge covers the whole knowledge system which includes concepts, believes, and perceptions of rural population and at the same time process related to the accumulation and transmission of these knowledge. Similarly, Vgea (1989) referred to local knowledge in his study to avoid some negative connotations to indigenous like tribal or ethnic. In our context, indigenous knowledge is the local people’s knowledge that is unique to the given culture.

Rural people often have a wealth of knowledge. The Hanunoo in Philippines are said to have had, on average, the knowledge of 1,600 names of plants, 400 more than those in a botanical survey (Conklin, 1957, cited from FAO paper no-12). Similarly the Kung San of Botswana have knowledge of animal behavior often superior to that of scientists. Knowledge of soil, seasons, plants, domestic and wild animals, farming practices, diet--not to mention social customs and relations--are often rich and in some or all respects superior to those of the outsiders (cited from proceedings of the 1985 international conference on Rapid Rural Appraisal, Khon

Kaen University). Our context of the study on Jalari community of Phewa Lake may be similar to that of the given example. The different ethnic groups of the existing society may be the specialist for the particular indigenous knowledge. Nowadays, such types of indigenous knowledge could be analyzed by using "Ethno-cognitive mode".

2.4 Collective Decision Making in an Attempt to Strengthen Traditional Resource Management Systems in Nepal

Another form of collective mobilization involves a participatory and positive attitude towards government policies and programmes relating to environmental protection. For example, local communities may become more receptive to official environmental awareness programmes. They may cooperate with government staff in forest protection activities such as reporting on illegal felling of trees or illegal hunting of animals. Community participation can also be vital in the planting of trees on public lands. Local people can play an important role in establishing nurseries, planting trees and guaranteeing their long-term protection. However, as is commonly noted, many of the official tree-planting programmes have proved unrealistic from the standpoints of local peasants and communities because they are frequently based on a superficial knowledge of local social, economic and cultural characteristics, constraints and needs (Oakley, 1984).

Collective opposition to development projects and programmes involving dams, mines and roads has been reported in many developing countries. Such resistance has been directed at the indiscriminate cutting of trees by loggers, or towards authorities that provide official licenses for such activities.

There is some emerging literature that documents collective resistance by local communities. The most widely discussed case is the Chipko movement in northern India. This movement developed within the context of a very long history of popular mobilization against the colonial authorities' control of local forest resources for commercial exploitation and revenue generation (Shiva and

Bandyopadhyay, 1988). Since independence, based on the Gandhian philosophy of non-violence, the movement has evolved into general resistance against logging. One remarkable aspect has been "tree hugging" by women in order to prevent felling. In recent years, the movement has been transformed into a tree-planting campaign to regenerate forests in the denuded hills of the Indian Himalayas as well as in other parts of the country.

Another well-known popular-based movement of poor, forest-dependent people is the struggle of Penan and other tribal groups in Sarawak, Malaysia, against the destruction of their homelands by commercial loggers. In order to protect forests and defend their traditional territories from loggers, these people have resorted to forming "human blockades" across logging roads. The Malaysian government has frequently intervened by dismantling the blockades, arresting and detaining tribal people and imposing fines and prison terms. Yet, despite these punitive measures, the blockades have persisted and continued to cause severe disruption to timber extraction activities (Colchester, 1991).

Similarly, the collective mobilization of local people against official forestry or development interventions has a long history in Thailand and the Philippines as well. In general, the social movements of communities in Africa, as related to forests, woodlands and savannah, are poorly studied. Hence, the current study on Jalari community will try to fill up the lacuna in the field of knowledge by exploring the social issues, movements and attempts made this community in the process of maintaining their water related livelihood. However, some documented examples do exist. For example, Maasai pastoralists in East Africa actively resisted attempts by the colonial administration to develop large scale ranching and agricultural estates of white settlers within their territories (Miller, 1987; Thomson, 1983). After independence, these people have lost a great deal of their land to national parks, game reserves and commercial plantations. Many popular reactions to these measures have occurred, including non-cooperation in official land and livestock improvement projects, disregard for land laws and refusal to leave protected areas (Matampash, 1991; Lochgan, 1991).

Popular movements in Malaysia have been directed against unsustainable logging practices. In Latin America, organized protests and opposition by forest dwellers to deforestation and encroachment have become common. In El Salvador, Panama, Guatemala and Honduras, Indians and resident peasant populations dependent on forest resources have led many protest movements to prevent mining, excessive logging and forest clearing for large-scale cash crop production (Utting, 1991).

Collective actions involving landless migrants, Indians and rubber tappers in the Brazilian Amazon have received widespread attention in recent years. The rubber tappers' movement is the most organized movement of these forest-based communities. The centre of this movement has been Acre, where Chico Mendes campaigned for the recognition of land rights, the establishment of extractive reserves and an end to people's debt peonage on traditional rubber estates (Hecht and Cockburn, 1990).

By tradition, Nepalese society has distinctly identified ethnic communities involved in different occupations however facing many difficulties. . For example, Jalari, entirely depend upon fishing and water related occupations such as boating and fishing net mending as a family profession. However, with few exceptions, such traditional occupations are not financially rewarding enough for sustaining a family. The ethnic communities involved in fishing traditionally are the Jalari or Pode, Majhi, Malaha, and Bote. They live in villages near the water resource. The fishing occupation within the caste system by tradition can be attributed both to abundant water resources, and honoring fish as a valuable food resource in past. In general, all communities accept fish as delicious food and considered auspicious among many communities.

2.5 A Critical Aassessment of Local-Level Actions to Preserve Natural Resources

The rubber tappers' movement in Brazil can in many respects is considered "successful". Besides its ability to acquire growing international support, it has

become a potent political action in influencing government land-use policies. The Brazilian Government has now recognized the traditional land rights of many of these people and set aside significant tracts of Amazonian forests as indigenous reserves where rubber tappers and other social groups can carry out sustainable forest extraction practices (Turner, 1988).

On various occasions, sustained protest to defend their traditional land rights has allowed the indigenous people of other Latin American countries to make significant gains. For example, the Kuna people of Panama, who have a long tradition of strong political organization, acquired semiautonomous legal rights to forest land from the federal government as early as the 1930s. Since that time though, they have had to confront incursions by cattle ranchers and subsistence farmers (Chapin, 1990).

In Africa, the Maasai of Serengeti National Park in Tanzania again merit consideration. When the colonial government established the park in 1940, it sought to clear the Maasai inhabitants from the area. This led to prolonged protests from the Maasai, and the government was eventually forced to split the park into two sections, Serengeti and Ngorongoro. The Maasai were allowed to maintain their dwellings and livestock in the Ngorongoro area (Arhem, 1986; Parkipuny, 1991).

Although some environmental movements such as those discussed above have had an important impact in protecting forests and woodlands and securing a level of livelihood for certain social groups, there are many others that have failed to yield positive results. In fact, in some cases they have produced entirely contradictory effects. For example, in the state of Bihar in India, the Ho tribal people, denied their customary access to forests by the government, have expressed their grievances by launching a "forest cutting movement" (Colchester, 1991). Another example is the Philippine island of Mindanao where indigenous communities, dispossessed of their land by the state as well as by large cattle ranchers, have engaged in land reoccupation campaigns involving further clearance of forests and

the establishment of fresh dwellings (Lumad, 1991). In Sarawak, Malaysia, alongside a growing protest movement against commercial logging, select tribal groups chose to align with the loggers. Similarly, in Papua New Guinea, despite securing legal land rights, certain communities are apparently involved in leasing out their lands to logging and mining companies for financial gains (Colchester, 1991). Cases such as these scarcely contribute to the sustainable management of natural resources.

In other cases, attempts to protect natural resources through collective actions have merely resulted in more repression, while the benefits of deforestation have gone to the dominant social groups. In Asia, armed confrontations between local communities and the state over natural resources as forest and water resources have occurred in the Philippines, Thailand, Myanmar and India. More serious events have taken place in Latin America, especially in El Salvador and Guatemala (Bromley, 1986).

Collective actions issues share many characteristics of urban and rural social movements. They frequently lack sustained and coordinated action, and local communities become exposed to repeated repression. First of all, rural dwellers and peasants are fully occupied with the daily struggle for survival, thereby hindering their continued participation in collective action. Second, since any direct confrontation with the state or dominant social forces is likely to prompt further repression, many tend to restrain themselves from such activities. Third, the lack of effective organizations and leadership, combined with the physical isolation of settlements, makes political organization of these people extremely difficult. Finally, in many developing countries there is little or no political representation of the group interests of these people within the decision-making processes (Turner, 1988).

The Chipko movement is an interesting case. Looking into its recent experience, one researcher argues (Chatterjee, 1984) that the movement has now been totally taken over by select Chipko groups and outside environmental activists and

organizations that are primarily concerned with the conservation of natural resources and give little or no attention to local concerns economic survival (Ramchandra, 1983). Rangan asserts that "...by the time Chipko had gained enough clout to influence state policies, the original livelihood concerns raised by village communities in Garhwal, India had all but been buried under the polemic and rhetoric raised over the movement. *Chipko* became the movement to save the Himalayas and India's environment at large, but said almost nothing about how the village folk were going to survive and improve their livelihoods in the bleak economic conditions prevailing in Garhwal. This may be relevant in the case of Jalari community who can launch a kind of movement similar to *Chipko* to preserve the Phewa water resources and for their livelihood. However it is felt that a given social movement can become more effective if the participants share a homogenous socio-economic background and have clearly defined, common goals. However, as far as forestry movements are concerned, many internal dynamics and contradictions exist between various participant social groups. People involved in environmental movements are not only stratified along gender lines, social status, authority and wealth, but are also divided into groupings such as landowning farmers, landless forest and non-forest dwellers, migrants and non-migrants and residents and non-residents as well as varying ethnic and cultural groupings. Many of these groups can have their own specific interest which can frequently clash with the interest of other groups. Accordingly, collective action is likely to become more successful when the interests of various groups coincide. This imposes a severe limitation on the capacity of many forestry movements to endure and to attain their intended goals.

The relationship between ethno-ecological knowledge and incorporation into the global economy is generally depicted by anthropologists as antagonistic, and the process of modernization as eroding a disappearing resource in need of preservation (Zent, 1999; Ruddle, 1994; Hunn, 1999; Dove, 1999). However, market incorporation is not by default the harbinger of destruction of local knowledge in subsistence communities.

2.6 Occupational and Spatial Mobility

Two different dimensional aspects show the occupational mobility, " Indigenous" and "Modern'. In all societies as well as Jalari or Pode community, occupational mobility refers to movement of the economic activities from one position to another in the stratified society. In general, two types of occupational mobility are commonly practiced. The open system is related to the achieved and the closed system is related to the ascribed. Achieved status or occupation is the cultural position attained by a person or groups through their own effort and the process by modernization, acculturization, westernization, urbanization and so on. In such types of mobility, competition among members of society or caste group is encouraged. Because of the modern instruments, availability of new technology and practice for modernization, communities has been changing its occupation from traditional to the modern one. Among the Jalari owing to the modern instruments, availability of new technology and practice for modernization, their community has been changing its occupation from traditional to the modern one. However, still, as closed system cultural placement is based on ascribed characteristic, they were fishing by hand net, hooking, boating, sweeping and unpaid labour.

In the intergeneration occupational mobility, Pode or Jalari community has been practicing modern or achieved occupation i.e. open system. Pode's ascribed occupation is traditional fishing since their origin. But the factor of technology, modernization, westernization, natural condition of the Phewa Lake, political effect have caused a change in their occupation from tradition to the modern ones. By the natural and cultural encroachment, the shape and size of the Lake is getting reduced. The sedimentary deposit (natural), other negligent activities by the stakeholders have cast a severe blow on the numbers of fish and size of the Lake. Macro political factors (state and chiefdom system) and micro political factors (community level) have influenced the occupational structure of the Jalari or Pode community (Pradhan and Shrestha 1979). However, the rules have formulated by

the state for the conservation of the lake and biodiversity should be strictly followed by the Jalari community. On the micro political factors level (fisheries committee), they should be bounded by local norms and values made by local leaders. In the lack of this practice, the indigenous efforts to sustain their occupation may be rendered ineffective. So, Jalari community is forced to change their traditional occupation according to the availability of resource. In the mean time, they have been shifting to the new occupation for better earning and according to the challenging situation (Shrestha, 1979).

Pastore and Haller (1993) examine inter- and intra-generation mobility changes that took place in Brazilian social structure between 1973 and 1988. One remarkable conclusion of these authors is that after a long period of immense social mobility, Brazil experienced a relevant decrease in the upward dynamism and a cycle of career stagnation became greater than it was in the past. According to Pastore and Haller, by the end of the 80s, Brazil was a closed country for social mobility. These authors also pinpoint that the need to survive in more competitive labor markets requires better qualification and skills. Moreover, in countries presenting low levels of qualification, the introduction of modern technologies creates opportunities of occupational mobility for few workers and causes wage reductions for many.

Incorporating a discussion on gender, Scalon's study (1999) about the patterns and trends of social mobility in Brazil reveals that, after the 70s, the male mobility began to show a higher index of circular intergeneration mobility than structural mobility. On the other hand, for females, the author observes that structural mobility is higher than circular, except in the case of the intra-generation mobility. Like Pastore and Heller, Scalon concludes that, after structural changes that happened in the 50s, 60s and 70s decades, movements within the Brazilian occupational scale became very inflexible and supported the maintenance of the pre-existent class structure in the country. As Pastore, Scalon also emphasizes that in Brazil, short distances mobility are dominant.

Using data from the 1980 Brazilian Census, Matos (1995) accomplishes an examination of migratory flows and social and economic differentials between migrants and natives in Belo Horizonte area. One of the first conclusions achieved by Matos, derived from the analysis of economic variables related to individuals participating in the labor force, is that male and female migrants are differently attached to the labor market. Among those in the labor force, the proportion of young people coming from rural areas is higher than of those from urban areas. In general, according to Matos, in 1980 adult migrants from urban areas were engaged in the labor market in larger numbers than those coming from rural areas. This fact was observed primarily due to the rise of female labor force participation.

Januzzi's work (1988) analyzes the occupational and social mobility of migrants in São Paulo. In his study he emphasizes that, since the 80s, the occupational mobility and the migratory dynamics show distinct trends from that observed until the development of an urban-industrial structure in Brazil. According to Januzzi, several factors (e.g. the crises in the beginning of the 80s, the 1991-1992 economic recession, and many others) strongly marked the workers' possibilities of social and occupational mobility, reverberating over the spatial distribution patterns of the Brazilian population. All these mobility studies on various communities throughout the countries are providing guidance to the current study on the occupational mobility of Jalari community of Phewa Lake, Pokhara.

2.7 Studies Related to Water Resources Based Backward Communities

Upadhyay (1999) has studied the ethno-biology of Majhi focusing on the food pattern. His study showed that they survive on the plant roots and fruits like *kandamool*, shoots, etc. Although some of the species of *kandamool* are toxic in nature, they apply their indigenous knowledge method to sort out the edible ones. They boil, wash and prepare these items.

Poudel (1997) has studied about socio-economic condition of Jalaris or Podes (i.e. sweeper caste) who are also dependent on water resources as the Majhis. Although his studies is concerned only with Podes who live in Kaski (i.e. Lekhnath

municipality), he has analyzed the historical background of this caste. He found that, on the last of 14th century (of Vikram sambat), King Jayasthiti Malla had divided Newar communities into different castes according to their occupations. One of those who were classified into sweepers castes were Podes. Their main occupation was to clean the villages and towns. And they also remove the skin of dead animals. In such a way they were known as untouchable caste since they had done such a so-called low level task. In his study area, Podes have adopted fishing as a way of their living. But younger generation is engaged in other occupations too, hence demonstrating occupational mobility. Nowadays, they also follow the new fashions whereas old generation sticks to their traditions.

Gnawali (2002) made a study about the Bote under the research title "Gulmi Jilla Bamgha VDC Ka Majhi Jatiko Samskritik Adhyayan," focusing on the cultural aspects of Majhi. He found that the Majhi and Bote are same. They are deprived of social rights and could not tackle with upper caste in the society. He conclueds that in the socio-economic aspect, there is dominant role of male and in other function i.e. pooja, festivals and other ceremonies, the role of female is dominant. They use to suffer from Tuberculosis, Malnutration, Asthma etc. due to the lack of adequate nutrarious food and access to medical treatment.

Amatya (1997) had studied the changing socio-economic status of Podes at Sawal Bhal (Teku), Kathmandu. The so-called untouchables in this community are socio-economically backward due to caste discrimination. On her study, she concluded that the change in family type, education of the children, assimilating in big culture such as celebrating Dashain, Tihar which were not celebrated before, as well as, western type of marriages (i.e. love marriage) and dress pattern are observed in the society. She found about 88 percent respondents were doing cleaning and sweeping job which helped them gain adequate financial assets. She also arrived at the conclusion that majority of the people had low income, so they had to seek secondary occupation.

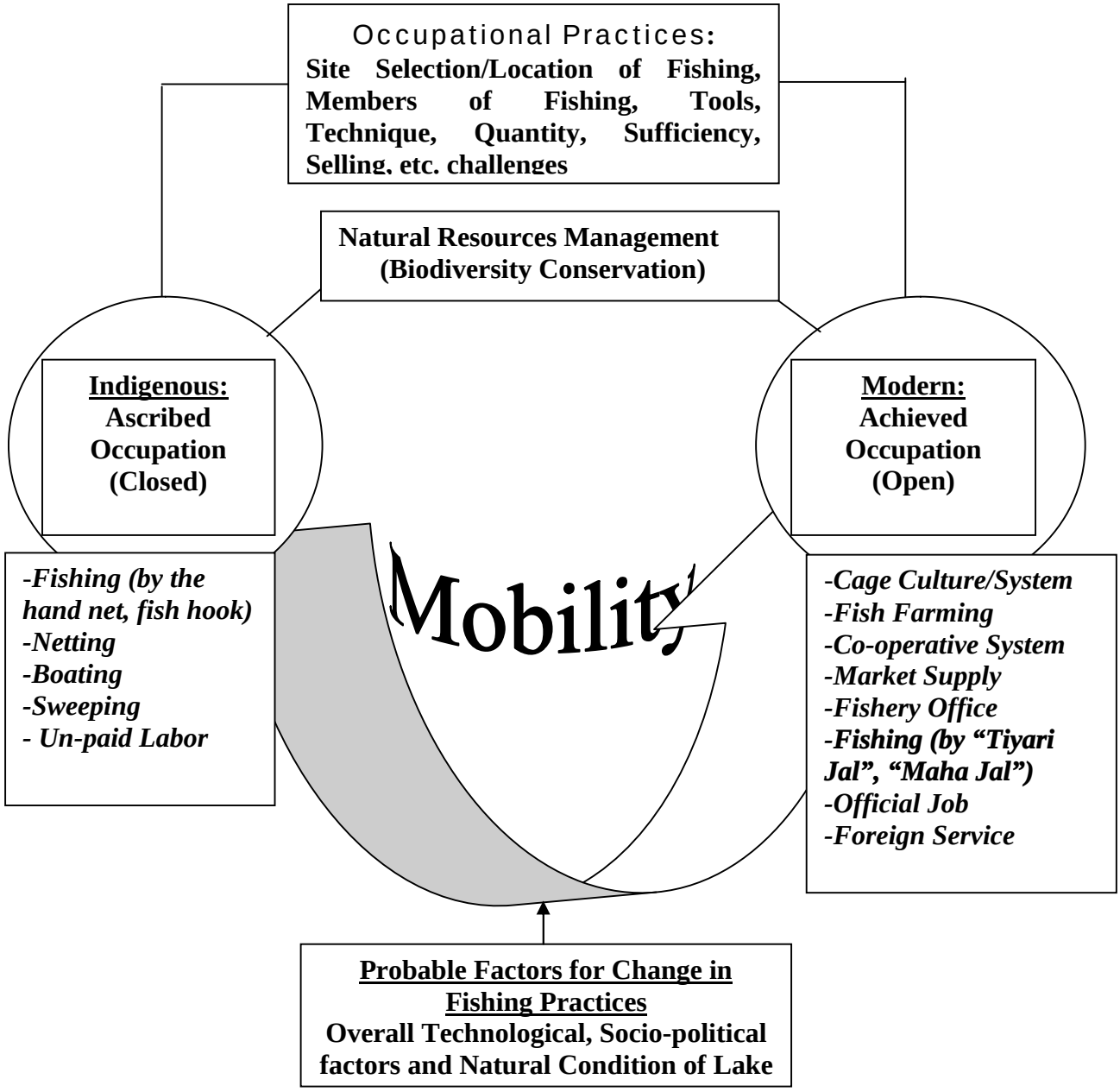
Gyanwali (2053 B. S.) made a study of “Bote Janajatiko Samajik Tatha Samnskritik Jivanavasta Ek Adhyan: A case study of Bamgha VDC of Gulmi”. According to him, Majhi and Bote are same indigenous group. He further explains that the new generation has been following the new values and norms as the changes occur in society. In this society, the descrimination between sex and drinking lacohol did not exist. He concluded that, due to the construction of bridge over river they are compelled to change their traditional occupation.

Pandey (2004) has studied occupational health problems of sweepers and scavengers of Kathmandu. According to him sweeping profession is an outcome of historical labor division system and that is deeply embedded in social structure. Major way to enter into sweeping occupation was through social structure/caste system. There were multiple and complex causes that forced poor into scavenging occupation. Because of a numbers of factors, sweepers and scavengers of Kathmandu were experiencing range of health problems. These problems rang from very minor like pin-bite to chronic respiratory tract and gastrointestinal and sometimes even traffic accidents. Most of the physical injuries related problems had higher influence on sweeper. Significant proportions of sweepers and scavengers were experiencing the symptoms of respiratory tract disease. Diseases associated with gastro intestine were also common among the sweepers and scavengers.

All these past literatures are valuable sources of information for the current study on Jalari. It is universal that in order to locate and identify the problems in any research work it is essential at first to have a literary assessment of the matter to be dealt with which will help to avoid the possibility of duplication in research works and gives the work a literary genuineness. Without any regard to the past, it is illogical to pass away judgment on the present. Hence, the importance of the review of literature in any research work remains vital.

2.8 Conceptual and Theoretical Framework Espoused in the Study

2.8.1 Conceptual Framework Espoused in the Study

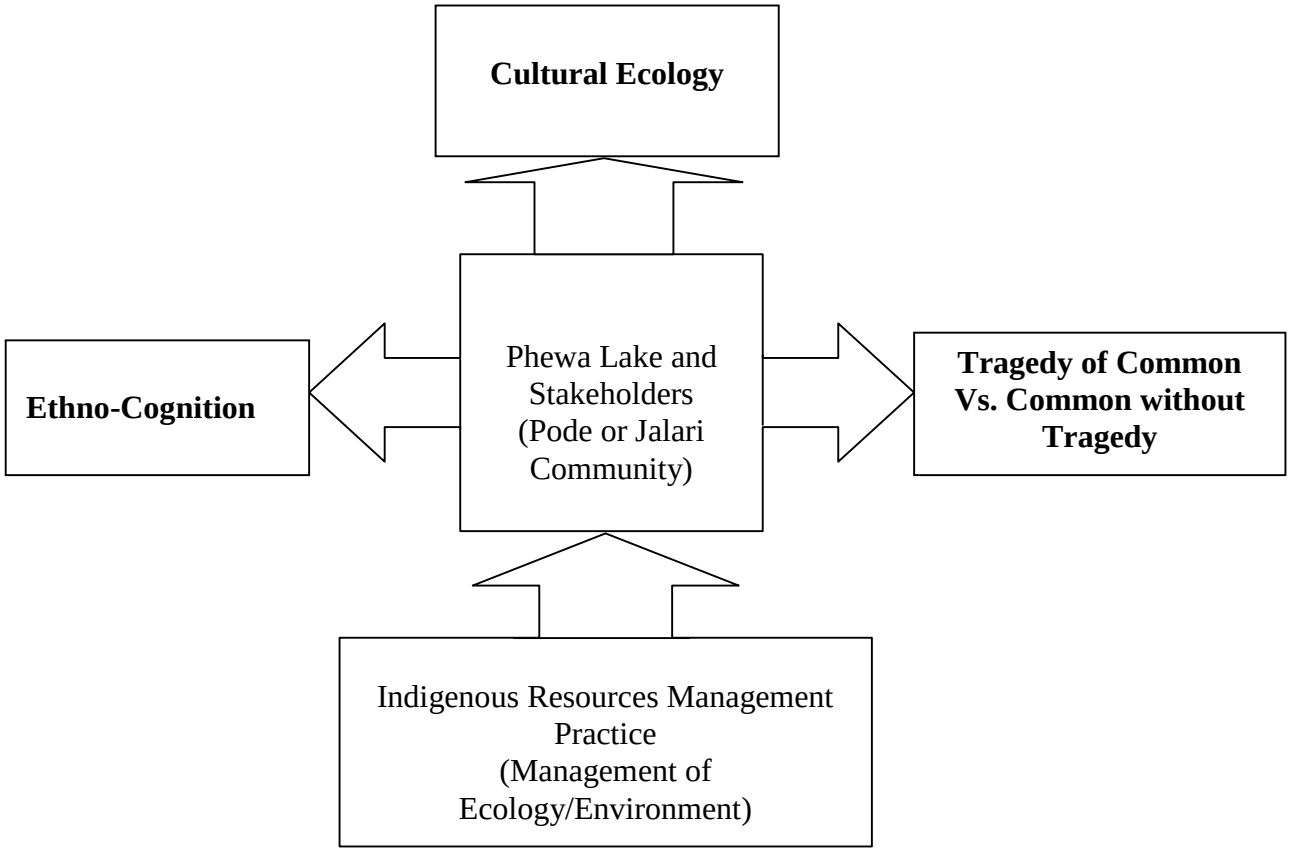


Here, two dimensional aspects have been made so as to show the occupational mobility: "Indigenous" and "Modern'. In Jalari or Pode community, occupational mobility refers to the movement of the economic activities from one position to another in the stratified industrial society. In generally, two types of occupational mobility are commonly practiced in Pode community. Open system is related in achieved and the other closed system is related in ascribed. Achieved status or

occupation is the cultural position attained by a person or group through their own effort and the process by modernization, acculturization, westernization, urbanization and so on. In such types of mobility, competition among members of society or caste group is encouraged. Because of the modern instrument, availability of new technology and practice for modernization, Pode or Jalari community have been changing their occupation from traditional to modern ones. Under the closed system the cultural placement is based on ascribed characteristic while they were fishing by hand net, hooking, boating, sweeping and unpaid labour.

In the intergeneration occupational mobility, Pode or Jalari community has been practicing modern or achieved occupation i.e. open system. Pode's ascribed occupation is traditional fishing since their origin. But due to the factor of technology, modernization, westernization, natural condition of the lake and political effects, their occupation has shifted from traditional to the modern ones. By the natural and cultural encroachment, the shape and size of the Lake is deducting too. The sedimentary deposit (natural) and other activities by the stakeholders have seriously punished the numbers of fish and size of the lake. Macro political factors (state and chiefdom system) and micro political factors (community level) have influenced the occupational structure of the Jalari or Pode community. Both macro political factors related to conservation of Phewa Lake and biodiversity (conservation of wetland and habitat) and the Jalari community should follow the rules and regulations set forth by the state. At the same time, the micro political factors (fisheries committee) should be bounded by local norms and values fixed by local leaders. As the result of the failure of such practices, their chances to carry on their traditional occupation are geeing decreased. And the community is slowly changing its traditional occupation according to the availability of resources. They have been shifting to the new occupation for better earning and surviving in a challenging situation.

2.8.2 Theoretical Framework Espoused in the Study



The theoretical framework of this study is based on the notion of resource utilization and management, based on the occupational structure of the Jalari community. For this propose, three major theories have been adopted: Ethno-cognition, Cultural ecology and Common without Tragedy. “Common without Tragedy” theory is an antithesis to the widely know “Tragedy of the Common” theory presented by Hardin in 1968. The concepts of "Commons without Tragedy" adopted for this study are based on the notion that Phewa Lake and common fishery within it are the collective/organizational property of the Jalari community, thereby giving room to the argument that collective interest of users governs and represents the collective interests of Lake resource, fish resource and grass resource management. As such social, cultural and compensating mechanism plays an effective role in the management and development of common property

resource management through different cultural practices. The theoretical framework of Cultural ecology is based on the culture and ecological setting with an assumption that ecological settings plays a vital role in constructing culture (occupation) for the survival of the community in the given environment. Human ecologists argue that 'adaption' is a never-ending process because environment always changes and the humans adapt in the environment with modern technologies according to the changing context. In line with this argument, fishermen have been found gradually changing their occupation (fishing) system and structures in changing context too. They need to participate more in common management system for coping with the changing environmental context. For the Jalari, on basis of their accessibility of Lake and fish resource of the particular environment, the fish-related occupation is the prime culture of them. They traditionally depended on fishing activities for their livelihood, led a nomadic life along the rivers and Phewa Lake, carrying cast nets to feed their families in a certain natural environment.

The Ethno-cognitive theoretical framework encompasses culture and structure of society as a resource to natural resource management and development. Community member's evaluatory and managerial capacity to manage and develop the common resource or available resources like fish and lake is based on a system of local knowledge, technology, lexis and cognition typical of the community. It is also vital to have a read-through of relationship between cognition and culture and cooperation for survival. The users or committee member's sense of perceiving, wondering, pondering, imagining, generalizing, discussing and judging the issues and problems in their own ways reserves special role in resource management for survival. Site selection/location of fishing, members of fishing, tools, technique, quantity, sufficiency, selling are the main issues of fish-related occupation but by the trial and error methods, Jalari are well capable of challenging these issues cognitively.

CHAPTER THREE
RESEARCH METHODOLOGY

The prime objective of a research is to investigate reality and establish theories about empirical observation (Mishra and Singh et al., 1998). The research is always based on collection and analysis of data which are processed to create knowledge. To conduct a research in a systematic way requires a method. Methods are set of techniques or procedures of identifying a topic, receiving the related literatures, conducting field work and writing a report (Adhikari, 2003). A sound research design needs a logical choice of methods that meets the aims set and generates data in a way that the researcher can handle and interpret (Gill valentine, 2001). This chapter will clarify the methodological approaches applied and put forward a description on how information were collected and analyzed.

3.1 Study Site and Rationale of Selection of Study Site

Lake Phewa and different big and small streams are the main economic or subsistence sources of the Jalari community. Traditionally, they depended on different streams, operating their traditional or indigenous technologies and methods of fishing. The Phewa Lake and the adjoining streams are the places where the available resources are indigenously managed, exploited and harnessed for the survival. Fishing at different streams like Suroudi Khola, Phurse Khola, Seti River, Mardi Khola, Yamdi Khola, and Kali Khola around Phewa Lake was the main occupation of these nomadic Jalari communities who used to roam here and there for caching fish. All of their family members used to be engaged in the occupation for their subsistence. Jalari's households build at different places like Khapaudi, Airport, Gaighat, Pame, Nayabazar, Sedi and Baidam, the surrounding area of Phewa Lake are the study site of the research.

For generations, Jalaris have practiced fising occupation as common without tragedy arround the available raesources. The provided resources are well managed for conserving biodiversity. However, now a drastic change has taken

place: the primary subsistance source of these Jalaris has been replaced by new non-caste based occupation or non-ascribed occupations—a product of modernization and urbanization. Owing to this , the Jalari community living in the vicinity of Fewa lake are facing different sorts of problems related to their traditional occupation of fising which has even created a severe threat to their subsistence. Based on this, this study is rationale to examine the mobility in occupational structure of the Jalari community. With the change in time, Jalari community, by the effect of modern management system, also needs to adopt alternative measures of fishing and take part in cooperative practices in order to cope with the changing conditions. They have formulated fisheries community which helps them to change the fishing system in the modern context.

3.2 Research Design

A Research Design is a plan of the proposed research work. It is a planned sequence of the process involved in carrying out a research study. A research model or design represents a compromise dictated mainly by Practical Considerations. Research design is a research plan providing guidelines to researcher to get answers to the research questions and help control experimental, extraneous and error variances of a particular research problem. Research design is the plan, structure and strategy of investigation conceived to obtain answers to research questions and to control variance (Kerlinger, 1986).

In the current study the exploratory research design has been used to understand various aspects of the problems or issues related to Jalari community which focuses on occupational practices while the descriptive research design has been used to describe the causes and effects of involvement, and social, cultural, and cognitive significance of community participation in fish resource management. Here, the descriptive design has helped in discovering new precision in the field of fish resource management practices (FRM), provided insights into specific objectives of the research study via the use of anthropological perspectives or viewpoints. Descriptive design has prepared the basis for clarifying and describing

concepts, establishing priorities for carrying out research in specific, descriptive and real–life setting and existing occupational pattern.

3.3 Nature and Sources of Data

Primary as well as secondary data were used in this study. Secondary data were collected by adopting various secondary means. Beyond other means, it was collected from previous studies, published and other unpublished documents from related literatures. Secondary information was helpful enough in checking the validity and reliability of empirical filed data.

As per the need of the study, more primary and some secondary data have been collected but priorities have been given to the selection of primary data which are both qualitative as well as quantitative. Primary data have been collected by employing various primary hand data collection techniques.

3.3.1 Primary Source of Information

Based on research objectives, questions and types of data required, primary data have been collected by employing various techniques. Primary data or the first hand data were collected via the field study adopting various participatory means viz. interview, observation, questionnaire, schedule, etc.

In course of the research, men and women had been equally involved. However, special attention had been given to the women in order to get their view and attitude toward their occupational and cultural aspects during the process of gathering information. One local woman was also hired for enumeration purposes.

3.3.2 Secondary Sources of Information

Critical review of statistical reports, annual reports and profiles of district and village development, women development office, profiles and plan documents,

journal articles, government policy documents and other published materials and official records of INGOs and NGOs have been scrutinized.

3.4 Sampling Design

Consensus analysis is a theoretical model which posits that agreement in a given domain can provide a valid and reliable measure of cultural knowledge (Romney et al., 1986). The model makes two assumptions: 1) an external truth exists in the domain being studied; and 2) individuals answer independently of each other. Factor analysis is used to ascertain the degree of coherence among individual responses.

This study specially focuses on the changing occupation (fishing) or mobility in occupational structure of the Jalari Community concerning with resource management and utilization. For that propose, the universe of this study site is Jalari's households build at different places like Khapaudi, Airport, Gaighat, Pame, Nayabazar, Sedi and Baidam, the surrounding area of Phewa Lake with a total of altogether 93 households . Due to the small population size, the census study has been espoused.

3.5 Pre-test of Schedule

In order to test the schedule prepared, a pre-test (pilot survey) was carried out. Young (1996) highlights the importance of pre testing as:
Pretesting provides not only a test of the clarity of the questions and of the correctness of interpretation put upon by the respondent, but it also affords the possibility of discovery of new aspects of the problem under scrutiny but not anticipated in the planning stage.

For the purpose, at the very beginning the pilot study was carried out in the Rupa Tal area among 13 households. Results from pre-test were tabulated and analyzed.

These analyses helped to refine the questions in the schedule and to discover new aspects about the occupational alteration and mobility. Some important inferences and insights obtained from this procedure were incorporated into the schedule before final questions were prepared and administered.

3.6 Methods and Instruments of Primary Data Collection

The methods adopted in the study to generate relevant data were guided by research objectives, questions and the type of data required for the study. Following techniques were adopted to collect primary data.

3.6.1 Household Enumeration

In order to get the desired data and information on the Jalari community, all of the 93 households were enlisted. In the first phase of the study, household enumeration was conducted and the social, cultural, religious and economic status of each household was examined. A study on the occupational structure and the ethno-economic process which gave them subsistence in the community was conducted at length. The economic status viz. rich, middle, poor, very poor was determined on the basis of income and income generating sources like business, landholding, farming, employment or job (govt., private and foreign), etc.

3.6.2 Interview Schedule

Questionnaires containing both open and closed questions were used. Separate questionnaires were administered to all the household members (only household heads), of the Jalari community. It was helpful in collecting information on the organizational, participatory, socio-cultural, cognitive and all other aspects of Jalari member's resource management practices, input, performances and occupation practice, etc.

3.6.3 Interview Method

Oral interview method was espoused for collecting first hand data. Interview schedule was prepared based on the objectives of the research study containing both closed as well as open-ended questions. Both structured and unstructured interviews were conducted. Individual and group interviews were conducted for interviewing the entire household head member. Group interviews were conducted by drawing common fisheries' committee including females also. Committee members and other influential persons of the community were invited for free discussion on topics such as "traditional occupational pattern in changing situation", "resource management", "resource distribution" (benefit sharing) and "participation at all levels", etc.

Unstructured/informal interviews were conducted with community leaders and key informants for tracing their attitude towards new technology with changing methods of occupation, resource management pattern, participation at various levels, etc. It has been helpful in collecting other unofficial information as well.

3.6.4 Observation Method

For this study, direct participant observations overt method was used to collect relevant data. Participant observation included establishing rapport with the people, and direct collection of primary data from the field. Personal observation is crucial for the immediate study of the events. In this study, personal observations were made in the field with certain behavior of household members. At the same time, indirect non-participant methods were used for the collection of requisite data.

3.6.5 Case Study Method

Case study method being an in-depth study method was used for studying cases of some members of the Jalari community which helped in gaining information related to occupation, culture, economic tradition, past and present condition of the

economic status, and recording verbal stories, unique events related to occupations etc.

3.7 Data Analysis and Presentation

Collected data have been analyzed both qualitatively as well as quantitatively. Quantifiable raw data have been analyzed statistically. While presenting the data, simple statistical tools like frequency and percentage have been used. Likewise, tabulations and graphical representation have also been made.

The non-quantifiable qualitative data have been managed manually and analyzed descriptively. In order to present some quantitative data figure, charts, diagrams have been used. Efforts have been made to maintain the objectivity of the data and to avoid data error by comparing them with different data collected from other places when essential. Likewise, most importantly, efforts have been be made to interpret data as anthropologically as possible.

CHAPTER FOUR
OUTLINE OF THE STUDY AREA

4.1 Physical Setting of the Study Area

Phewa Lake is situated at the southwestern edge of Pokhara Valley (28° 1' N, 82° 5' E, alt. 742 m) with a watershed area of approximately 110 km^2 (Ferro and Swar, 1978). The total surface area of the lake was estimated at 500 ha. by Ferro and Swar (1978), while Ai et al. (1995) reported 523 ha. More recently, Lamichhane (2000) estimated 443 ha. of attar surface area with a maximum depth of 23m. Phewa Lake is fed by two perennial streams namely Harpan Khola and Andheri Khola, as well as several seasonal streams. The lake has a single outlet, where water is diverted for irrigation and hydropower generation. About 1700 wooden plank boats and other crafts are operating in the lake, mainly for tourism services. It is estimated that 16% of Pokhara's total income is generated through tourism (Oli, 1997), and the shorelines of Phewa Lake, especially the western side, comprises one of the most popular tourist spots, with many hotels and restaurants. Several studies have revealed the mesotrophic status of Phewa Lake (Ferro, 1980, 1981/82; Fleming, 1981; Nakanishi et al., 1988; Rai 1998; Davis et al., 1998). Presently, the lake is facing severe environmental problems as a result of nutrient loading from agriculture, and slides, and rapid urbanization in the surrounding area. Sewage from the surrounding settlements is directed into the lake (Lamichhane, 2000), and the volume continues to rise dramatically in response to increased tourism (Oli, 1997). The recent trend is toward rapid eutrophication (Oli, 1997; Lamichhane, 2000; Rai, 2000). However, the lake is also seasonally oligotrophic due to heavy rainfall in its wider catchment area (Rai, 2000).

4.2 The Jalari People: A General Ethnographic Context

There is no detailed ethnography available on the Jalaris. Most of the time, any reference to them and their way of life is to be found in the research works on the Newars or the so-called low caste people in the Kathmandu valley (Gellner, 1995; Levy, 1990; Nepali, 1965, and Toffin et. al., 1991). It appears that one and the same group of people referred to as Jalari or Pode in this study are known by different names in different places and social contexts. There are several terms used to refer to them in the literature, such as Po(n)har, Podhya, Pore, II Poriya, Dyahla, and Deopala. Their physical appearance, language, and their traditional livelihood persuasions may suggest that these are one and the same group of people perhaps sharing a common origin and culture. Pode people in the study area in general have had limited access to agricultural land. As a socially and economically marginalized people dependent mainly on fishing within a strictly hierarchical Nepali society which subscribed to the idea of people being 'pure or impure', clean or unclean, etc., Podes normally lived in the marginal lands in the outskirts of the urban or administrative centers (Nepali, 1965; Levy, 1990).

The Pode Tole in Pokhara was at the southern end of the municipality until the urban area itself expanded (starting with the construction of the airport in the early 1950s) and encompassed the Pode Tole within it. Finally, an intriguing fact about the Pode is that they have been in a situation of 'double vulnerability'--one, as socially discriminated people, and the other as economically poor (and one could argue that their social situation and poverty are interrelated).

4.3 Population Composition

Population composition refers to the demographic makeup of persons within a geographic area. The scattered settlement from different place of Jalari community shows that the population of Jalari community has been increasing day by day. Most of female and male are involved in fishing activities. The following table 4.1 shows the population composition of the Jalari community.

Table 4.1

Population Composition of Jalari Community

Places	Household Number	Total Population		Total
		Male	Female	
Khapaudi	48	142	102	244
Airport	5	14	15	29
Gaighat	5	12	14	26
Pame	11	25	18	43
Nayabazar	4	13	9	22
Sedi	5	8	13	21
Baidam	15	42	25	67
Total	93	256	196	452

Source: Field Survey, 2011

The population of Jalari community is scattered around different places of Phewa Lake like Khapaudi, Airport, Gaurighat, Pame, Sedi and Baidam, in the vicinity of the Phewa Lake. Some Podes are living in Nayabazar. The scattered settlement or the above data in the table 4.1 depicts that out of total population of 244, 142 male and 102 female live in Khapaudi. Especially, family members separated after marriage or due to other reasons have started to live at other places other than Khapaudi. While 67 populations of the 15 household illustrate that Baidam is also a well settled area of the Jalari community. Another place of Jalari people is Pame where 43 people live under 11 household. Similarly, 26 of the 5 household are found in Gaighat while 29 of the 5 houses are around the airport arena. Sedi and Nayabazar are also settled areas that inhabit 5 and 4 household with 67 and 22 Population, respectively.

4.4 Religious Structure

Scott (1999) has defined religion in the *Dictionary of Sociology* as a system of belief, practice, and philosophical values concerned with the definition of the sacred, the comprehension of life, and salvation from the problem of human

existence. But an alternative approach to the study of religion was first formulated by Durkheim in 1912, although it had been propounded earlier in a less coherent form by Fustel de Coulanges in early late nineteen century.

Durkheim (1912) argued that in all societies a distinction is made between 'sacred' and 'profane' things. Religion is a unified system of beliefs and practices relative to sacred things that is things set apart and forbidden--beliefs and practices which unite into one single moral community called church all those who adhere to them. In Durkheim's theory the collective aspects of religion are emphasized; the function of religious rituals is to affirm the moral superiority of the society over its individual members and thus to maintain the solidarity of the society. The god of the clan can be nothing but the clan itself. While some scholars have devoted themselves to the study of world religion such as Christianity, Hinduism and Islam; others have studied religion among the simplest communities of hunter-gatherers, pastoralist and shifting cultivators (Redcliffe-Brown, 1922 and Evans Pritchard, 1956).

The concept of religion is more related to emotion and sentiments of the people that drives people towards some benevolent doings. Thus, it is incredibly imperative to trace the religious structure of an area to know about the level of development and progressive attitude of the people as claimed by Max Weber (1978), in *"Protestant Ethic and Spirit of Capitalism,".*

The table 4.2 clarifies the Religious Structure of Jalari Community

Table 4.2

Religious Structure of Jalari Community

(Population by Religion in Jalari Community 2011)

S.No.	Population in 2011		
	Religion	Population	Percentage
1.	Hindu	350	77
2.	Christian	102	23
	Total	452	100.00

Source: Field Survey, 2011

The above table explores that the religious structure of Jalari community is complex and diverse with 77 percent of population following Hinduism while 23 percent of the total population following Christianity. The rising number of Christen followers shows the tendency of religion conversion embedded with religion- and caste-based discriminations and domination of other higher caste people.

4.5 Gender/ Sex Distribution

Gender is the term used to refer to the society constructed relations between women and men in a particular society. There is a strong relationship between gender, economy, society and culture in developing country. There are biological differences between men and women; sex refers to the biological differences that are universal and unchanging. While the term 'gender' refers to the social differences that are learned, created by men which are changeable over time. Gender is a social-economic variable to analyze roles, responsibilities, constraints and opportunities of people involved, and it considers both men and women (Zwarteveen, 1993).

Before discussing how individuals acquire gender, it is necessary to distinguish between gender and sex, sex is typically used to refer to a person's biological maleness or femaleness. Gender designates psychological, social and cultural aspects of maleness and femaleness. (Kessler and MC Kenna, 1978). This distinction assent to separate masculinity from femaleness, which makes it possible from people to deviate from cultural notions of gender without having any impact on their sex (Newman, 2000).

Sex refers to the biological characteristics that define humans as female or male. While these sets of biological characteristics are not mutually exclusive, as there are individuals who possess both, they tend to differentiate humans as males and females (World Health Organization, 2002).

The concepts sex and gender are pertinent stipulations in this study because fishing is an occupation or activity which is performed by both male and female. The gender related norms are stern in Jalari community. Nevertheless the Jalari communities are marginalized, poor and illiterate with big families having more children with heavy burden on women's health. The stern gender norms also creates heavy burden on women's household chores.

Table 4.3

Distribution of Jalari Population by Sex

Sex	No. of Respondent	Percent
Female	196	43
Male	256	57
Total	452	100

Source: Field Survey, 2011

The table 4.3 clarifies that the proportion of male fishermen is higher than female which consists of 57 percent male population. And the proportion of female fisheries is just 43 percent. The reason is that in each group living in different places there are more males than females. Nevertheless there is division of labor at household level between male and female. Mostly females are engaged in expressive roles---household chores, socializing and nurturing children whereas males are involved in instrumental roles-- outside works. However, both male and female are involved in fishing activities.

4.6 Education

Education is the source of enlightenment and knowledge. It is widely recognized fact that education is one of the main agents for transformation of traditional society into modern one. Education is the transmission of knowledge by either formal or informal methods. According to the *Dictionary of Sociology (1999),* the concepts of socialization and learning are related to, in fact often inseparable from, the concept of education. Although education is often thought of in terms of

schooling (formal), effective training for the individual role for a group member and an autonomous person is a constant process. The main function of the educative process is to pass down knowledge from generation to generation--a process that is essential to the development of culture. Formal education is primarily designed to inculcate crucial skills and values central to the survival of the society or to these who hold effective power. Inherent in education, in all periods of man's history, is a stimulus to creative thinking and action, which accents in part for cultural change; cultural change itself being a powerful stimulus to further innovation. The Jalari community, at the lack of formal knowledge and education, are known as uneducated, illiterate or egalitarian. While in the present situation, they prefer their children for formal education from different available schools and colleges. The following table shows, the number of students attending school by gender and level of education in the Jalari community**.**

Table 4.4

Number of Students Attending School by Gender &

Level of Education in Jalari Community in 2011

Sex	Primary level	%	Lower secondary	%	Secondary level	%	Total	%
Boys	20	56	28	60	12	57	60	58
Girls	16	44	19	40	9	43	44	42
Total	36	100%	47	100%	21	100%	104	100%

Source: Field Survey, 2011

In the study region of Jalari community, out of a total population of the four hundred fifty two, one hundred four students are studying in different schools of the village. There is one Higher Secondary School in the VDC, Sarangkot, and two primary schools, namely, Shree Pame Primary School and Shanta Secondary School in which the students are getting their formal education. The total number of students attending primary level stood at 36 with 20 male students and 16 female students with a percentage of 56 males and 44 percentages of females. The total number of students studying at lower secondary level stood at 47 with 28

male students and 19 female students with a total male percentage of 60 and a female participation of 40. This shows the high number of boy students studying at lower secondary level. The total students attending secondary level are 21 with 12 male students and 9 female students with a male percentage of 57 and a female percentage of 43. The overall female students percentage at all levels stood at 42 percentage and male students at 58.

4.7 Family Types

In human context, a family (from Latin: *familiare*) is a group of people affiliated by consanguinity, affinity, or co-residence. In most societies it is the principal institution for the socialization of children. Extended from the human "family unit" by biological-cultural affinity, marriage, economy, culture, tradition, honor, and friendship are concepts of family that are physical and metaphorical, or that grow increasingly inclusive extending to community, village, city, region, nationhood, global village and humanism. A family group consisting of a father, mother and their children is called a nuclear family. This term can be contrasted with an extended family.

Sociologists and Anthropologist distinguish between conjugal families (relatively independent of the kindred of the parents and of other families in general) and nuclear families (which maintain relatively close ties with their kindred). First, it serves as a synonym of "consanguine family". Second, in societies dominated by the conjugal family, it refers to "kindred" (an egocentric network of relatives that extends beyond the domestic group) who do not belong to the conjugal family. These types refer to ideal or normative structures found in particular societies. Any society will exhibit some variation in the actual composition and conception of families.

Family is the basis of human society. Although the nature and structure of the family vary from one society to another, a society without families is not known to us. Relationship between the members of the family is deliberately formed based on marriage and descent. The interpersonal relationships within the family make

the family an endurable social unit. The family is not only the basic group; it is also viewed as an oldest institution of mankind, which has the power to withstand social changes. The biological and social reproductions of the family are indispensable for the society to maintain its continuity in the world context.

Table 4.5

Distribution of Respondents by Family Type

Family types	Frequency	Percent
Join family	42	45.16
Nuclear family	51	54.84
Total	93	100

Source: Field Survey, 2011

From the table 4.5, we discern that 45 percent of families were of joint type. While more of the families 54.84 percent were part of a Nuclear family. It is because they marry early and separate from their parents. Although some fisheries married early and separated from their family, due to their low income and poverty they are not able to make other occupational activities.

4.8 Livestock Holdings, Types and Distribution

Livestock are an integral part of nearly all rural livelihoods farming systems. Large numbers of poor and marginalized farmers depend on livestock as their primary or secondary source of income. Livestock are an important resource and act as a 'bank' for poorer households. For many landless people, livestock are the only productive asset they have next to their labor. Livestock provide a livelihood for 50% of the 700 million poorest households in the world. Compared to land, the ownership of livestock is generally more equitable (Peter, 2005).

In mixed farming or crop/livestock systems in semi-arid regions, keeping animals is directly linked to crop production, as soil fertility depends on manure. In the arid areas of the world, livestock are often the only source of livelihood, and people's diet is predominantly based on animal products (FAO, 2001).

Poverty is not only about lack of income, it is also about vulnerability. Livestock provide particularly poor households with the potential to 'bank' their savings, which enhances their 'capacities' to cope with shocks and reduces their economic vulnerability (FAO, 2001). Livestock contribute to human nutrition – particularly in areas where malnutrition is common –through their products (i.e. meat, milk, milk products and eggs), which in turn provide high quality nutrients and micronutrients (e.g., protein, vitamins and trace elements).

The development of intensive and semi-intensive production systems, along with the ongoing increase in demand for livestock products, will certainly contribute to the creation of income generating activities. These activities also benefit the very poor, even if they are not livestock owners (e.g., production of feed and fodder or processing and marketing of products and by-products) (Schelling, E. et al., 2003).

Animal resources have been playing an important role in influencing the socio cultural life of the rural people in the studied area of the Jalari community. The major source of income is fishing within the Jalari community. While for their secondary source of income, they are rearing some domesticated animals.

Table 4.6

Livestock Holdings, Types and Distribution

S.No.	Particulars	Study area: Pame	Study area: Khapaudi	Study area: Baidam	Study area: Sedi	Study area: Airport	Study area: Gaighat
	Livestock types	Number	Number	Number	Number	Number	Number
1.	Buffalo	7	10	-	-	-	3
3.	Goat	9	24	-	-	-	7
4.	Hen	58	245	35	18	38	15
5.	Duck	80	380	8	-	-	-
	Total	154	659	43	18	38	25

Source: Field Survey, 2011

In the studied areas of Jalari community, the majority of people are found to be involved in fishing activities. They are also taking some multiple uses of domestic animals viz. buffalo, goats, etc. The above table depicted that, the total number of domestic animals, Hen (every household) and Ducks (some household) are the prime domestic animals of Jalari community. All of the Jalari site, the jalari household did not raring Buffalo and Goat. In Pame (7), Khapamdi (10) and Gaighat (3), only some of the jalari's house raring some Buffalo. Because of lack of land resources, much of Jalari households are not involved in animal husbandry. For buffalo and goat raring, they need much land resources and forest resources for the fodder priority but it is not the case for duck and hen. As a result, they rear them in their households.

4.9 Major Sources of Income

A main characteristic of economic development is the progress towards an increasingly intricate pattern of labor specialization. In communities at the earliest stages of economic activities particularly all goods and services are produced and consumed within the family group, but with economic development more and more people become specialized in particular tasks and the economic autarky of the family group is superseded by the exchange of goods and services (Boserup, 1970). He further stresses that at the more primitive stage of family history there was some division of labor within the family, the main criteria for the division being that of age and sex. Some particularly light tasks, such as guarding domestic animals or scaring away wild animals from the crops are usually left to children or old persons; certain other tasks, are performed only by women, while some tasks are the exclusive responsibility of adult men.

Mead (1949) gives the summary description of the sex role for income generation and economic contributions. The home shared by a man or men and female partners, into which men bring the food and women prepare it, is the basic common picture of the world over.

Environmental economist (Horst, 1998) holds the notion that in the natural resource management perspective, economic development, economic status of people and environmental conservation are playing pivotal role. There exists a trade-off between economic development and environmental conservation. The surrounding environment like rivulets, brooks etc fulfill many functions for the economy.

In the cases of Jalari the major source of income is fishing. While some of them are involving in some different activities. Jalari men, especially, join in new profession as driver, Foreign Service and business. While women and older generation, focus on the traditional profession with traditional technology. Phewa Lake and Harpan Khola, and Handi Khola are the main sources of fishing. Much of the households have been involving in fishing activities in order to conserve their traditional profession and because of the lack of land, economy and education. The following table paints a clear picture on the economic plight of the Jalari community.

Table 4.7

Statement of Family Income

Source of income	Household	Percentage
Fishing only	75	80.64
Driver	10	10.75
Service/job with fishing	5	5.38
Business with fishing	3	3.23
Total	93	100

Source: Field Survey, 2011.

About 80.64 percent households of Jalari community are found engaged in just fishing as the major source of income. While 10.75 percent of the total population, is engaged in driving profession including driving of private taxis, office vehicles etc. Only 5.38 percent of the total households are involved in national or

international employment; 3.23 percent households have taken to business along with fishing as the major source of income. In recent times the involvement of these people in other occupations rather than fishing for a better economic condition shows that they have slowly begun to adapt to the changing context. But still it shows that the economic backbone of this community is fishing. However, it has been made clear by the occupational statements stated in the above table that the backward community is still following the traditional occupation with new one.

CHAPTER FIVE
INDIGENOUS OCCUPATION OF JALARI COMMUNITY

In this chapter the study primarily focused on the traditional occupational pattern of the Jalari community. Jalari, the group of people that traditionally depended on fishing for their livelihood, led a wandering life along the rivers and Phewa Lake, carrying cast nets to feed their families. Their physical appearance, language, and their traditional livelihood persuasions may suggest that these are one and the same group of people perhaps sharing a common origin and culture. It also becomes noticeable that for the subsistence they have been using similar tools, methods and techniques for fishing: handmade Jal, fishhook and *Kudulno*. Fish related works like knitting, boating and unpaid labor were the key income source of these communities. Instead of fishing, some of the family members were involved in different occupations like sweepers while at other places they held livestock in order to backup their family economy. The foremost sites for fishing were different streams where nomadically they used to fish. Besides streams, the depending resource for fish was Lake Phewa.

5.1 Indigenous Occupations of Jalari

An activity of expenditure of energy that produces service and products of value to another people is an occupation or work (Fox and Harse-Biber, 1984). Further, it may be considered as the effort or activity of an individual that is undertaken for the purpose of providing goods or services of values to other (Hall, 1994). The idea of occupation also implies a set of social relationship (Hughs, 1945) and it has a special linked to the work of an adult people. Therefore Hall (1975), writes that the social role performed by adult member of society that directly or indirectly yields social and financial consequent and that constitutes a major focus in the life of an adult.

Affiliated to economic structure, occupation is a set of activities centered on an economic role and usually associated with earning a living, a trade or profession,

for example. An occupation is a social role that is determined by the general division of labor within a society. As a specialization of an individual's function in society, it is an important factor defining a person's prestige, class position, and style of life (Dictionary of Sociology, 1999).

Vidya Bhusan (1999) has used occupation widely as a means of determining the level of social standing of an individual in a community. Occupation has an enormous importance in all societies for understanding human behaviors. In urbanized and industrialized society, where there is a substantial division of labor, occupation is a major determinant of economic rewards; that is income. While Park (2002) argues that the occupation of an individual varying largely will determine many of the values the individual has the things he feels worth pursuing, his life goals, and his life style, his pleasures, friendships behavior and relationship with other.

As division of labor and occupational structure are important indicators of nature of society in the analysis of urbanization, alteration in occupational structure and occupational mobility has been analyzed as significant element in the process of urbanization. The traditional social structure is usually associated with distribution of occupation on the basis of descriptive or subsistence characteristics. Majority of population in urban areas depends upon non-agricultural sources of income. As the size of the city increases, greater proportion of population comes to be dependent upon manufacturing process (Hoselitz, 1958). In the context of urbanization, it has also been observed that there is greater differentiation and occupational mobility in the population. It is the changing nature of the occupation and occupational mobility, which has been analyzed in this study in the process of urbanization.

Durkheim (1896) argues that simple or primitive societies have little division of labor and less productive or indigenous technology product only for self existence. He suggests that they have a segmental structure, that is, they are made up of similar units such as families or tribes. There is only a limited number or role to be played by each group. Consequently, it is their common roles, practices,

expectations and beliefs which bind them together. That experience is what Durkheim calls a "*mechanical solidarity*"**.**

Traditionally, based on mechanical solidarity, the Jalari population of Phewa Lake was mostly involved in fishing because of homogeneous nature of their living. They were involved in fishing, culturally connected by common roles, practices, expectations and belief, living around small streams nearby Phewa Lake. Beside this, they were involved in other occupations like sweeping and somewhere agriculture as explained by Durkheim's concept of 'mechanical solidarity'. Because of the lack of education and economic resources, they couldn't be involved in foreign and National-level employment. Owing to the lack of land resources, they only survived on fishing. Researcher had inquired to the respondents about their traditional occupation. The response is depicted in the following table.

Table 5.1

Major Traditional Occupations of the Respondents

Occupation	Frequency	Percent
Involving in Fishing Activities	87	93.54
Sweeper	5	5.38
Agriculture	1	1.08
Total	93	100.0

Sources: Field Survey, 2011.

Of the total population the highest frequency occurs in fishing which is the major occupation for 93.54 percent of them. Because of the lack of water resources the Jalaris residing at Nayabazar have taken to sweeping which is 5.38 percent of the total respondent. Another problem of the Jalari community is the lack of land resource except for small houses. Because of the lack of land resource and forest resource, they live without animal husbandry. 1 percent of the Jalaris are involved in agriculture. The reason behind involving in traditional occupation is the lack of alternation and lack of sufficient opportunity among the Jalari community. The

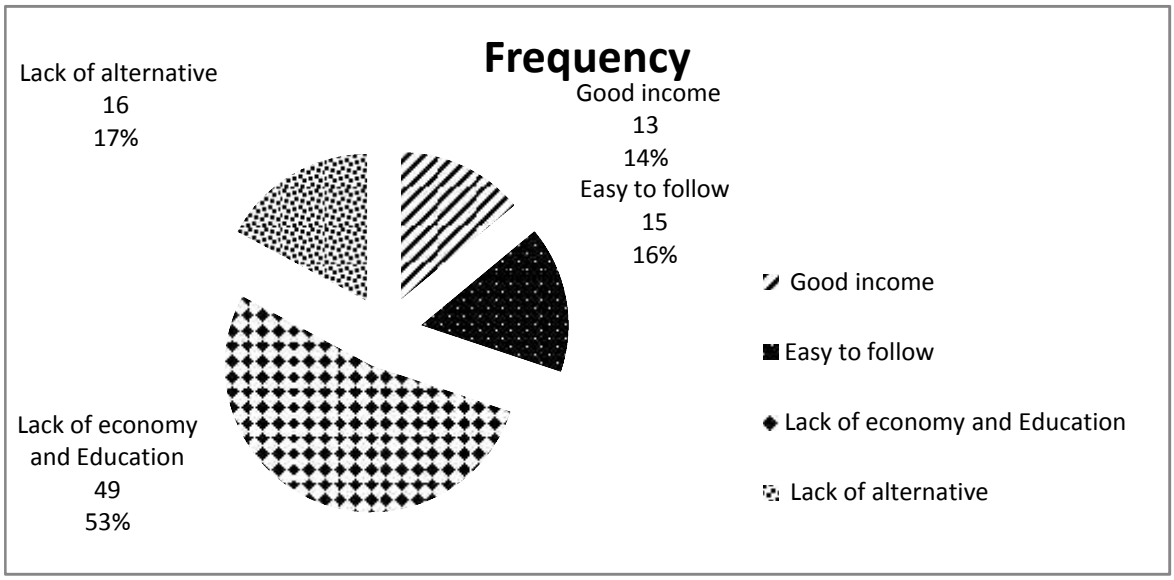
generous knowledge of fishing by using traditional technique was the focus occupation or ritual identity of the Jalari community. Ethno-knowledge or ecological adaptation was the main means of 'fishing culture' within the Jalari community. The small streams and lakes were the main source of subsistence for them.

5.2 Reasons for Continuing Traditional Occupation

While in the field work, Researcher had observed that the individual who were following traditional occupation with a large family size and with low earning capacity people were basically found of continuing the traditional activities. Some of the respondents responded to the researcher that it was for the cultural conservation and for the Jalaris national identity that they were still following their traditional occupation of fishing. Despite this, the researcher had asked the respondents about their take on their necessity to continue with the traditional occupation of fishing. The figure 5.1 clarifies the reason for continuing the traditional occupation.

Figure 5.1

Reasons for Continuing with Traditional Occupation



Source: Field Survey, 2011.

Jalari community's main source of living is/was fishing. Diagrammatically, 53 percent of the total population followed their traditional occupation the main reason being a lack of economy (economically poor) and good education. 17 percent of the total respondents had pointed at having no alternative for subsistence. And 16 percent of the Jalari population followed their occupation because it was easy to follow. A comparatively less percentage i.e.14 of the fisheries followed their tradition occupation as they still had a good income from this occupation. They continued their traditional occupation bringing new technology and knowledge into use. While the intension of continuing the traditional occupation varied respondents to respondents, some of them reported that the lack of education and economy while other pointed at the lack of alternation and so on. This, however, helps us conclude that they are willing to replace their traditional occupation with a new one but the affecting factors were playing the crucial role to still keep them to fishing.

5.3 Major Indigenous Techniques of Fishing

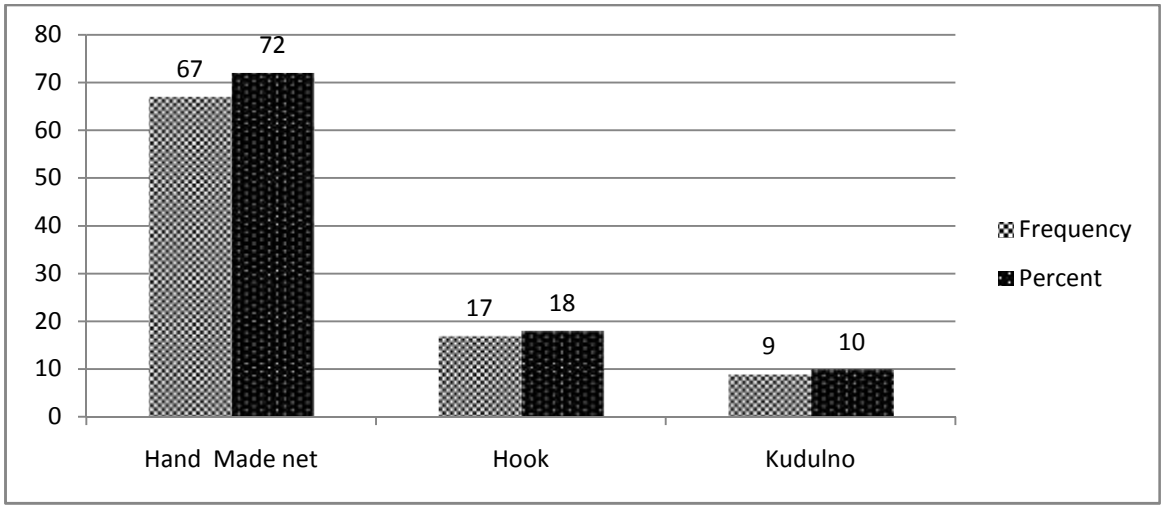
Indigenous technical knowledge, often also referred to as local or traditional knowledge, is the cumulative body of knowledge generated and evolved over a long period of time, representing generations of experience, creative thought and actions of societies to earn a livelihood and cope with the changing conditions of the natural, socio-economic and cultural environment (Fernandez, 1994 in Mbaiwa 2002). It includes all the skills, beliefs, norms, practices and behavior patterns handed down from one generation to the next (Matowanyika, 1994).

Rural people, especially in the remote communities, still have a wealth of indigenous technical knowledge (ITK) of the natural resources and environmental processes in their area. Based on that knowledge, they make rational decisions on how to use and manage the resources effectively and how to cope with the extreme fluctuations of the natural conditions.

Jalaris are, originally, the fisheries living around streams and lakes, and the major source of their income and livelihood is fishing. They fish for their survival. Because they are placed on the lowest rank in the ladder of the Newari caste hierarchy, their access to the land is nominal and often almost nil. So, for the fishing they settled their lives around water resource making make-shift huts and cottages. Due to the lack of modern technology, the 'home-made net' is the traditional technique of fishing. Except this, they use hook, a crooked anchor locally known as *Balchhi* around these rivers and lakes**.** Deprived of the modern fishing knowledge and modern technology, their production of fish by 'handmade net' and indigenous technique was the only and main source of livelihood and income. The researcher had asked the respondents about the indigenous and modern techniques of fishing. According to the technique of fishing they used to use different home made tools as the major technique of fishing. The study deduced the major indigenous techniques of fishing in the following form:

Figure 5.2

Major Indigenous Techniques of Fishing



Source: Field Survey, 2011.

Fig. 5.2 shows that for much of the fishing i.e. around 72 percent the 'handmade net' used to be the main tool. While 18 percent used hook (*Balchhi*) as their major tool for fishing. On the basis of location and season fisheries bring into use the

Kudulno (10%) as the main tool for fishing. The cast and hook were used during rainy season fishing, (when the water volume is high) while the bag nets like *Kudulno*, drag nets and free hand fishing (handmade net) were used during the dry season fishing (when the volume of water in the river is low). In the previous research in Ngamiland, it was found that a large proportion of female fishermen almost exclusively used traditional fishing techniques (Mosepele, 2001), which are more adapted to their abilities and their preferred fishing areas, the shallow semi-permanent floodplains. Many fishermen still use wooden canoes (Mosepele, 2001). Especially in poorer households, the use of traditional crafts and fishing equipment is more viable, as it can be home produced from locally available natural materials. It proves that the indigenous knowledge is the cumulative body of knowledge generated and evolved over a long period of time, representing generations of experience, creative thought and actions of societies to earn a livelihood and cope with the natural resources. Similarly, fisheries of Phewa Lake lack the modern knowledge, technology and education. As a result they are forced to follow the traditional culture (techniques) for the fishing. The prime techniques/tools they used were handmade net, hook and *Kudulno*.

5.4 Traditional Site/Place of Fishing

Traditionally, the Jalaris were associated with fishing and manual occupation for their subsistence. Even now, most of their economy is supported by their traditional occupation (fish related occupation) and they are hardly able to solve the hand-to-mouth problem by following this occupation. In the past, the Jalaris used to engage in fishing activities in different streams such as Suroudi Khola, Phurse Khola, Seti River, Mardi Khola, Yamdi Khola, Kali khola and other nearby Lakes. Form the month of Kartik to Falgun, according to Nepali calendar, they were more engaged in fishing activities. Nomadic life or shifted fishing was the main occupation of these Jalari communities. Especially, season-based fishing helped them solve their hand-to-mouth problem. Table 5.2 reveals the traditional site of fishing of Jalari community of Phewa Lake.

Table 5.2

Traditional Site of Fishing

Site/Place	Frequency	Percentage
Different Streams	75	80.65
Lake Phewa	18	19.35
Total	93	100

Source: Field Survey, 2011

The table 5.2 above reveals that the main sources of traditional fishing site were different streams and Lake Phewa. The life of Jalari community fully depended on Fewa Lake and other streams which corresponded by the 80.65 percent of the total respondent inquired during the study. While some of the respondent used to fish within Lake Phewa.

Case Study Box 1

Santa Kumari Jalari's Traditional Experience

Santa Kumari Jalari, an old woman of 58, lives in Khapaudi. She is an illiterate woman. She lives with her husband, two sons and three daughters in a small house as a big conventional nuclear family. Being old, her husband lives in home with the help of brew and smoke. Brew is the blind stick of the old house head. Small three daughters go to school for study. They study at a Primary School in Pame, a small bazaar in a few minutes walk from their home. But one elder son of 26 has some cage fish in the Lake Phewa. His prime work is to look after the caged fish. He collects grass and provides dana to the fish on everyday basis. His five different cage fish earn him money for his individual necessities and his family needs. Bikram, a small son of Santa, has gone for foreign employment. Santa, on the other hand, uses her cast and net with the traditional hook around the lake to catch fish. Different streams and the lake nearby are the prime source for her to catch fish. By the evening, she collects the fish and makes them ready to sell for the next day. For her, Kudulno is the main means to catch fish. Without slipper on her feet and the cigarette smoke clouding over her head, wherever she goes, she moves here and there all day to catch fish. Next day like many of the Majhis,' her day too starts quite early in the morning as she has to sell those fish to a nearby market, Lakeside. With the fish-containing basket in the hand, she walks shops to shops, asking if anyone is willing to buy. The price is determined according to the size and species of the fish. This shows the traditional occupation of Santa Jalari.

This case study depicting mother and son's (intra-generation) occupational structure sheds lights on the changing situation and changing occupational structure within generations. Mother is the representation of the traditional fishing

practice with traditional techniques while the son represents the modern fishing practices in the Jalari community. The son practices modern skills (knowledge) and technology according to the demand of the time while his mother, belonging to an older generation, is untouched by these new technologies.

CHAPTER SIX

OCCUPATIONAL MOBILITY AND ALTERATIONS AMONG JALARIS

This chapter is mainly concerned with the altering pattern of traditional occupation of the Jalari community of the study area and subsequently the cause and effect that fostered the occupational mobility. To analyze the pattern and causes/effects, this chapter is further divided into several sub-chapters. The main objective of this chapter is to analyze the change in the traditional occupation pattern, related to tools and technology in order to unearth the reasons behind such changes. It will also endeavor to give some satisfying answers to the occupation of the upcoming generation.

Here the main focus is on how and why the occupational pattern of this community has been changing since a few decades. It will strive to analyze the main causes behind possible occupational alterations. This thorough in-depth study helped in deducing the main causes of occupational alteration as assorted and diverse population, depletion of natural resources, increasing linkage of market, different opportunity of achieve occupation, education, foreign employment and so on. Development of various occupational skills and opportunities are also among the various causes of occupational alteration among the Jalari community of Phewa Lake. Adaptation of new skills, technology and knowledge (cage fish, fish farming) has shifted the Jalari community's traditional pattern of occupation to a modern one. Adopted entrepreneurship approach, cooperative model, different skill-oriented trainings provided through the initiative of NGO/INGOs and tourism have played crucial in the occupational shift of these communities.

6.1 Existing Occupation of Respondents

Occupation is a good index of social position and achievement in present society. Previously traditional occupation were available on the basis of caste and family as an ascribed status, but nowadays, this definition is somehow changed and occupation is considered as an achieved status of an occupation holder. Therefore,

the type of changes which have taken place in respondents' occupation will tell much about their occupational mobility in the course of time. Increasing city life provides more opportunities and experiences in non-agriculture or off-farm occupation. Hence dwellers are being able to rise on their occupational status by shifting their previous agro-based or ascribed occupations. To analyze the occupational mobility of respondents, table 6.1 reveals the nature of pervious occupation on the basis of continuation and change in corresponding occupation in their time:

Table 6.1

Existing Occupation of Respondents

Occupation	Frequency	Percent
Fishing activities	57	61.29
Foreign service/ Job engagement	15	16.13
Labor	7	7.53
Driver	14	15.05
Total	93	100.00

Source: Field Study, 2011.

The table above sheds light on the continuation of previous occupation and the proportion of drop-out in each ascribed occupation of respondents in corresponding occupational categories. It shows that 61.29 percent of the respondents have continued their previous traditionally ascribed occupation adopting new technology and methods whereas less than fifty presents have changed traditional occupation to Foreign Service (16.13%), driver (15.05%), and labor (7.53%). The cause of occupational mobility is one of the significant characteristics of industrial urban civilization. Traditionally, occupations were fixed according to the social categories of the persons. Mobility is not appreciated but with modern media of mass communication, development of technology and consumer orientation, people constantly become mobile in search of better income opportunity and life style which are invariably associated with the nature of

occupation. The occupational alteration is also shown by Timelsina's study (1990) in Kavrepalenchok District that by social changes such as the fall of the Ranas and the introduction of the Panchayat system and other social changes, the Majhis have been losing their traditional privileges.

6.2 Intra-generation Occupational Alteration

In order to study the inter-generational occupational mobility, it is vital to examine if the occupational position of an individual is influenced by that of his father. Generally there are two types of occupational mobility: one is open system related to the achieved and the other is closed system related to the ascribed. Achieved status or occupation is the cultural position attained by a person or groups through their own effort and by the process of modernization, acculturation, westernization, urbanization and so on. In such types of mobility, competition among members of society or caste group is encouraged. While in closed system as that of among the Jalaris, cultural placement is based on ascribed characteristic they followed, that is, fishing profession. Particularly in this community, occupational positions are sometime “inherited” through ascription. As the concept of occupational mobility, the table 6.2 refers to the change in the occupational affiliation in three generations namely fathers, respondents and their sons as well as shifts in occupations within the span of life time. The table 6.2 clarifies the veracity:

Table 6.2
Inter-generation Occupational Alteration

Generation	Occupation						Total and Percent
		Shifting Occupation					
	Fishing activities %	Driver %	Business %	Labor %	Service/ Job %	Others %	
Father	87(100 %)	-	-	-	-	-	87 (100%)
Respondents	57(61 %)	13(14%)	4(4%)	4(4%)	9(10%)	6(6%)	93 (100%)
Sons	35(34%)	13(13%)	8(8%)	5(5%)	19(18%)	23(22%)	103 (100%)

Source: Field Survey, 2011.

In the above placed inter-generation table, based on the information provided by the respondents, 93 house heads admitted that during their father's period there was no any alternative occupation other than fishing. Respondents further expressed that the major source of subsistence of their fathers' was fishing near Lake and small streams because of non-availability of other resources and the ignorance about the other fishing resources. Faced with bitter social discrimination and the lack of opportunities they were forced to follow the traditional tools and techniques of fishing such as *Kudulno,* handmade Jal and hooks. But respondents expressed that in today's time there are many occupations they want to follow and have been following in recent years for the survival, such as driver, business, labor and foreign employment. They further expressed that, co-operation amongst the Majhi community and Mathsya Babyasya Samittee, a committee of professional fishermen, also helped them to continue with their traditional occupation by providing them with new skills, new technology and methods. But they revealed the fact that their children are engaging in other occupations other than fishing, giving less priority and interest it.

The table 6.2 clarifies that 100 percent of the previous generation of the Majhi population (respondent's father) was engaged in fishing activities during their time. But the major profession of this generation was fishing by their traditional technology. Out of 93 respondents, 61% are engaged in their traditional occupation using the new technology and mind as of now. However, at present some of the respondents (14%) are engaged in driving profession. While others are engaged in business (4%), labor (4%), service/job (10%) and other (sweeper) (6%).

In the next generation (respondent’s son), out of 103, 34 percent are only engaged in traditional occupation or fishing activities. Like that occupational distribution is as follows: driver (13%), business (8%), labor (5%), service and job (18%) and other (student) (22%). While the majority of the fathers were engaged in traditional occupation, the following generation of respondents moved from the traditional and started new service or job including foreign employment. The trend of foreign employment rapidly increased in the level of respondents in the last couple of years and the rate seems to grow in the further generation. It can be inferred that there is a gradual shift from traditional to modern occupation in general and parental occupation to open occupations in particular from even within generation.

Case Study Box 2

At the Threshold of Change: Occupational Shift in Ramchandra's Family

Ramchandra Jalari is the head of a four-member family. His home lies at a distance of about two meters from the grabbled road that passes through his village. Every morning, like rest of the fishermen, Ramchandra leaves home early and comes back late at night with his catch. The next day it is his wife who, along with other village women, takes the catch to the bazaar and sells them at different households or restaurants. Whenever Ramchandra is home, he also finds some time to look after his few fish cages which he has at the Fewa Lake. When he's away, it's his wife who does the job. It's been two and a half years since his elder son Rajkumar Jalari went to a gulf country for foreign employment. The other nine-year-old son attends a nearby school and is studying at 3. Rajkumar, before leaving the country, used to divide his time between fishing at different streams and looking after those cages planted at the Fewa Lake, tells his father. However it was the wave of foreign employment which promised a handsome and stable income with a prospect of better future that diverted Rajkumar's attention from his traditional occupation to foreign employment. However, it was not that Ramchandra did not try to convince his son into staying back in his traditional occupation. But, by that time, Rajkumar had already begun to see no future in fishing and was looking for a viable alternative. Beside this, his father blames the draining of the local resources and encroachment of the non-Jalaris upon their profession that have forced the younger generation of Jalari community into giving up fishing and taking up a new profession. He claims that the irresponsible handling of resources and more unhygienic way of fishing have pushed many species of fish to the verge of extinction. At the same time, he laments the government and other NGO/INGO's apathy toward preserving this natural diversity thereby giving the entire

Jalari community a tough time to sustain their traditional occupation. On the other hand, he admits the lack of modern fishing technology and skills as one of the major reasons behind this occupational shift in the Jalari community. He complains that so far no such government or any other agency has come up with a strong action plan toward helping their community with their profession.

Though Ramchandra is quite happy with the money his son sends home every month from that country across seven seas, somewhere inside he has this fear of losing the Jalari culture and identity one day. This anxiety bothers him every now and then, and he decides to carry on with fishing as long as he can. But neither he nor we know exactly what profession that nine-year-old lad, who stares at his father's face as he talks to us, will adopt when he grows up.

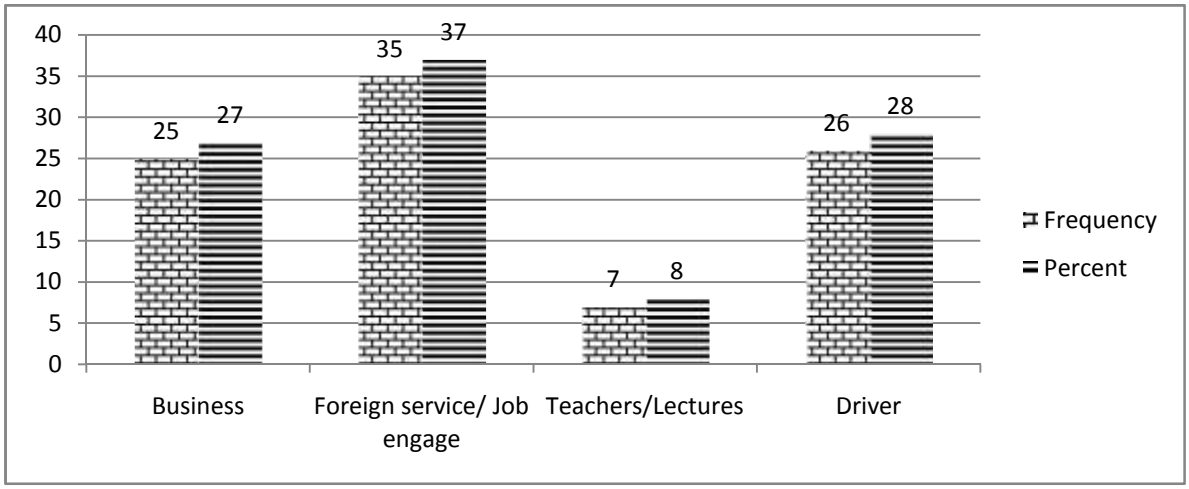
6.3 Preferred Occupation for the New Generation

Division of labor and occupational structure is an important indicator of nature of society in the analysis of urbanization. Change in occupational structure and occupational mobility has been analyzed as significant element in the process of urbanization. The traditional social structure is usually associated with distribution of occupation in the basis of descriptive characteristics. Majority of population in urban areas depends upon non-agricultural (off- farm activities) sources of income, this facts has been well brought out by several scholars (Sovani, 1966; Sarikwal, 1978; Patil and Talati, 1956). It has also been pointed out that as the size of the city increases, greater proportion of population comes to be dependent upon manufacturing process (Hoselitz, 1958).

This study on Jalari depicts that majority of the respondents are currently involved in traditional occupation. However the fisheries prefer another occupation for the better life for their children. The young generation does not like to follow or engage in such traditional professions. The literate respondents were interested for foreign employment and some businesses except for fishing. When the researcher interviewed the respondents, the following occupations preferences were expressed by the respondent that is illustrated in figure below.

Figure 6.1

Preferred Occupation for the New Generation



Source: Field Survey, 2011.

Diagrammatically, the most preferred profession for the younger fisheries is foreign employment (37%). The second most sought after profession is driving (28%), the third place has been occupied by business (27%), whereas the least selected profession is teaching (teacher/lecturers) (8%). What we can draw from this observation is that fisheries are not interested in receiving education. Information also provides us with the information that the fishermen's communities are giving less priority to fishing and fish- related occupation. They prefer different occupation for their children as their traditional occupation is facing more challenges these days. Another reason for giving less priority to traditional occupation is that majority of population in urban areas depends upon non-agricultural sources of income like business, labor and driving which is recently accessible to the Jalari community. In case of the cage fish they have been facing different problems i.e. Cage making threads of good quality is rare in the market, sudden fish mortality in cages is high, lake water is becoming polluted, low rainfall results in high mortality in cages and low quality of fish eggs also play the vital role for the new generation to prefer another occupation.

Case Study Box 3

Buddhi Bahadur Jalari: From Fishing to Bus-Conductor

Buddhi Bahadur Jalari is a 27-year-old school drop. He currently works as a bus-conductor in one of the Mini Micro Buses in Pokhara. His work starts as early as five in the morning. By the time his driver comes to the site at around 5:30, he has to thoroughly wash the bus and get it ready for the day's operation. All day Buddhi has the dual duty of announcing station and collecting fare from the passengers. It's been almost 3 years since Buddhi started working for Mandip Gurung, the owner and driver of the bus. Because of his professional constraints, Buddhi has been living at Mandip's home all these years.

Back home at Khapaudi, Buddhi has a family of five members--father, mother and two sisters. Before he dropped his school and joined this new profession, he had helped his father and mother in fishing. However, form his early days he showed little or no interest in fishing, says Som Jalari, his father. Som blames the lack of awareness regarding the importance of education being the main reason behind Buddhi dropping his school at the 8th grade. However, Som is quite happy and satisfied with what his son is doing right now. Buddhi now regularly sends money home on monthly basis which has helped fulfill his household needs along with covering the cost of his sisters' schooling. Buddhi sees himself as a bus driver one day in the near future where he can earn more money and build a concrete house for himself and his family. It is this drives for a more sophisticated and modern life that had forced him to drop his school early and join this profession, confesses Buddhi. He had then realized the fact that traditional way of fishing alone would not take his family anywhere. But now, however, he seems to have realized the importance of education more than ever as he

owes his current job to his literacy. Therefore, he wants his sisters to complete their schooling.

Upon being asked why he didn't like the idea of fishing, his response was quite reasonable and satisfactory. He says that not only he, but most of the adults belonging to his generation, want to quit the profession of fishing if they are provided with an alternative because the traditional way of fishing is not enough to make the family needs of hand-to-mouth meet, let alone building a house, wearing good clothes and getting access to quality education. He holds the Nepal government and NGOs/INGOs responsible for the existing miserable conditions of the community as they have done nothing to make the community come of age. Their efforts are less than adequate and this is why the community is still languishing in acute poverty and illiteracy. To overcome this, the young generation has to either seek a more modern way of fishing or abandon this profession altogether and adopt a new one, opines Buddhi. And even today when Buddhi comes home in the vast interval of time, he still doesn't like to go for fishing, notes Som.

6.4 Knowledge on Modern Skill and Technology of Fishing

Ethno-ecology is another concept, reflecting ecological knowledge possessed by groups who have based their economic adaptation on natural resources in their local environment for many generations. From an ethno ecological point of view, such knowledge should not be separated from its cultural context. How knowledge is codified and how it affects people's use and management of common property resources should be the main focus of research.

Concepts like traditional knowledge and ethno ecology can easily be mystified as a kind of indefinable wisdom of "natural peoples", long lost for urban westerners. In real life though, the difference between traditional and scientific knowledge is not that wide. Freeman (1985) argues that both types of knowledge rest on the systematic gathering of empirical observations. Scientific knowledge needs a wide range of methodical observations to establish a model of a situation, for instance to estimate the development of a certain stock of animals within an ecosystem. A local fisherman, who is familiar with the area, will react spontaneously to observations that deviate from the usual pattern. He will be observant to qualitative changes, signs which indicate that something unusual is happening. He will interpret such signs within the context of his experience and traditional knowledge, and discuss his interpretations with fellow fishermen and neighbors.

From this standpoint there is no need for a contradiction between traditional knowledge and scientific knowledge. The two types of knowledge should be complementary, and resource managers should gain from using both types as a basis for management regimes.

By the process of progressive change, the division of labor and technology increases and new roles are required; there is an increasing differentiation of units or groups**.** Durkheim calls it an "organic solidarity", the usage of technology and division of labor bring change to the life of the people. In this connection, the

following table analysis the knowledge on modern skill technology (MST) within the Jalari community.

Table 6.3

Knowledge on Modern Skill Technology of Fishing

Fishing Techniques	Frequency	Percent
Cage culture (Fish)	78	83.87
Scientific Hook	5	5.38
Tayari Jal	10	10.75
Total	93	100

Source: Field Survey, 2011

The tabulation depicts that all of the fisheries make their major means of income sources from fish. Because of the Modern Skill Technology (MST), they make their lives more sophisticated and enjoyable in some extent. Previously, they were dependent on their indigenous fish technology but different NGOs and INGOS provide them with modern mind (knowledge) and technology. Among them, cage culture is one of the major sources of income. Out of total respondents, at present, 83.87 percent of the Jalari population is based on cage fish business. Likewise, 10.75 percent of the respondents' major technique is 'Tayari Jal' which had replaced the 'handmade net'. Some of the respondent who are primarily involved in *'Matsysa Byabasaya Samitee'* and cage fish business, their major means of technique is scientific hook. The generous knowledge for the utilization of ecology with modern knowledge is the prime methods of sustainable use of resource and 'adaptation' concept on new situation. The traditional hooking system, handmade Jal and *Kudulno* are replaced by the cage culture, scientific hooks and Tayari Jal which are the Modern technologies.

Case study Box 4

Buddhi Jalari with Modern Fishing Experience

Buddhi Jalari, is a young man of 28. He has passed his S.L.C from Shree Siddha Baraha Higher Secondary School, Thulakhet, Kaski in 2059. He is one of the educated people within the Jalari community. He has passed his intermediate from Prithvi Narayan Campus. According to Buddhi, all members of his families are not involved in fishing profession. His three brothers are in different activities except fishing. One of his brothers is engaged in foreign employment while another does business. The process of fishing and usage of new and modern technology has been getting remarkable changes in the life of Buddhi. He has 9 different cage fish in Phewa Lake. Nowadays, he has been giving his morning time for cage fish. He uses different 9 cage fish for different species like Sahar, Katle, Asala, Silver carp etc. in his every morning time. Every morning he comes to feed the cage fish. He looks after his fish around the cage. The management of grass around the lake and shifting fish from one net to another is his prime job. He moves on boat for grass and transporting fodder (Dana) from his home to the lake is his daily task. When he needs some money for himself or his family, he informs the co-operation for the sale of some of his fish. Whenever the fish grow adequately for sale, he takes out the fish from net by his indigenous skill and gets them ready for selling in co-operation. In this way he manages his bread and butter in a smooth way.

This case study depicts the veracity of the process of fishing and usage of new and modern technology getting remarkable changes in the life of Jalari.

CHAPTER SEVEN
PHEWA LAKE RESOURCE MANAGEMENT AND UTILIZATION PATTERN AMONG JALARIS

Swamplands are highly significant in providing communities around the world with valued benefits and functions. Communities, especially the fishing communities, are entirely dependent on wetland for sustaining their livelihood. As *common without tragedy* by Andelson (1991), the Jalari fishing community is one such community having a substantial presence around Phewa Lake, Nepal. Lake Phewa is situated with rich biological diversity which supports livelihood of many including fisher folks. This study is an attempt to understand the livelihood of the ethnic fishing community 'Jalari' and the role of fisheries (capture fisheries and cage fish culture) on the livelihoods of this fishing community.

Fisheries in Phewa Lake have proven to be highly beneficial in supporting the lives of the Jalari community. The research shows that natural, physical and financial capitals are fully utilized in the community while human and social capital still needs to be further enhanced. Lack of education was evident amongst the Jalari community. Capture fisheries and cage culture both contributed significantly to the household income but the proportion of income contributed by capture fisheries was higher compared to cage culture. But now, cage culture plays a significant role in increasing income inequality in the fishing household, cage culture is still the important source of income for the community. The inability to utilize human and social capitals and existing caste discrimination in the society and ethnic isolation created by the community itself had reduced the options of diversifying their livelihood. Diversification was observed to be very significant not only to reduce their total reliance on the lake and fisheries but also to decrease the stress on the lake and to maintain the existence of the fishing community. Jalari households have a rich and varied livelihood portfolio with displays an infinite resource from Phewa Lake. The essential element here is to bring change in pattern of livelihood activities which would enable each and every fishing household to enjoy the valued functions of the Lake.

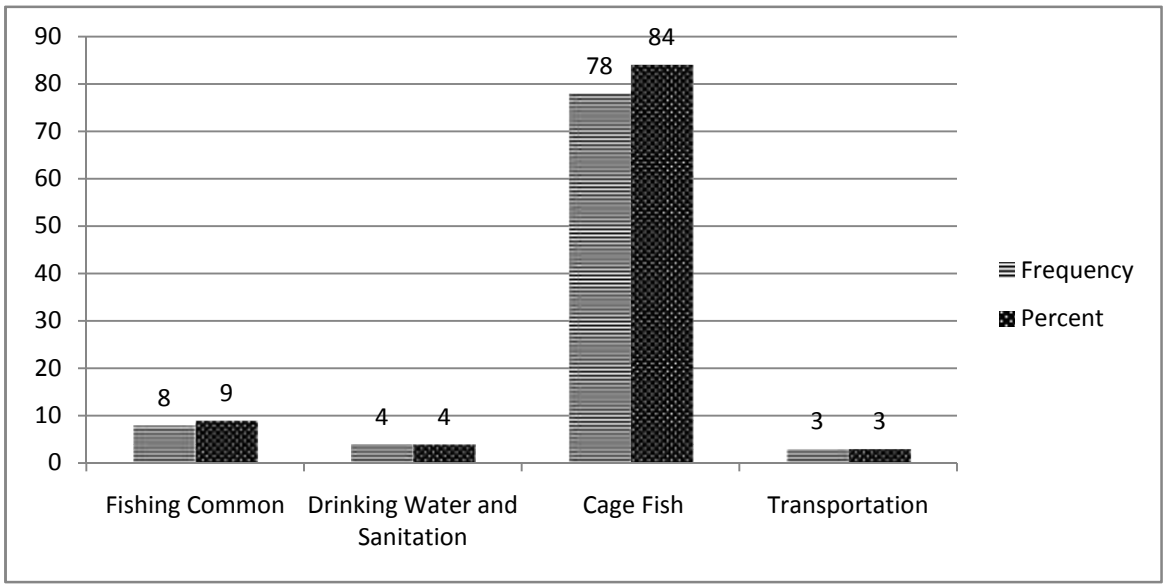
7.1 Purpose-Wise Usefulness of Phewa Lake

Odum (1964) stressed on a balanced development, by which he meant the development that takes into consideration the necessity of maintaining a proper ecological system or equilibrium. Man's inherent relationship with the environment is one of utilization or exploitation of the available resources. As society develops, exploitation of the environment increases and with it come management of resources. According to the purpose of the people, the different environment provides different utilization and production for the survival.

The different purpose concerning water resource management for Jalari community of Phewa Lake has been presented below:

Figure 7.1

Purpose-Wise Usefulness of Phewa Lake



Source: Field Survey, 2011

Figure 7.1 depicts that in the purpose-wise usefulness of Phewa Lake, Jalari community's first priority is the cage fish. And a present out of total household respondents, 78 (84 %) Jalari use Phewa Lake for cage fish as the primarily means of living. The fishing common is the next purpose of the lake with 8 (9%). While another purpose of Phewa Lake is drinking water and sanitation 4 (4%), while

another main purpose of Phewa Lake is transportation (3%) which is the main source of transporting the goods and grass resource for fish. The above table shows that the people make their culture according to the ecological and environment setting that is termed as Stewardian Cultural Ecology (1955). For the subsistence and harvesting the resource, Jalari community selected the cage fish culture from the lake resource as the dominant culture (methods). For the utilization and management of the common resource, another resource utilization process is fishing common from the Lake Phewa by the Jalari community. Drinking water and transportation also feature as another purpose-wise usefulness of the lake for the Jalari community. The purpose-wise usefulness of Phewa Lake resources by Jalari is further elaborated below.

7.1.1 Cage Fish

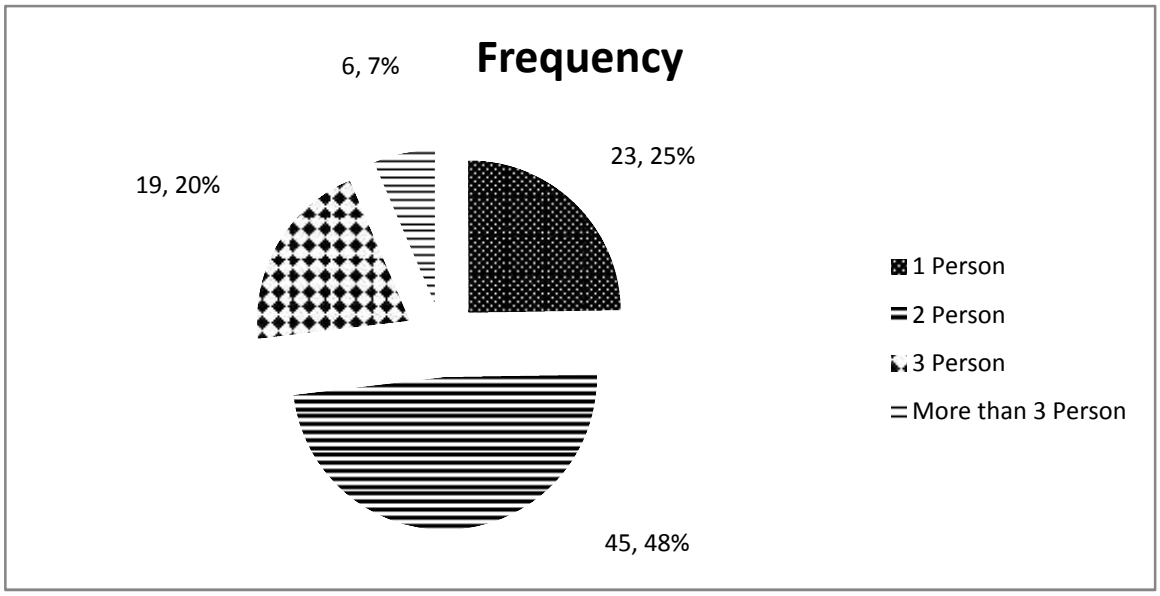
The community, traditionally dependent on fishing activities for their livelihood, led a wandering or moving life along the rivers and lakes, carrying cast (called *Furlung* locally) nets to feed their families. Traditionally, the occupation of Jalari people is fishing. But the technique and knowledge of fishing has been altering since few years ago when they were provided with loan from the Fisheries Development Center, Pokhara. The modern tools and technology has brought remarkable changes in their present life. They have caged modern fish. All of the families have been involving in cage culture. In the early 60s, due to over fishing, the Jalari also called Pode's profession was endangered and threatened. Meanwhile, the Fisheries Development Center, now Agriculture Research Station (Fisheries), was established in Pokhara in 1962 with the objective of assisting the poorest fishing communities through cage fish culture and open water fisheries. A total of the 93 families, 73 families have more than 7 cages of their own (shown in figure 7.1). While few families (12) have less than 7 cages. From the data it was analyzed and deduced that the tendency, more the number of family members, the more the cages, prevails. The Phewa Matsya Bikash Samitee, helps Jalari in managing cage and in collecting different species of fingerlings (*Bhura*). From the

field study, this researcher deduced that no one can add cage without the prior recommendation of Phewa Matsya Bikash Samitee.

The following figure 7.2 helps to examine, how many members are involved in cage fish culture.

Figure 7.2

Member Involvement for Cage Fish



Source: Field Survey, 2011.

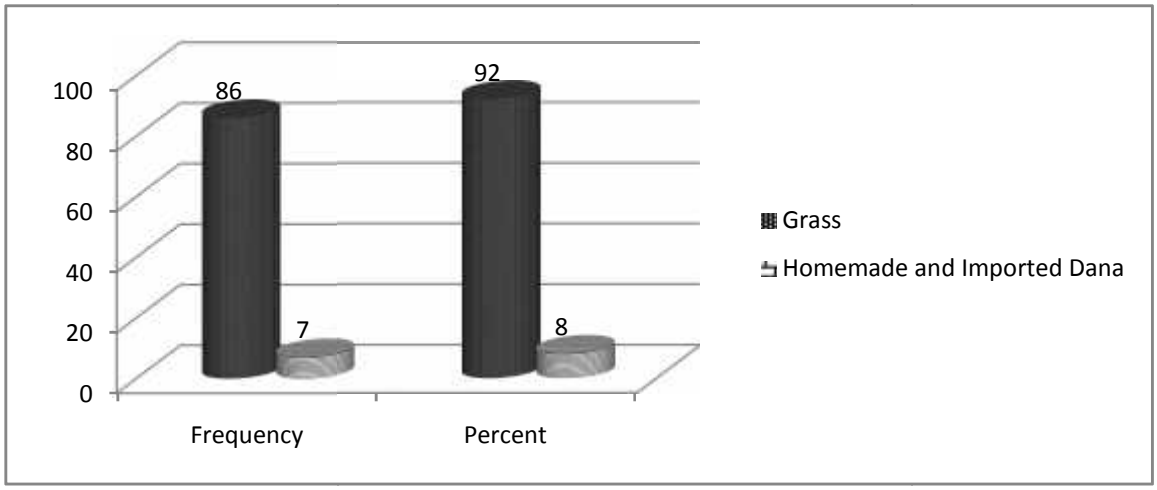
Diagrammatically, of the total, 48 percent of the respondents deploy 2 persons (from 45 households) for the cage fish. While 25 percent of the total respondents, involve 1 person (from 23 households) for cage fish. Similarly, 20 Percent of the respondent involves 3 person and 7 percent involve more than 3 people for cage fish. This shows that the human involvements in fishing activities among Jalari community are decreasing. The involvement in new method and new technology for occupation is also getting decreased and involvement of other occupation i.e. Foreign service, Driver, Unpaid labor is increasing among the Jalari community this clarifies the situation that the fishing profession of Jalari is under threat because of charm for new occupation.

7.1.1.1 Fodder Priority for Cage Fish

The need of fodder for cage fish makes local management of resources. Silver carp (*Hypophthalmichthys molitrix*) and bighead carp (*Aristichthys nobilis*) are reared but they need grass fodder. For their grass fodder, Jalari spend every morning and day around the Phewa Lake. Some submerged aquatic plants are collected for fish under the Phewa Lake. During the filed study, the researcher had taken part in the collection of grass fodder for the cage fishes with Jalari. Despite grass, fish need nitrate for which different other home made *Dana* (fish food) and imported *Dana* are provided, according to fish species. The following chart shows the fodder priority for cage fish according to respondents:

Figure 7.3

Fodder Priority for Cage Fish



Source: Field Survey, 2011.

As shown in the diagram 7.3, 92 percent of the respondents use their fish grass from the different part of the Phewa Lake. While 8 percent of the total respondents use homemade and readymade *Dana* for their cage fish. However according to respondents who do not rear silver carp in their cage, they need no grass fodder.

7.1.2 Fishing Common/Open Water Fishery

The 'common' is a resource shared by a group of people. Such as the air we breathe and the water we drink come from commons. In many parts of the worlds, new land for farming and grazing, land for stock, fish from the sea and wood for fuel and housing are treated as common. However, according to Hardin (1968) if a resource is held in common for use by all, then ultimately that resource will be destroyed. Freedom in a common brings ruin to all. However, it may not be exactly the same in different contexts. In 1926, Malinowski saw the ownership of large canoes used for fishing by *Trobriand Islanders*. He saw that common property with joint owners included not only equal right of use but also complex and variable system of right duties, functions and obligations.

Fishing is the traditional occupation of Pode or Jalari in Pokhara; they capture fishery using handmade gill nets in open places of Phewa Lake. The traditional fishing of Jalari from Phewa Lake is the major source for fisheries. While living a nomadic life, they used the 'handmade net', for fishing at different small and big streams and rivers. In stark contrast to the past, nowadays, the Jalari inhabit and fish only around the Phewa Lake. The common resources are utilized properly. On the boat they roam different places of the lake casting the Tayari Jal, a somehow modern fishing tool for them. Apart from systematically raised cage fish, some of the Jalari among the respondent said that they still follow the nomadic way of fishing around the Phewa Lake. Out of the total, 9 percent respondents use common resource as the main way of subsistence who is not involved in cage fish business (See fig. 6.1). Basically, female respondents fish from the common resources.

7.1.3 Transportation

Apart from using it for their main occupation the boat has been a common means of transportation for the entire Jalari community for decades. Different goods and objects are collected and distributed through the boats. Especially, they collect

grass fodder for the cage fish on boat. Handmade boat (Local *Dunga*) was and still is the main source of transportation for them. Figure 7.1 show that 3 of the total respondents make their main vehicle boat (motor boat). They visit different corners of Phewa for grass on the local hand made boat *Dunga*.

7.1.4 Sanitation and Drinking Water

Safe drinking water is one of the basic necessities of our life. It is also one of the indicators of Human Development. Lack of safe drinking water also leads to poverty and diseases. So, availability of safe drinking water for the people is as important as food, shelter and clothes to live a healthy life.

In the decade of 1970s, in the international area, two women, one British economist-- Barbara Ward, and the other American anthropologist Margaret Mead--individually initiated the activity for drinking water supply at the United Nations (UN) Conference on Human Settlement (HABITAT) in Vancouver, 1976. They emphasized on favorable policy formulations and approvals on water supply and sanitation. The following year, World Water Conference, Argentina, was carried forward with the specific recommendations so that the UN created a ten-year-programme to focus on water and sanitation. The General Assembly of UN subsequently passed the resolution creating the International Drinking Water Supply and Sanitation Decade; 1980-1990. To express the commitment on the International Drinking Water and Sanitation Decade, Nepal Government stated its priority concern to have accessible piped drinking water supply by the end of its five-year-plan. According to UNDP (2001), 80 percent of Nepalese people have access to improved water supply where sanitation coverage is only at 27 percent.

In the primordial time, drinking water in the village or rural areas was planned by the rural people themselves. They themselves used to identify the sources and use

the water. The distributions of water were made on the basis of mutual understanding. They used to maintain the source collectively and use it.

The modern organizational/governmental efforts to develop drinking water supply sector have not had long history as a systematic approach. In Nepal, the Ministry of Water Resources was originally held responsible for all the drinking water supply under its Department of Irrigation and Water Supply, which was established in 1966, and the department was performing its roles till 1971. And in 1972, under the umbrella of the Ministry of Water, the Department for Water Supply and Sewerage (DWSS) was created (Adhikari, 2001).

In the context of Jalari, Phewa Lake is the main source of water for drinking, sanitation and irrigation. Although contaminated and unhygienic Jalari use Phewa water because they lack option of fresh and clean water. Fisheries usually use water for sanitation (4%) as shown in the figure 7.1. Because of the houses constructed on the bank of the Lake, they are involved in different activities related to water. The hydro-culture makes them expert swimmer (*Gotakhor*).

7.2 Common Resource Management and Utilization Indigenously

If a resource is held in common for use by all, then ultimately that resource will be destroyed. Freedom in a common brings ruin to all (Hardin, 1968). Nevertheless, Common property resources are communal resources where all members of an identifiable community have some degree of property right and they can exclude outsiders, hold up these and regulate their use according to community need and agreement (Andelson, 1991. The community and individuals traditionally has a stake in maintaining their community resource base for sustenance. Their stake is translated into effective management through knowledge and long experience they gained and transformed from generation to generation as defined cultural ecology (Steward, 1955*)*. The assumption is that people who depend upon natural resources for their survival have always developed certain cultural systems and socio-

political institutions to regulate their relations with nature. These cultural systems and socio-political institutions that Steward (1955) refers to as the "cultural core" is closely related to the subsistence activities and economic arrangements, and serves as dynamic adaptive mechanisms to the environment unless they are threatened by external forces. The local resources control system, social sanctions to protect the community's stake and enforced mechanism work effectively to protect the environment.

Indigenous knowledge (IK) is the local knowledge that is unique to a given culture or society. IK contrasts with the international knowledge system generated by universities, research institutions and private firms. It is the basis for local-level decision making in agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in rural communities. (Warren, 1991). Indigenous Knowledge is the information base for a society, which facilitates communication and decision-making. Indigenous information systems are dynamic, and are continually influenced by internal creativity and experimentation as well as by contact with external systems. (Flavier et al., 1995). According to the World Bank (1984), indigenous knowledge is||local, in that it is rooted in a particular community and situated within broader cultural traditions; it is a set of experiences generated by people living in those communities. Separating the technical from the non-technical, the rational from the non-rational could be problematic. Therefore, when transferred to other places, there is a potential risk of dislocating IK.

The concept of indigenous knowledge is closely embedded with fisheries in the case of Jalari. Fisheries main resources are water and fish and the community depending on fisheries harnesses the resources. For the fish, grass is also the main natural resource especially for cage fish which is particularly found under the water and wetlands. Jalari of the Phewa Lake manage these resources indigenously. It helps in biodiversity conservation. The living species from both flora and fauna help their lives by conserving the endangered species (fish). The

Jalari have been influenced by their natural environment since the time they settled in this region. They have depended on the lake, and the water has been the centre of their culture and the symbol of their identity and resources for subsistence. The table below clarifies.

Table 7.1

Common Property Resource management

Common Property Resource management	Frequency	Percent
Aqua resource	68	73.12
Fish resource	25	26.88
Total	93	100

Source: Field Survey, 2011.

The above table shows that the foremost usable common resources are aqua resource and fish resource for Jalari community within the Phewa Lake as Malinowski in 1926 saw the ownership of large canoes used for fishing by Trobriand Islanders. He saw that common property with joint owners included not only equal right of use but also complex and variable system of right duties, functions and obligations. In Lake Phewa, most of respondent use grass resource (aqua resource) for the cage fish. Some of the respondents, especially those who don't have the cage fish business privilege, want to conserve or manage the fish resources by leaving small fish species in common resource (Phewa Lake) for fishing common. However the Matsya Babyasya Samittee (Association of Professional Fisheries) arranges the small fish species from the Bagnas Tal (another lake adjoining the Pokhara valley) to catch out fish in Lake Phewa. Out of total respondent, 73.12 percent are managing their aqua resource on season basis for their cage fish while 26.88 percent are managing fish resource (common) for continuing their occupation and subsistence from the Lake. Further, common resource management and utilization among the Jalari community is explained as follows:

7.2.1 Aqua-plant or Grass Resource Management

Plants are an important part of healthy, diverse aquatic ecosystems. Aquatic plants play a major role in maintaining the integrity of lakes, ponds, streams, and rivers for fish, wildlife, other organisms, and human enjoyment.

Resources may be defined as those components of an ecosystem which provide goods and services useful to man (Gibbs and Bromley, 1989). There are however great cultural differences between peoples and groups in defining which components classify as resources. Such components become resources with the help of knowledge, technology and social institutions. The key concept here is *traditional knowledge*. What people know about their environment, and how they categorize this knowledge, will obviously have an impact on what they do to their environment (Moran, 1979).

Grass resource is the main resource to the Jalari community for cage fish. They should manage grass resource for their subsistence and existence. Especially for their Mari-culture they live around water resources. Cage fish is the major subsistence of Jalari community. Very few of the community members are not found involved in it this occupation. Because of the degradation of the main characteristic of common resources, these resources are in need of proper utilization and well management. The Jalari community has the capacity to manage and preserve such rear and endangered resources by using them on seasonal basis. Because of the natural problems facing the Lake, from summer onward they stop harvesting grass resource from the Lake. During this time, they grow other species of fish in their cages that do not need grass fodder. But as soon as winter begins, they add grass carp fish species in their cages. Then, they find grass fodder for cage fish in abundance in the lake. By this time the grass under the Lake becomes mature and it contains more nitrates for cage fish (grass carp). The following table shows the necessity of grass for cage fish as reported by the respondents:

Table 7.2

Grass Resource Necessary Per-Day

Necessary Grass fodder Per day	Frequency	Percent
One boat	75	80.65
Half of one boat	18	19.35
Total	93	100

Source: Field Survey, 2011.

The above table 7.2 shows that all of the families collect grass fodder for their cage fish. During the collection of grass, the number of cage and number of fish affect the necessary amount of grass. Those who have more cages than others the grass collect one boat per day while those who have less cage harvest grass fodder half of the one boat. The table 7.2 shows that about 80.65 percent have more than 6 cages so they collect one boat per day. While those who have less than 6 cages (19.35 percent) collect fodder half of that amount. This table has only focused on winter grass resource utilization. In the summer, they stop harvesting grass resources from the Lake by using *Dana* instead.

This study so far shows that fish from the Phewa Lake is the main economic source of the Jalari community. Originally, they depend on fish and other natural resources. The availability of natural resource helps make culture, as we can call *cultural ecology* or *ecological determinism* (Steward, 1955). Similarly, this community has been living around the lands of the lake from its origin. The rivers, fish, and other water related culture made the subsistence pattern of the Jalari community. Earlier, they were called *Pode*, the people who live around rivers and lakes and whose main subsistence strategy is fishing. Later on, handmade net (Jal) made them Jalari, meaning the people who made *Jal* themselves and made fish the prime tool of their culture.

Being able to predict where fish is to be found in time and space is probably the most important knowledge for a fisherman. From the experience of their own and earlier generations, fishermen know where and when certain species of fish will

probably turn up. They have developed causal explanations and theories about what goes on below the surface of the lake. They also have to learn about the landscape on the lake-bottom. They possess "a mental map" of the bottom, with a large number of fishing spots (Paine, 1957).

Phewa's Jalaris live around the lake itself whose subsistence pattern is fishing over common resource, the lake and cage fish. For common resource utilization, they make different cultural tools like hooks, handmade net, local *Dunga*, etc. In similar line with the concept of “common without tragedy” put forward by Andelson, 1991, the Jalaris manage fish resource on Phewa Lake by forming a Samitee or Association and co-operations. They live and catch out different fish species on the Lake itself. They have formed a committee for the welfare of the entire fishermen community where fishermen from other lakes like Rupa and Begnas are also a part and are engaged in the management of Lake and their fish species. Despite all these efforts, it seems that Phewa Lake may be a victim of Tragedy of Common in future owing to overuse of Phewa resources and also because of altering profession of fishing.

CHAPTER EIGHT
SUMMARY, CONCLUSION, RECOMMENDATIONS AND DIRECTIONS FOR FUTURE RESEARCHERS

8.1 Summary

This study has been conducted to draw on alteration in occupational structure among the Jalari Community of Phewa Lake. To that end, several issues and assumptions were raised and combinations of qualitative and quantitative methods were adopted during the research. On the basis of the research objectives, indigenous fishing practices of the Jalari community of Phewa Lake were analyzed and explained. Further, the alterations occurring in their occupational structure have also been explored in detail. The other major task was to examine the increasing linkages of the Jalari community with Phewa Lake concerning resource management and utilization. The variables are related to Jalari community's occupation and indigenous management of biodiversity conservation or resource management.

Guided by the theoretical frameworks of Tragedy of the Common and Common without Tragedy perspectives, Ethno-cognition, and Cultural Ecology, the study is based on qualitative approach with both Exploratory and Descriptive research design. Both primary as well as secondary data were used as the raw material for research. For that, the site of Jalari's households build at places like Khapaudi, Airport, Gaighat, Pame, Nayabazar, Sedi and Baidam near Phewa Lake had been taken as the universe of this study. The entire universe had a total of 93 households. Due to the small-sized population, the researchers had conducted census study for Research.

Basically, this is an academic research however the output of the study is important for the formulation of various policies regarding resource management and utilization on aqua-resource and occupational pattern of the Jalari community living around the Lake Phewa. As part of its main objective, the study has mainly

focused on the alteration pattern of the occupational structure within generation (intra-generation) along with the indigenous resource management practices of the Jalari community. Jalaris, known as the *Jal* maker or Pode, had nomadic fishing occupation around the lakes and rivers since their origin. Carrying cast nets to feed their families has been the prime source of income and subsistance for them. During the study, the traditional skill, the degree of involvement in the occupation and the cause behid the mobility in their occupation as well as the new preferred occupation has been given main focus.

In the study, the exploratory research design has been used to understand various aspects of the problems or issues facing the Jalari community. With main focus on occupational practice, the descriptive research design has been used to describe the causes and effects of chipping in, social, cultural, and cognitive significance of Jalari involvement in fish resource management. For the purpose of the study, observation, interview, focus group disscussion as a part of techniques of anthropological research were adopted so as to collect data. However, the primary data is dominant. Some of the important secondary data have been incorporated too. To give a vivid picture of the lifestyle and occupational activities of both of the generatond of the Jalari community, four case studies—one representing each generation—have been illustrated while anothers are related to occupational alteration among intra-generation.

Occupational Mobility and Alterations is the nature of each society from traditional to modern one. In general, two types of occupational mobility have been commonly practiced in Jalari community. Open system (horizontal) is related in achieved and the other closed system (vertical) is related in ascribed. Achieved status or occupation is the cultural position attained by a person or group through their own effort and the process by modernization, acculturization, westernization, urbanization and so on. In such types of mobility, competition among members of society or caste group is encouraged. Because of the modern instrument, availability of new technology and practice for modernization, Pode or Jalari

community have been changing their occupation from traditional to modern ones. They have shifted or transformed their occupation from traditional (fishing with traditional technology, sweeper) to modern or non-casted occupation (Foreign Service, Driver, Paid labour). Under the closed system the cultural placement is based on ascribed characteristic while they were fishing by hand net, hooking, boating, sweeping and unpaid labour. But the placement of closed mobility, the jalaries family has been following different modern technology to continue their traditional occupation. The main causes of occupational alteration are found to be diverse population, depletion of natural resources, increasing linkage to market, different opportunities for achieved occupation, education, foreign employment and so on.

Owing to the modern instrument, availability of new technology and modernization trend, Pode or Jalari community has been found taking leap from their traditional occupation to modern ones. They are in the process of shifting or transforming their traditional occupation of fishing with traditional technology, sweeping, knitting and unpaid labour to modern or non-caste occupations like Foreign Service, driving, or wage-based labour. Under the closed system, which is in stark contrast to the open system, social status and occupational practices of community members are exclusively guided and limited by the norms and values of that community. When it comes to the Jalari community, its occupational practices were limited to fishing by hand-net, hooks, boating, sweeping and unpaid labour. Of late, however, within the system the Jalari families have brought a new dimension to their traditional occupations. The occupation has witnessed a massive change in the form of different modern technologies, skills and assistance: cage fish farming, fishing by Tayari Jal and Maha Jal and the formation of Jalari welfare committees and co-operatives are some to name a few. The main causes behind such occupational alteration has been found to be diverse population, depletion of natural resources, increasing linkage to market, different opportunities for achieved occupation, education, foreign employment, and so on. The study result also squabbled that fisheries in Phewa Lake have proven to be highly

beneficial in supporting the lives of the Jalari community living in the vicinity. The research showed that natural, physical and financial capitals are fully utilized in the community while human and social capital still needs to be further enhanced. Lack of education and awareness towards it were evident amongst the community. In the course of study, the respondents highlighted the need to conserve Phewa Lake mainly for the purpose of raring the cage fish, fishing common, drinking water and transportation. Captured fisheries and cage culture have both contributed significantly to the household income of the community but the proportion of income contributed by captured fisheries is higher than that of cage culture. Although cage culture played a significant role in increasing income inequality in the fishing household, cage culture is still the important source of income for the community.

The study has explored and explained the alteration of occupation and resource utilization pattern of the community which are as follows.

- In the Jalari community 77% of the Jalari follow Hinduism while 23% are Christians.
- Education, over total numbers of the students attending primary level stood at 36 with 56% males and 44% females; the lower secondary stood at 47 with 60% males and 40% females while the secondary level has total of 21 with 57% males and 43% of the females. The data shows the lesser number of children attending formal education.
- The respondents' types of family have been found especially of two types--joint and nuclear family. Out of total respondents, 45.16% live in a joint family while 54.84% live in nuclear family.
- The major source of income in Jalari family is fishing. Majority of families are involved in fishing activities. While driving, business and foreign employment are also other sources of income.
- The major traditional occupation of the respondents was fishing with 93.54% of the total Jalari households engaged in fishing while occupations like sweeper and agriculture are rare.

- When asked about their involvement in the traditional occupation of fishing, most of the respondents pointed out the reason being cultural conservation or existence for the Podey's national identity.
- On the other side, the main reason of continuing traditional occupation is found to be the lack of economy and education. Out of total respondents, 53% are continuing their traditional occupation as a result of lack of economy and education. While 17% of them blamed the lack of alternative occupation, 16% opt for fishing as it is easy and convenient for them. While the remaining 14% showed a good income as their main reason for staying in the occupation.
- The major indigenous technique of fishing was handmade net which shows that about 72% of the respondents use it as the prime means of fishing technique.
- The main sources for traditional fishing were different streams by the use of different traditional techniques and tools like handmade net, hook and *Kudulno*.
- Intra-generational occupation shows that fathers (earlier generation) followed the fishing activities completely. The only living and subsistence strategy is fishing for the fathers' generation. Only 61% of the respondents follow the fishing activities while others are engaged in driving, business and other services. Amongst the respondents' children, only 35% follow the traditional activities using the new technology and modern knowledge.
- The main cause of alteration in occupational structure is the availability of new technology in fishing for the non-occupational cast group as well.
- The overall study shows that most of the occupational caste changes their occupational structure with the arrival of new technologies and new methods, but they still don't opt for non-occupational jobs. But because of the changing situation and the degrading of resources (lake, stream and fish), the older generation prefers other occupations than fishing for their children.
- The main causes of occupational alteration are found to be diverse population, depletion of natural resources, increasing linkage to market, different opportunities for achieved occupation, education, foreign employment and so on.

- Adopted entrepreneurship approach, cooperative model, trainings provided by NGO/INGOs, prospects of tourism and introduction of new and advanced fishing technology have also played a vital role in the life of the Jalari community and lured them to adopt a new occupation.
- Foreign services and job engagement are the main preferred occupation around the Jalari community. Out of total, 37% prefer foreign services and other jobs for their children.
- The main purpose behind conserving the Phewa Lake is for rearing the Cage fish, according to the respondents. Out of total, 84% of the respondents use Phewa Lake for the cage fish while fishing common is at 9%, drinking water 4% and transportation stands at 3%.
- For 84% of the total respondent, cage fish is the modern fishing technology or methods while 5% opt for scientific hook and 11% Tayari Jal as the prime means of fishing.
- For them, the main usefulness of Phewa Lake is rearing cage fish. Out of total respondent, 84% of the Jalari families are involvement in cage fish.
- The common resources of Jalari community are aqua and fish resources. Out of total, 73.12% of the Jalari community manages the aqua resource for the cage fish on seasonal basis while 26.88% of fisheries are dependent on open water fisheries by conserving open fishery.
- The fodder priority of the cage fish is grass and Dana resources. 92% of the respondents use grass from the Lake Phewa while 8% provide *Dana* from the market.

8.2 Conclusion

The income presently earned by the respondents performing different occupations beside the traditional one is an undeniable significant component of the economy. Similarly, the households of the respondents in the study site could not satisfy their needs by only adopting traditional occupation. So they are compelled to choose the alternative occupation for the fulfillment of the primarily needs to the next

generation. Traditional occupation with the conventional technology can't meet the modern requirements of the fisheries. Traditional occupation with the new mind (knowledge) and technology gives a new life in fewer families while other want to join foreign employment for the better earning and better life.

The availability of resource and ecology determine the cultural construction of the society. Indigenous institutions are mainly responsible for sustainable use for common property resources. Most common property assets among the common user groups are organized on the basis of kinship or territory where a cohesive unit is formed who share difficulty and pleasure together. The rules and sanctions are effective as one can't live out of the social system. The same tendency prevails in the contexts of the Jalari community where the rules of management exclude all others out of the group specified for utilization. Mathsya Babyasya Samitte and Co-operation makes them cohesive unit that shares their difficulty and pleasure together as the social system or indigenous institution. The fish production and productivity in cage cultures indicated that both monoculture of grass carp and polyculture of silver and bighead carp are profitable to landless Jalari community. Cage fish farming profit contributed major portion to their livelihood.

Because of undue interventions and other external pressures traditional resource usage has been threatened. Jalari community has lost its area because of the threat of urban expansion and other user groups in the vicinity of the towns. As a result the community feels threatened and is worried because of the expansion of the towns or other governmental projects. Population pressure and its result is dwindling the size of the Lake which is a major internal threat to the commons. However, Jalari community effectively utilized their indigenous knowledge for the conservation of biodiversity and sanctity of the Phewa Lake. Captured fisheries and cage culture both contributed significantly to the household income but the proportion of income contributed by capture fisheries was higher compared to the cage culture. Although cage culture played a significant role in increasing income inequality in the fishing household, cage culture was still the important source of income for the community. The inability to utilize human and social capitals and

failure to curb existing caste discrimination in the society and ethnic isolation created by the community itself had reduced the options of diversifying their livelihood. As a result, the Jalaris are still practicing their traditional occupation without vibrant alterations, however, averting the Tragedy of Commons of Phewa Lake. Despite all these efforts, however it seems that Phewa Lake may be a victim of Tragedy of Common in future owing to overuse of Phewa resources and also because of to some extent altering profession of fishing.

8.3 Recommendation

Researchers such as Shepherd (1998) state that, in the interest of strengthening the institutions among the common resource, government and other external organizations should not intervene without acquiring a great deal of understanding of the local situation and the interest of people involved. Shepherd adds that different actors of development should act in support of the local people and should provide sustainable solutions rather than taking over the rule-making and management tasks.

The study has revealed that people of the study area are predominantly dependent on fishing activities for a living. However, opportunities equally abound for participation in different occupations i.e. driving, foreign services, business, which could be practiced side by side with fishing, except for some. However, for these rural fisheries to be able to break from the doldrums of perpetual poverty and improve their productivity, government should create enabling environment necessary to empower the fishery-folks. This could be done through possible improvement in infrastructure, policies and transport system. This will go a long way to alleviate the problem of marketing or distribution of fish to consumers.

Secondly, fisheries should be assisted to organize themselves into viable cooperative societies by first identifying their pre-existing traditional associations or group, which could be fine-tuned to formal cooperative societies. This is to enable them to enjoy economics of scale, freedom from exploitation by the middle

men and another caste groups with varieties of skills and specialization at their disposal in terms of fish processing, distribution and marketing.

From experiences gained from the field study and the deductions of the research study, the following recommendations have been forwarded:

- Due to the modernization the traditional occupation has been going endangered and less popular within the Jalari community. So, the concerned agencies and government organizations should focus their especial interest on the human resource management. Lack of sufficient land resources and lack of formal education, the utilization and management practices of resource is not scientific. So, by utilizing their indigenous knowledge with modern bio-diversity concept, the government policy and non government policy should be implemented realistically.
- Community nursery pond constructions for rearing fish larvae from hatchlings to fingerlings stage is a must.
- Lake Environment should be kept usable for fish culture by avoiding contaminants and pollutants to lake water for a long time.
- The Phewa Matsaya Samiti should facilitate fish seed and cage making materials for the community under its body.
- All the upliftment plans, policy and programs targeted for downtrodden as Jalari ought to be formulated from the bottom of the society.
- Education is the transformation of development process which gives sustainability of every aspect of the life of the people. So, illiteracy within Jalari community must be eradicated through active education system through formal education.
- The reservation policies should not give only for the economic upliftment and opportunity but also for the social upliftment and skill development.

- Special programs must be lunched for the control of population growth and illiteracy for the conservation and proper utilization of common resource management.
- Awareness should be raised about the natural resource management process or bio-diversity conservation and its effect upon human life as well as climate change.
- To reduce economic disparity, employment opportunity should be generated. Employment is also essential to raise the status of lower economic egalitarian groups and marginalized groups.
- Modern tools and techniques should be fairly provided for the competition in the modern situation by the government to such groups.
- Listening to the people, putting the last first and voice for the voiceless should be focused or implemented for the resource utilization by the government as well as non-governmental programmers.

8.4 Direction to Future Researchers

This study focused on the occupational mobility and alternation of Jalari concerning indigenous resource utilization and management practices. However many issues remained unstudied and because of its limitations these issues couldn't be covered by this academic research on Jalari community. The following issues are not covered by this study and that can be covered possibly in further researches:

- The researcher can focus on the socio-economic status of other endangered water dependent caste/ethnic groups viz. Majhi .
- Anthropologists can conduct ethnographic study of the Jalari Community.
- The researcher can focus on the youth participation in the traditional occupation.
- The researcher can focus on the effectiveness of NGOs and INGIOs role in the development process amongst the Jalari community.

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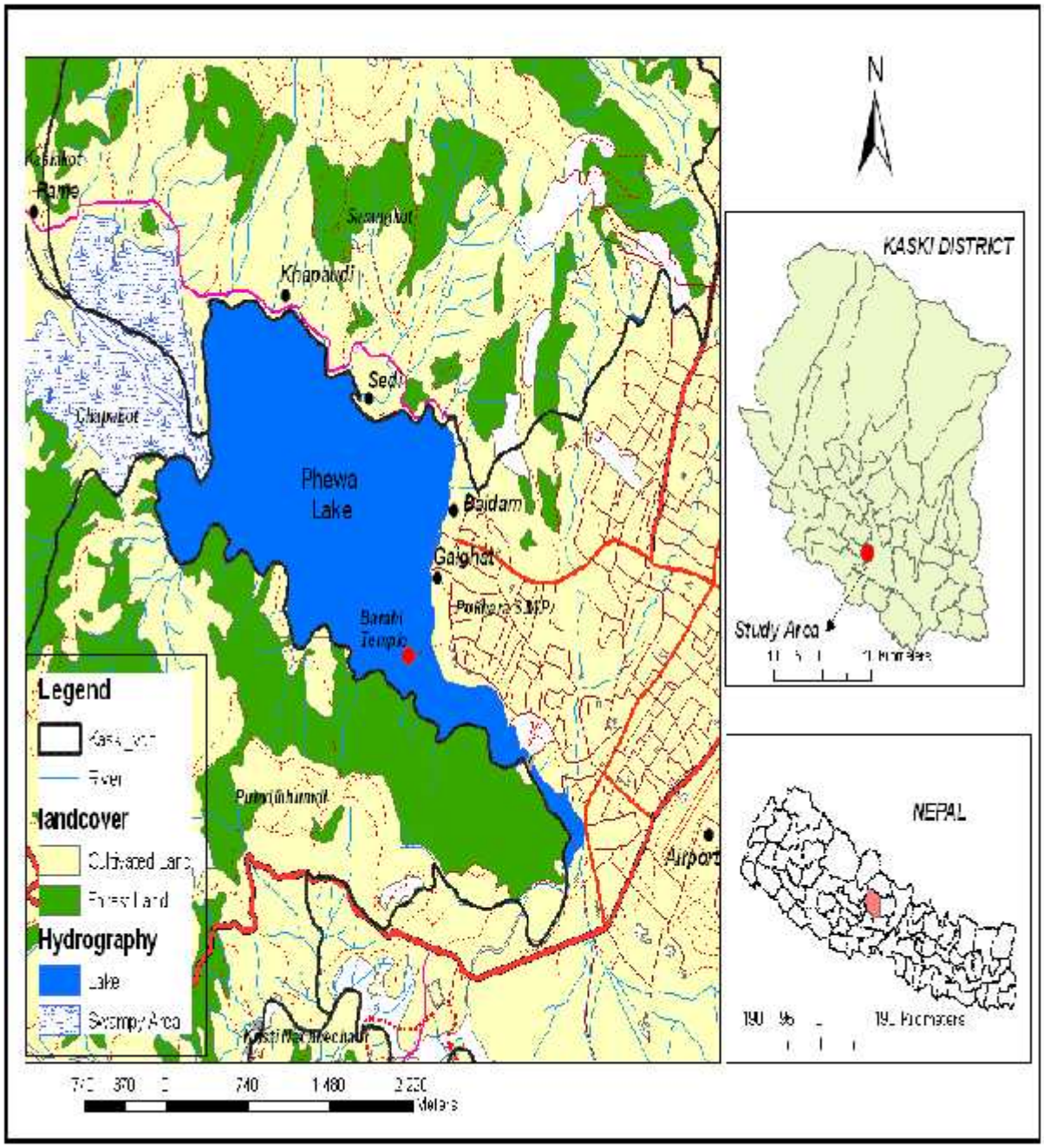
Appendix - A

Study Area



Appendix - 'B'

Household Survey:

1. Introduction:

Household No: ..... Ward No. .....

Full Name of Interviewee: .....Tole: .....

Caste: ..... Age: .....

Culture/ Religion: .....

Sex: .....

Language: .....

1. Description of the Family:

S.N.	Name of the Members	Age	Sex	Relation to Head	Marital Status	Education	Occupation
1							
2							
3							
4							
5							
6							
7							
8							
9							

a. What is your family structure?
   i. Joint ii. Nuclear

2. Indigenous Fishing Practice (Occupation)

a. Do you know your traditional occupation?

i. Yes ii. No

b. If yes, what is your traditional occupation?

i. Agriculture ii. Business iii. Fishing iv. Animal husbandry

c. Have you continued it?

i. Yes ii. No

d. If yes, why do you continue your traditional occupation?

a. Good income
b. Easy to follow
c. No alternatives

e. How many members of your family are involved in the traditional occupation at present?

a. 1 person ☐
b. 2 person ☐
c. 3 person ☐
d. 4 person ☐
e. More than 4 ☐

f. What traditional skills do you know?

a. .....
b. .....
c. .....
d. .....

g. Has there been an alteration in traditional skill or not? How?

.....
.....

h. Do you know about the cause of changing your ttraditional occupation?

.....

i. Why have you not followed your traditional occupation?

a. Low income ☐
b. More challenged ☐
c. Lack of Resources ☐

j. In your opinion, should the traditional occupation be followed?

a. Yes b. No

k. If yes, why must it be followed?

.....

l. What sorts of traditional practices are still in practice since the last few years?

.....

m. What were the traditional techniques of fishing?

i. .....
ii. .....
iii. .....
iv. .....

3. Modern Fishing Practice (Occupation)

a. Did you grow cash crops (fish) to sell?

i. Yes ii. No

b. If yes, of what amount have been you been selling per day?

i. Above Rs. 100 ☐
ii. Below Rs.500 ☐
iii. Above Rs.500 ☐

c. Have there been any external interventions in your occupation?

i. Yes ii. No

d. If yes, by whom and what may the cause of it be?

.....

e. Have you adopted scientific techniques to increase production**?**

i. Yes ii. No

f. If yes, what are they?

i. .....
ii. .....
iii. .....
iv. .....

g. Are you satisfied with the activities and income of your occupation?

i. Yes ii. No

h. Do you follow your parents' tools for fishing now also?

i. Yes ii. No

i. If no, what are the techniques of modern fishing?

i. .....

i. .....
ii. .....
iii. .....

h. Which occupation do you prefer for your children?

i. Agriculture ☐
ii. Business ☐
iii. Fishing ☐
iv. Animal husbandry ☐
v. Foreign employment ☐

i. What were the traditional skills and indigenous systems in the matters of fishing management in the past? And what changes have taken place at present?

.....
.....

4. Resource Management

a. Do you have cultivated land?

i. Yes ii. No

b. If yes, tell how much land do you have?

a. Khet
b. Pakho
c. Bari
d. Phant

c. What is the total cost of your land resources?

ii. Khet
iii. Pakho
iv. Bari
v. Phant

d. Do you know culturally valuable species?

i. Yes ii. No

e. If yes, what are they and where are they found?

.....

f. What is the fodder priority for caged fish?

.....

g. Who collects fodder in your household?

ii. Father
iii. Mother
iv. Brother
v. Sister
vi. Other (Sister-in-law, Brother-in-law)

h. During the resource utilization which species would you prefer most for future plantation?

.....

i. How many *dokos* of grasses you need per day for your caged fish & how can you manage it?

.....

j. Do you think that grass fodder and other products around Phewa Lake are responsible for the decline or increase in fish population?

.....

k. What is the management practice of resources?

.....

5. Relation with Other Stakeholders

a. What is local people's perception toward your occupation pattern?

.....

b. Have there been any external interventions in your occupation?

i. Yes ii. No

c. If yes, by whom and what have been the impacts of these interventions on your occupation?

.....
...

d. Do you think that such types of external intervention s hould be a part of management activities?

.....
.....

e. What were the behavioral activities of those people who intervened over you?

.....
....

6. Institution Related to Occupation

a. Is there any management committee or group formed for modern fishing?

vii. Yes ii. No

b. If yes**,** when was the group or committee formed?

.....
....

c. What benefit you get being a committee member?

.....
.....

d. How have been the committee members benefitting from these institutions?

.....
....

e. What are users' opinions towards this committee and their interference?

.....
.....

f. What benefits do you get from the committee in care of other's intervention?

.....
.....

g. What roles have NGOs and other institutions played for organizing and managing your occupation?

.....
.....

h. What is your perception on your Organization Management System?

.....
..

Thank you for your kind cooperation!

Appendix-C

Photo Arcade

Researcher and Buddi Jalari taking out fish from Cage

Respondent and Researcher, Data collection

Respondents making handmade net outside hom

Seeking grass (aqua- plant) around Phewa Lake

Jalari people around cage, rearing fish from boat

The total no of Cage fish (620) around Lake Phewa

Santa Kumari Jalari, traditional fish selling met Santa and Rama Jalari returning back from market

Researcher collecting data from Shiva Jalari **Researcher collecting data from Krishna Jalari**