

**THE ROLE OF CULTURAL PRACTICES ON POLLUTION
OF PHEWA LAKE**

(An Anthropological Study of Phewa Lake, Pokhara, Nepal)

**A Dissertation Submitted to the Faculty of Humanities and Social
Sciences, Department of Sociology/Anthropology for the
Partial Fulfillment of Master Degree
in Anthropology**

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2015

RECOMMENDATION LETTER

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LETTER OF APPROVAL

We here by certify that Thesis entitled "**The Role of Cultural Practices And Pollution of Phewa Lake: An Anthropological Study of Lakeside Pokhara**" submitted by Mr Jit Bahadur Basyal to Department of sociology/Anthropology Prithvi Narayan Campus Pokhara in the partial fulfillment of the requirements for the Degree of Master's Arts in Anthropology has found satisfactory in scope and quality. This Thesis has accepted by dissertation evaluation committee as well as department of Sociology and Anthropology, this has under designed by Jit Bahadur Basyal.

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ACKNOWLEDGEMENTS

This thesis "The Role of Cultural Practices and Pollution of Phewa Lake" has been prepared in accordance with the rules and regulations of the university to the compulsory paper (S/A 508) of the second part of master's degree in Anthropology. It is an attempt to objectives oriented research the role of cultural practices or way of living tools are caused to pollution of Phewa Lake Pokhara.

Accomplishing the task of preparing a thesis is never an easier one since it requires concise and passionate hard labor, concentration and determination on part of the researcher and cordial co-operation on the part of all concerned parities. I regards to all those who have supported and enabled me to accomplish this difficult job.

Firstly, I would like to repay my whole sincere gratitude to my respected teachers and thesis supervisor Mr. Sarad Kumar Poudel who showed great interest and provided academic guidance during the whole research and thesis writing period. He provided me valuable suggestions on my thesis, which greatly helped me to accomplish my research work.

I extend my special thanks to my respected teachers, Dr. PrakashUpadhyay, Dr. BishwokalyanParajuli and Mr. Amrit Kumar Bhandari for arranging the materials and make it readable. I would also like to extent my heartfelt thanks to Mr. Bhola Nath Adhikari, Lecturer of BALLB at Prithvi Narayan Campus for support and encouragement through-out the data analyze and to assist in correction my thesis. Likewise, I would like to regard to Mr. Rajendra Godar who have been considered this research in language correction as well as grammatically formed. Here, special thanks also go to Sushila Bhurtel, Udaya Subedi, Sanjaya Subedi, Rudra Parsad Timilsina for assisting me during my fieldworks and other thesis related work.

I thanks to my children Jidisha and Jidesh Basyal, my partner Devi Basyal Nepali and my parents Ram Bahadur Basyal Nepali and Amisara Basyal Nepali, for their support, encouragement and help to every stage.

At last I would like to thank to "Quick Computer Service and Photocopy House, Pokhara -1, Bagar" for its excellence computer service.

Date: February 20, 2015

Jit Bahadur Basyal

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ABBREVIATIONS

ANRM	Anthropology of Natural Resources Management
CSB	Central Statistic Beareuo
DDO	District Development Office
EIA	Environment Impacts Assessment
GDP	Growth of Domestic Profits
INGOs	International Non-Governmental Organizations
IK	Indigenous Knowledge
MDGP	Millennium Development Goal Program
MMc	Mohonk Mountain conferences
NGOs	Non-Governmental Organizations
PCI	Per- Capita Income
RC	Rarmsar Conviction
ToC	Tragedy of the Common
WSA	Water Sources Acts

ABSTRACT

A study was conducted to examine the role of cultural practices as kind of mechanism of used by pollution of Phewa Lake, Kaski district Nepal. A single-visit survey method was used to gather data through structured questionnaire (80 households), direct observations. Likewise, the primary data played a dominant role into drawing a valid summary and conclusion. Secondary data were also incorporated when it was relevant and required.

People are dependent on lake resources for water, drinking sanitation, bathing, boating and fishing as well as tourism activities. Major sources of solid wastes are finding in research hotel waste, home dust, and plastic bottle bags, waste related to fish farming, and religious cultural wastes. This is major cultural practices and techniques of pollution of Phewa Lake. Research questions were raised and combinations of qualitative and qualitative methods were applied. On the basis of objectives, it has been assessment, explained and analyzed the role of cultural practices on pollution of the common resources in detail such as Phewa Lake.

Tragedy of the common approach is the valid. This research has been showed the common property ruined as well as harmful and being poisonous. It has been disturbed natural rhythm by human assess and access through cultural practices and technology. They are depending on such resource from ancient past. But they are less responsible to improve the condition and quality of such resource. They only harvest form it but never think to manage such resource. They are just using it but never think about the whole ecosystem. They are using different modern culture for their subsistence and using Phewa Lake as a source of economy rather than the part of environment. Unmanaged solid waste disposal is one of the main causes of environmental degradation or Phewa lake pollution. Rapid urbanization, population growth, and attitude and behavior of the people are another cause of effecting on ecosystem. This study has included this population. This study has focused on human learned and shared behavior, cultural technology and subsistence economy and pollution of Phewa Lake.

CHAPTER ONE

INTRODUCTION

1.1 Background

The cultural practices are the human creations. It shows like human behavior in society such as symbols, artifacts, rituals; norms of behaviors and system of beliefs are the determinants factors affect that on nature (Jary, 2000). The technology and energy are built through the culture. Nature and nurture have the barter relation to human way of living (Steward, 1955). The roles of cultural practices are as kind of mechanism of conservation and pollution of Phewa Lake. Here, this study has been focused on unwise conservation strategy and over exploiting cultural practice and human behavior cause of pollution and degradation of the common property such as Phewa Lake. Tragedy of the common doctrine released that freedom in a common brings ruin to all; common use by all that resources have been destroyed (Hardin, 1968). The common resource is overexploiting by intensive or modern tools and technology as well as cultural practices. Likewise, it is the pressure and unwise implication of the natural resources of the Phewa Lake. This common heritage such as Phewa Lake has been going to pollution day by day. It is impacted by human cultural practices and subsistence technology. Traditional cultural, social structure are usually associated with hierarchy of occupation are the basis of descriptive virtues. The common natural heritages are ruined by occupation located status of as a cultural method symbols are appeared in the society. It is very crucial exploring the cultural practice for the awareness to conservation and wise use of the Phewa Lake because; the Phewa Lake is the natural environment eco-system, national natural and cultural heritage of the Nepal.

It has made crucial parts of synthesis in society (Horst, 1998). Sustainable development is notions that uses the interest of resource and have saved capital resource for our incoming generation. In reality, the common resource is overexploiting by intensive or modern tools and technology as well as cultural practices. The natural resources are fulfilling the multiple functions for mode of production, adaptive, culture practices and pollution as well.

Sarikwal (1978) the part of cultural practices been observed greater hierarchy, cultural and occupational change in society. Majority of population in urban area depends upon non-agriculture source of income. Division of labor and technological method, occupational status are more precious to use the available natural resource. It is an indicator of nature of society in the analysis of urbanization or modernization (Shepherd, 1998). Change of cultural tools and technology and its occupation structure has been analyzed as a significant element in the process of advance civilization and urbanization. Traditional cultural and social structure are usually associated with hierarchy of occupation are the basis of descriptive virtues. The common natural heritages are ruined by occupation a located status of as a cultural method symbols are appeared in the society. It is the pressure and unwise implication of the natural resources as well as Phewa Lake. It is processing such being as human Cultural practices as a pollution and degradation of the Phewa Lake.

The Environmental Resources are using through an anthropogenic values in the society. It helps to develop activities, idea, culture, behavior as well as interaction with natural resources and their conservation through their indigenous knowledge (IK) and practice of the nature. The common resource has been precious to note that anthropologically provides attention not only towards human life and culture but also towards ecology as well as environmental balance (Bhandari, 2005).

This research have made a profile of the Phewa Lake so this research aims to explore valuable idea, facts and to make responsibilities about their vulnerability of the common resources for better use and wise use for better life of eco-system.

Phewa Lake has Precious cultural heritages. It is depended on people's way of living through ecologically, economically and environmentally. It is more attractable to the indigenous subsistence and intensive livelihood of the surrounding of the Phewa Lake and their stakeholders as well as Phewa Lake is attracting to growing numbers of people who are enjoying and to selecting this place to residence in corner of Phewa Lake as in Pokhara (Prajuli, 2009). Many more activities and pressure are acting the role of degrading and polluting of the Phewa Lake. The cultural practices are. It is over on natural resources distress upon ecological and cultural heritage. It is continuing due to unplanned and hap hazardous urbanization, uncontrolled hazard development, construction and activities have been increased and it is denoting such

behavior to degrading Phewa Lake and going on endangered. Many cultural practices and activities have been adapted to use Lake resource. This is subsistence patterns of stakeholders. Phewa Lake is the main source of the economy in local subsistence. They are totally depending on Phewa Lake as their subsistence. There is more relation of cultural practices and pollution of the Phewa Lake.

1.2 Statement of the Problem

Tragedy of the common doctrine released that freedom in a common brings ruin to all; common use by all that resources have been destroyed. The common resource is overexploiting by intensive or modern tools and technology as well as cultural practices. Likewise, common property has been owned by group as well as common access and assess in our society. It has been threaten, harmful and poisonous for all existence ecosystems. It is the pressure and unwise implication of the natural resources of the Phewa Lake. This common heritage such as Phewa Lake has been going on pollution day by day. It is impacted by human cultural practices and subsistence technology. Traditional cultural, social structure are usually associated with hierarchy of occupation are the basis of descriptive virtues. It is impacted by human cultural practices and subsistence technology. Traditional cultural, social structure are usually associated with hierarchy of occupation are the basis of descriptive virtues. The common natural heritages are ruined by occupation located status of as a cultural method symbols are appeared in the society. It is very crucial exploring the cultural practice for the awareness to conservation and wise use of the Phewa Lake because; the Phewa Lake is the natural environment eco-system, national natural and cultural heritage of the Nepal.

This research has helped to find out and explore the impacts of the human cultural practices and degradation pollution of the natural resources as well specific sources aqua eco-system of Phewa Lake. It has came possible to minimize the over affected activities on, the Phewa Lake going on endangered. The drainage and sewage systems have used in directly and indirectly in the Lake, the drainage has joint as dhal in Phewa Lake. It has been seeing major Problem. The following research questions have been raised in the research.

- What are the cultural practices among the stakeholders?

- What are the cultural activities in terms of utilization of Phewa Lake?
- What is the subsistence pattern of Stakeholders?
- What is the socio-economic impact of pollution of Phewa Lake?
- What are the available natural resources around them?
- Are they totally depending on Phewa Lake for their subsistence?
- Is there any relation of cultural practices and pollution of Phewa Lake?

1.3 Objectives of the Study

The general objective of this research is to analyze the cultural impact of pollution of Phewa Lake. While specific objectives are as follows

- To find out the socio-economic impact of the pollution of Phewa Lake
- To explore the cultural activities in terms of utilization of Phewa Lake
- To analyze cultural practices and their impacts on Phewa Lake

1.4 Basic Assumptions

The cultural, religious and symbolic aspects are making of the Phewa Lake more important. Phewa Lake is impacted by the street market and their customers' activities throughout rubbish material and other ones responsible to degradation and environments. This study has focused on human Cultural practices, livelihood and irresponsible activities of pollution of the Phewa Lake. The following assumptions are raised for the study.

- The cultural activities that are directly or indirectly impact the degradation of Phewa Lake.
- The tradition culture or subsistence patterns are directly effects to the available natural resources.
- Economic system is directly or indirectly impacts to the utilization of natural resources.
- Cultural practice is directly affecting the degradation of Phewa Lake.

1.5 Operational Definition of the Key Terms

Anthropogenic Value as a Cultural Practice: Natural resources are used in socio-cultural belief and ideas that is called anthropogenic values.

Human Cultural Practices: Human activities affect upon Phewa Lake such as harsher utilization as well as various activities such as washing, bathing and dumping wastage near the side of Lake which pollutes Phewa Lake.

Pollution: The condition has been adapting way that is disturbing natural form of Phewa Lake.

Tragedy of the Common Resources- The greater the number of people using the resource, faster it is destroying. Thus the tragedy of commons resources directly tied to over population and unhappiness ending of the resources.

1.6 Rational and Significance of the Study

The Phewa Lake is the national heritage of the Pokhara as well as Nepal. People are dependent on lake resources for water, drinking sanitation, bathing, boating and fishing as well as tourism activities. This study has included this population. This study has focused on human learned and shared behavior, cultural technology and subsistence economy and pollution of Phewa Lake.

Cultures are one of the man-made things that are depending on the human capacity and the available of natural resources. The natural resources are not equally speared around the community. The community who are living under the fix environment condition, they have unique adaptation and subsistence pattern. These studies have provided the information about the natural condition of Phewa Lake as well as changing pattern of livelihood system i.e. culture. This research has also provided the depth information about the unique coping mechanism of stakeholders in terms of utilization of Phewa Lake resource. The research also provides the information about the changing cultural practice and their impact of pollution of Phewa Lake.

That's why the Study of the Human Cultural practices and pollution of the Phewa Lake" has related with socio-cultural and socio-economic as well as socio-political. It has precious to academic discourse, researcher, planners, politicians, Government agencies, practitioners, students, and INGOs/NGOs as soon or other relative stakeholders.

1.7 Limitations of the Study

The research has conducted only in surrounding of the Phewa Lake as well as specific area of Baidam, Hallanchok area of the Kaski district. Hence the result of the research cannot be generalized with the total stakeholders of the Phewa Lake. This research only focuses on the respondents who are depending on or effected on directly by the Phewa Lake.

Thus study has been conducted in order to the partial fulfillment of Master degree of Anthropology as compulsory paper. This study has confined to describing the impacts of “The Role of Cultural practices on the Pollution of Phewa Lake” and surrounding area.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Concept of Natural Resources in Human Ecology

The natural resource is such connecting to environmental as atmosphere water, soil forest, wildlife, land, minerals and cultural assets. The People's interaction has with the Natural Resources as well as with the cultural assets institutional norms and values. The human ecological perspective is the community based resource management strategy. It is being effective, appropriate, legitimate, eco friendly, combination of the nature and societal traits and values to mutual interaction and relation.

The Human ecology provides an indispensable framework for the better understanding the interactions between human, environments and inhabit. The humans are being unique because of the virtue of out adaptations which has manifested in physiological, behavioral, and socio-cultural mechanisms for adjustment. These are noting precious to society to society as well as living being. The natural resources have fundamental to life and basis of livelihood for human beings as well as animal. It has implied life; rise gain used consumed which required those as inputs for industrial production. Natural Resources have referred as natural gifts such as atmosphere soil water, forest minerals and so on. They have on punchable and must Precious basic necessities of human beings Precious according to culture, people and geographical links. We can simply explain the value of natural resources on or cost be same everywhere.

Human ecology has considered ecosystems that include people, centralizes on the ways, in which use of natural influences and is influenced by social organization and cultural norms and values. The human ecology has most truth features of the population. Environment relationship is affecting as way of human survival as well as quality of the human life. In time the impacts can hold crises of overpopulation, resources have depletion and environmental degradation. It is the major issuing in balance of traits on human ecology and both are most interconnecting.

Here, it has mostly provided by Human ecology to the perfect ground for investigating and understanding human beings and natural environments components.

2.1.1 Concept of Common Property

The common property resources are defined as a class of resources for which exclusions are difficult to joint uses involves subtract ability. It is free goods for example: - owned by no one and belonging to everyone. All of common property is shared by the two characteristics first is that exclusion or control of access of uses to these resources is problematic. Second is that each user is capable subtracting from welfare of other users.

Common Property mean that the resources owned collectively by a group. It means, not owned by any one. These resources are renewable as water, fish, forests, wetland, pastures, however these all are showing he characteristics of common property as well as included public parks, high ways and oil pools among are common (Bhurtel, 2009). Hence, common property resources have demonstrated as a class of resources for which exclusion has difficult and joint use involves subtract ability (Brekes, 1989).

2.1.2 Population Pressure on Resources

This theory notion that High population less erosion and less population less erosion, it has controversy terms on natural resource management. Both has claimed that resource must be preserve but by less population or high population. According to high population less erosion, Human can more manage for survival to specific resource by the advanced technology. Less population less erosion has claimed that certain population of the certain or finite environment have a fixed capacity for utilization. Henry George, Progress and poverty, it has demonstrated that widespread chronic to want has the resulted of social maladjustment, not of any of inherent tendency population increase to outstrip the ability of nature to sustain in. He has argued that by permitting greater specialization population growth actually enhanced each individual potential to produce wealth (Malthus, 1766-1834). Human population, like all natural population has tend to increase in what used to be called geometrical progression and in now usually called an exponential meaner. However, it is planning that exponential growth cannot continue indefinitely. Supplies of food and other human requirements can only be increased to a finite extent, in the past;

tendency towards exponential growth has restrained by such factors as a starvation, disease, war and infanticide. Sometimes this restraint has taken from the sudden dramatic reversal of population growth. Robert T. Malthus postulated that over population has controlled by both of positive check and Preventive for natural as well as earth balance.

2.1.3 The Himalayan Dilemma on Land Resource Degradation

The modern resources depletion model fail almost entirely to consider the environment. The environment, it is demonstrating self as degradable resources. So, humans are living in particular place, where they can degrade the natural resource the polluting the natural resources. That's why, the people have uncontrolled activities and market dominated norms and values have pollution as reason to degrade the natural resource. So in their responsible to other its impacts can produce the crisis the super crisis (Ives and Messrli, 1989) and endangered of the local habitat and their ecosystem and produce the disease on as well as human being. The human being, local habitat environments and indigenous user group and their livelihood or occupation has the major factor to link in each-other, but it should be balanced in all factors as activities to use the natural resources.

The one of the examples of the environmental degradation of the human activities and livelihood systems are designing of their polluting and degrading the natural resources by tourism the rapid increase in mountaineering expeditions and in trekking tourism since 1960s has brought onto Nepal the large numbers of visitors (Ives and Messerli, (1989) In the Khumbhu Himal, till late 1970s the total numbers of annual visits than the population double. So, these have claimed to have greatly increased pressures on the local forest in several ways, fuel wood for camp fire, both for cooking and for the warmth and enjoyment of the large numbers of trekkers and mountaineers and their larger numbers of porters, timbers for housing in part of provide lodges, small hotel and tea house for tourists facility and hospitality. This is one of the examples of human activities to degrade the natural resources by tourism. There is also developing the cultural and livelihood to use by tourism, natural resources to hospitality, intensive and subsistence economy. Tourism has based norms and values that are responsible to going degradation of the Himalayan environment.

The human activities are impacting of condition of potential instability where by heightening subsistence farming pressure or reduced maintenance of agricultural terraces can lead to a rapid and dramatic increase in watershed degradation. Ives, (1989) in there claimed that divesting annual flooding in Ganges, Brahmaputra, Kaligandaki and Karnali Koshi low lands has influenced by extensive deforestation and intensified land use in the mountain. Nor has any attempt made determine quantitatively the human impact on sedimentation and flooding on a large scale. This flooding, erosion and stream flow has highly influenced by man to degradation of the natural resources. Here emphasizes that, this differentiation into rough size scales of watershed is using because the relative importance of human intervention into three rough size scale of watershed is helping to useful because the relative importance of human interventions within a watershed size. Mostly there reason to degradation of the water resources by natural Hazards, disaster flooding, sedimentation as well as human occupation and modernization tendencies. The scale and tragedy of these losses have well documented to degradation of common resources. The large scale has been flooding on the plains and valley, land as well as Lakes degrade due to increasing number of human beings, livestock and increasing intensify of agriculture, modern's tendencies urbanization, tourism and in this area in recent decades.

In the Himalayan Dilemma, addressed the natural resource and environment mostly degradation due to natural forces and human impacts. These both reasons have related to the degradation of the earth. Ives, (1989) this theory has defined the degradation of natural resources have been showing the real picture of human activities and natural hazards disasters. So there has demonstrated and considered that natural impacts on natural hazards precipitation risks (intensify/patterns) as well as human impacts on that deforestation and land use intensification without conservation measures. There both results have soil erosion sediment load runoff and flooding as well as endangering the natural resources as well as common resources.

Here, it is going to demonstrate and consider the resource degrading, destroying and conserving though the human activities, human culture, occupational livelihood or modern institutional norms and values behavior has managed and used of natural resources. That's why this research topic has been demonstrating different than the others study as well as the Himalayan Dilemma, but similar the subject matter has addressed the degradation of the natural resources.

2.1.4 Relation between Society and Degradation of the Natural Resource

The problem has posed as the social and cultural causes within the interaction between natural and human causes of degradation. The degradation has needed, which has lost of capability to satisfy the demand made upon human Cultural practices and their a loss of capability is being measured the process of damage and reduction influenced by the human interference, it can summarized the sources of degradation becomes a net function both natural and human forces, as well as damage repair. The process of degradation under one system of production has reduction initial capability of land on successes or system actual and potential that degradation is carried change and reduced the capability and endangered the common property (Blaikie).

Degradation is viewing in both as human Cultural practice and natural force. Here is mainly considering the degradation of natural degrading process and human interferences as well as natural reduction or restorative management. The environment degradation has been referring to relationship between society and natural resources degradation. The main characteristic of the relationship between the natural resources as well as land degradation and society has been mostly interconnecting. The interactive effect is regard degradation and society through time. In social and physical change there are exploring relationship between land degradation and society as well as population growth and development based on values and norms.

The terms ecology and environment have referred the interrelations of human being, flora, fauna, as well as elements of the physical and natural environments. This relationship referred and explored the religion representations, subsistence modes archetypal expressions of the environments Das, (2003) the sociology and Anthropology in ecological and environmental studies developed from the industrial revolution. It has cosmic posed a problem for the meaningfulness of cultural representation to pose the environmental degradation. The facts have come that technological and industrial revolution mostly affected the all people as well as biodiversity or common resources. There has formatted capitalism and colonization by using universal significance of technology, labor. That's why , it has been increasing the vulnerability of the planet and it has danger of the human life, forms to

the dangers of human proliferation, atmosphere, water and land pollution and degradation by this as well as radio-active fall-out this led to a gradual environmental of world and environmentalism as the new cause of célèbre. This process was fuelled by recognition of life style, Disease for which science and technology Das, (2003) such environmentalism referred it has seen as a particular cultural construction that is enhancing the study of the natural environment as culturally experienced, there human beings have perceived, created and destroyed of the natural environments. We can demonstrate t the elation of religious beliefs to the environment and exploiting and environmental understanding of religious beliefs in this way, the anthropology has been seeking to classifying modes of subsistence such as hunting and gathering, pastoralism and settled agriculture. The environmental impact of modes of subsistence has interpreted by deploying idea culture and religion and lenses of anthropology as well as other institutional norms and values. The modes of subsistence have in wider patterns of occupational culture as well as the culture of the nation state and global.

That's why, it has demonstrated that the environmental resources consumed, perceived, created and destroyed by human activities and institutional norms and values or occupational activities are also responsible to degrade the natural environments as commons property. We can easily to proving the human activities and occupation and modern change and westernization, urbanization, industrialization, tourism and other modern tendencies has oriented to the human activities to degradation of the natural resources as Phewa Lake. It has linked with Phewa Lake this research has trend to nexus as this cases.

2.1.5 The Legal Custody on Lake and Watershed Resources Management

The environment, biodiversity and Natural resources conservation issues are relating to people through legal. Thus, here are numbers of acts polices and regulation in setting in Nepal. Here is need to significance and provision that addressing the issue of Lake water, pollution depletion in a various ways. Some of them have been reviewing here.

The Millennium Development Goal Program (MDGP) has issued one of issues Environment conservation of simsar, Lake and wetland so on preservation as well natural heritage and development stories should be crucial for future generation than

would to occur sustainable developments. It has been the worldwide governing issues for conservation and management of the natural resources. This issues and practice has implemented. It has designed infrastructure for environment conservation. It has been implementing by Ministry of Environment (Adhikari, 2002).

Water resources Act, (1992) it has been making arrangements for the rational utilization, conservation management and development of water resource in kingdom of Nepal. The main objective is to make timely legal arrangements for determining beneficial use of water resources, presenting environmental and other hazardous effect there of and also keeping water resources free from pollution and degradation.

Thus, this act provides a legislative model for environment Impact assessment (EIA) in Nepalese legislation, the EIA guidelines for water resources (irrigation and power) sector have supplement these legislative provisions. It is imperative that legislation relating to the agriculture, forestry, industry and transport sector. This act is more effective for protective of habitat of biodiversity (Pokharel, 2001).

The water Preservation and control of Pollution Act (1974), it is providing for the conservation and control of water pollution and maintenances or restoring for the constitution of central and state pollution control boards empowered to carry out a variety of functions to promote, cleanliness of streams and well and to prevent and control pollution water. The central board advises to control Government, co-ordinate the activities of state boards, provides them the technical assistance and guidance, organizes training of personal for pollution control, collects and compiles technical and statistical data, lays down water quality standards and execute nationwide program. It may be grave emergency have origin as to warrant immediate action and involved the methods of treatment and disposal of sewage and trade influents for agriculture and advise to location of industries.

As the water is one of the essential components of ecosystem and most of aquatic species of plants, animals and micro-organisms, such large fungi, virus and lichens are conserving the habitat of aquatic water, therefore to protect the habitat and the specifics there in protection of water. Water is degrading from the industrial pollutants and their domestic several (Pokharel, 2001).

The Ramsar Convention (RC) (1971), has postulated in a specific conservation as Ramsar wetland for human livelihood, world as well as for natural and cultural heritages. The state role is performing vital to conservation and preservation of the environment as mineral, water, Ramsar, forest and so on. Interim Constitution of Nepal (2063), Act no. 35.

The water sources Acts (WSA) 1992, there are certifying an amoles regarding Lake ownership as discussing in the preceding section. Ministry of water resources should have legal authority over there.

The town plan implantation committee under the implementation act (1972) has established to implement the land uses plan. The town plan implementation committee implemented by town plan implementation act (1972), it has established and designed the area and around the Phewa Lake as low side preservation area and Baidam has been designing as a special conservation area. The soil and water conservation act (1982) any area within the kingdom of Nepal can be include as protected watershed area. It is necessary for protection.

The Department of soil conservation and watershed management, HMG (1994) has been acted as partner agencies with great deal of natural soil erosion takes places in Phewa Lake watershed area, due to their fragile physical and geo-structure as well as for re-preservation and management. It is pure that man made activities and Cultural practices like agriculture bank, city state rising so on, it has been increasing soil erosion. In watershed area the rate of soil erosion and sediments in Phewa Lake has been estimating to be 1937 cubic meters per hectare (Bhurtel, 2009).

2.2 Theoretical Overview Espoused in the Study

The theoretical framework of this study is based on the notion on role of cultural practice, natural resource utilization and pollution of Phewa Lake. Here, three major theories have been proposed: Tragedy of the Common vs. Common without Tragedy, Cultural Ecology and Political Ecology.

"Tragedy of the common vs. common without tragedy theory has presented by Hardin in 1968. Tragedy of the common is the antithesis of the common without tragedy.

This theory is notion common for use by all, than ultimately that resource have destroyed. Freedom in a common brings ruin to destruction to all. So, there need to change human value and ideas of morality. This change value and ideas have been synthesized on the common without tragedy. This concept has been adopted for this study is based on that human way of living tools, intensive economy and cultural practice entire caused to ruin and pollution on Phewa Lake. It has been effected on one and collective interest of users governs, represents the collective interests of Lake resource, fish resource and water resource perception. As such social, cultural compensating mechanism plays an effective role in the utilization and development of common property resource management through different cultural practices. The theoretical framework of cultural ecology is based on the cultural and ecological setting with an assumption that ecological setting plays a vital role in constructing culture for survival in the given environment. Cultural core, adaptation and interaction have been never ending process because environment always changes and the human adapt in environment with modern technologies according to the changing context. Postulate doctrine has Cultural core as culture and environment related to livelihood and economic orders in their activity and environmental interaction. Phewa Lake and local people, institutions are interacting through their cultural practices. Man-made activities and market oriented value are the way to adapt their environment in changing context of the local land lord, Jalari community and other stakeholders in the Phewa Lake. The socio-economic structure, cultural practice and modern market values are the nexus to pollution on the Phewa Lake. This is the prime cultural practice in the Phewa Lake.

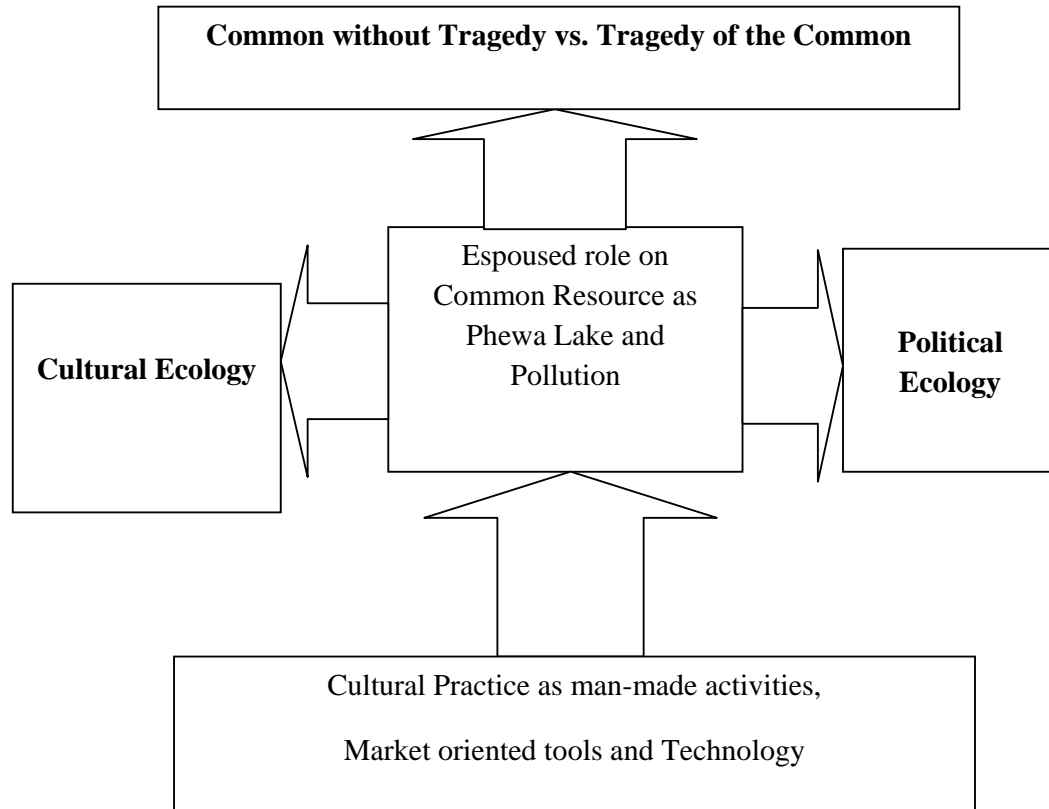


Figure No 2.1: Theoretical Overviews Espoused in the Study

The Political Ecology theoretical framework encompasses Interaction between political and environmental variables are centered in eco-politics. Political ecology has welcomed case studies from specialists in agriculture, water, land, tenure, health, development, international law, history and both physical and social science. Here political economy has such to link with distribution of power with productive activity. It has been entire focused hierarchical relationship in metropolis and satellite as well as dependency relation based on political strategy and economic flow to core from periphery. The elite groups have been higher class in the society Phewa Lakeside. They accumulated the resource, technology, development contract. They participated in institutional committee, boat association, road construction, hotel association fish farming association other many more utilization and conservation structure of the Phewa Lake. Elite groups are taking the role of decision making, distributing, and judging. These cultural practices have been promoted to the pollution on Phewa Lake.

These man-made activities, market oriented tools and technology has been polluting the Phewa Lake.

2.2.1 Tragedy of the Commons

(Garrett Hardin 1968), globally the common resources are those which have not arrogated to particular individuals or states at present the 'common' includes the open oceans, some of the great Rivers, the air (space) some of dry land , as parts of Antarctica. They have common accessible resources and over used can be ruined that has called tragedy of the common.

- Basic idea of resources held in common for use by all, than ultimately that resources have destroyed. Freedom in a common brings ruin to destruction to all this argued by Hardin so there need to change human value and ideas of morality. Held in common that owned by group, group access to the resources.
- Greater numbers of people are using the resources destroy faster, thus the tragedy of common has directly tied to over population.
- Resources are for most use, the Earth's core held in common and inaccessible resources have not destroyed.
- Resources held by individuals, and destroyed by individual, it is not example of the Tragedy of the Commons.
- This degrades the common resources in their any sustained increase of population in a finite bio-system ends in Tragedy.
- Tragedy is logically dependent on the assumption as steady growth in the use of land or resources within any finite ecosystem.
- There is no technical solution (brings the changes in techniques of the natural sciences, nothing in way of change in human values or ideas of morality) but altering solution is that "Mutual coercion Mutuality agreed Upon" as well as in value, equal, justice, human rights, human emancipation, moral obligations social ownership and social environment and it has basic concept recognized to be system dependent, system relative. And ethical behavior to be relative goal to protect Earth's diversity.

It has focused on the materialistic v/s socialist, but it has emphasized on socialist view and admires the mutual traits and values as well as human emancipation, justice,

equity-, human rights, moral obligation of human and social ownership. It has focused on indigenous local peoples and their livelihood and sharing, and mutual cultural traits. It is focusing to the solution on problems not the technical solution for the common degradation. So, poverty is not a problem of conservation of resource. The modern technologies have not seen long-term solution of common property resource conservation.

Hardin (1968), argues that the surviving commons can be categorized as the 'last common' Natural resources and location benefits should be occurred all and that socially-produced benefits should be occurred to community which produced that guiding principle common or rights to be access there of common. The Tragedy of the common has published. It has argued that with collective management of natural resources has a major theme of debate. The resources has owned in common, individuals using the resources have each tends to exploit it in an uncontrolled way because there has no point of in one individual restricting use if other doesn't do the same. The result of collecting activities on common resources and on pressure there in this way has a powerful tendency for common property resources to be over exploited. Hardin argued that in common Resources has strong sanctions enforced to control individual behavior in grouping. These alternatives are privatization of common property on the one hand and imposition of strong controls or sanctions on others. The Tragedy of the common (ToC) assumptions that has Humans behaviors self interested individual motivated primarily by the desire to maximize economic gain, we can losing the common in food gathering by enclosing farm land, restricting pastures, hunting and fishing area as so on.

In postulated by Garrett Hardin, the Earth has finite. It has a limited stock of sources as fuel, minerals, and biological on. Here Hardin noted that individuals who seek to maximize their material consumption contribute to the ever increasing exploitation of the world's commons, but it is true in principles of humanitarian ethics to save all human lives, to relieve all human misery, to prevent and cure disease, to foster universal human rights and to assure equal justice opportunities for everyone.

That's why this research topic has cooperated with this theory and the Phewa Lake also a common property, to use and preserve on there so this property is going on ruined due to over Cultural practices of human beings.

2.2.2 The Human Ecology

The ecology has defined the study of interrelationship between the living organisms as exists in their natural habitats and the various factors of their environment (Haeckel 1869). This ecology as a discipline have the technical born by Ernest Haeckel and used the word 'oekologie' in 1866, it has demonstrated of on organisms' relationship to its environment. The human and their cultural and social activities have interacting with the environments. So the human has adjusted through their adaptation technology to the natural resources and their Ecosystem. The living beings as well as human has adapted their environmental variation in their life. This leads to a better understanding of the factors influencing human environmental interaction. Anthropology and anthropologists have made the use of human ecology to study the interaction of the human beings with their environmental components including cultural organization, ecosystems as well.

The Human Ecology as a study of dates to beginning of 20th century, human ecological ideas have existed in and societies. It has concepts of religious to philosophical of human roles' in nature as well as explained the relationships between nature, society and human as interconnected.

The human ecology has considered of concepts from ecology like interconnectivity, community, behavior and spatial organism. In the beginning, human ecology have presented in geography and society but also in biological ecology and zoology. However it is applying as ecological ideas to human in a rigorous way. It focused on humans' impacts on the biotic world, and realized the disastrous effects that humans' were having on the environment and called for human ecology. It has expanded by social scientist as a human ecology to include physical impacts on people. It has adapted social to biological as for human ecology. It emphasized that ecology of organisms is that human societies are organized on not only the biotic level as well as cultural level. It has emphasized local place-based planning such as "human ecological planning" made it human relationships with their environments. It takes consideration all layers of information from geology to botany to zoology to cultural history. They are respective disciplines geography, sociology, anthropology, psychology and economics, through in 1970s to 1980s. It has been beginning to call for a greater interaction between all of the scattered disciplines that have established

so kind of ecological thinking, multidisciplinary as well as slowly began to change as more inter-disciplinary programs institution and organization became centering the on human ecology. It has been emotional connecting from community as place, community of way of life, or community of collective action, eco-system, and system analysis.

- Spatial analysis, it has focused problems in relationship between human and their environments are physical.
- A gestalt perspective or holistic point of view and understanding of a system by looking at it as a whole.
- Mono-disciplinary at focused on one specific area.

The Cornell University (TCU) has addressed in New York USA as a college of human ecology focused on study around social topics or them such as design and technology, development and life courses and economics and social well-being. There is incorporating the social and natural sciences into these topics and emphasis on study as a human ecology, as well interaction between human and their environmental. We have need to; what are the present conflicts? How to address them? It has focused on human population and behavior through research lens applying ecology principle to their study (Wikipedia Encyclopedia, 2002).

Human and nature are inter-connected and have interrelationship studied by human ecology. The nature has interconnected with web of social interaction. It is a part of ecosystem not as actor having an effect on environment. The ecology, environments and biodiversity has direct relationship and interactions as organisms with each other. It is precious that how these interactions determine the distribution of both plants and animals their organisms and function as integrate in a holistic way. An organism has may be three provides the producer plants, consumers, animals and reducers micro-organism oriented their biophysical process. The plants have photosynthesis transpiration, animals micro organism, consumer decompose recycle both organism and inorganic materials.

The Human Ecology is considering ecological concepts principles theory and research methods studies of human population and resources relationships affect the adaptation of human population. This is determining local different in subsistence labor

allocation, technology reproductive behavior household livelihood behavior composition, structure community, social and political organization inter population relationship and other institution behavior norms and attitude.

The human ecology has occurred through the results from population growth, industrial development. So human ecology has the science of relationship and interactions between peoples and their environments. The environment has perceived ecosystem, areas, air soil, water living organism and physical structure, including everything built by human (Pradhan & Pradhan, 2005).

The human has part of ecosystems as well as human culture behavior and livelihood patterns part of the human ecology. So human environment has interacted as their human social systems way of living, population and psychology and social organization as shape there is a central attitudes in human ecology due to its impact on ecosystem influenced by society usually, human ecology as a significant and established as discipline. The anthropology has developed by this approach by anthropologists.

2.2.3 Political Ecology

It has defined the political ecology maintain rather that all legitimate forms of political ecology have some family resemblances but need not share a common core, It has considered about interaction between political and environmental variables and centered in eco-politics (Greenberg & Park, 2010).

Here, it has addressed by Marx the acceptance of value laden character of economics separates of the political from economics viewed as a purely scientific enterprise, their interest as likely to promote politics in its own favor. Other has political economy ever since. The political ecology is social science; it is developing consensus such as focusing on local cultural dynamics or international exchange relations, and that past and present relationship between policy, politics or political economy and environment need to be explicitly addressed. It has directly focused on relation power of environment and ecological analysis on different economic and production level. The Political has resource used by strategic material and natural that has called political ecology.

The political economy is denoting the hierarchical relationship in metropolis and satellite as well as dependency relation of the nation based on political strategy and economic flow to core nation from periphery.

The central point of the human ecology, it takes the social sciences about the relations between human societies viewed in its bio-cultural, political complexity and significance humanized nature. Political ecology has welcomed case studies from specialists in agriculture, land, tenure, health, development, international law, history and both physical and social science. Here political economy has such to link with political ecology as a distribution of power with productive activity and ecological analysis with its broader vision of bio-environmental relationships. The relationship between productive activity, human character and the environment is fluid and both historically and religiously specific, there are evidence its shows to idea of nature achieving a harmonious balances as climax forest or stable ecosystem (James and Park, 2010).

2.2.4 Environmental Determinism

It has argued that culture of state as religion determined by the environment. Here environment played the prime role in the origin, structure, formation, progress and change of their culture, religion and behaviors social norms and values. The environments role is driving to history of culture and derivation of culture

An environmentalist has believed that as environment originated to culture. Thus environment role is vital and supreme.

2.2.5 The Ecological Perspective

This perspective has postulated that there occurred a constant inter-relation and interaction between nature and nurture. This relation has been helping of mutual relation. It has provided to man and environment equation and reciprocity construction and precious role in there. It has argued a power struggle continues between culture and nurture, where as in other ways nature a perfect balance between these. In general relationship of mutuality, order by (give and take) exists between nature and natures to be in a balanced.

2.2.6 Environmental Possibilism

It postulates the culture is not determining totally by the environment but there are certain components in environment which help in cultural formation. The perspective of environmental determent became weak in 20th century which paved the way for environmental possibilism. Franz Boas the father of American ethnology is regarding as prominent supporter of environment possibilism and cultural relativism.

2.2.7 Actor Based Model

According to this perspective, the process of adaptation has occurred not at group level but at individual. Every creature has adapted with the environment for survival. This postulates that actor decision have been determined also vital for adaptation, which enables the actor to survival.

2.2.8 Ethno-ecological Model

This model's notion has that local people know more about local environment there as (IK) indigenous knowledge and traditional history. This approach has influenced by 'Emic' and 'Etic' approach, but should their Emic approach.

2.2.9 Cultural Ecology

Here, some anthropologist argued on concerns and influences of environment on culture (Steward, 1955). The postulated their first to advocate about study of cultural ecology the analysis of the relationship between cultures and its environments. Postulates notion has that Cultural core as cultures and environment related to livelihood and economic orders in their activity and environmental interaction. The monograph made by Julian steward about shosian tribal culture.

Vayda and Rappaport (1826-1997) Cultural ecologists such as have expressed system approach to native perspective and cognized environment. It has been incorporating principle of biological ecology into the study of cultural ecology in order to make a single science of ecology. He has noted that methodology have the human population interaction with environment, interaction is existing of the objective capability of exchange the information, culture, human is relating as the elements of the ecosystems as well as de-reflecting of culture, interactive ecosystem As animal ,

human, plants and abiotic. The population has analysis the units of eco-system and determined behavior.

Marvin Harris (1979) in his book recognized 'cultural materialism referred as struggle for a science of culture. The Cultural materialism has made as visible in his treatment of cultural determinism as well as everything of human beings his task and deed his working and thinking depend upon his cultural beliefs as well as ecological events. It seems that Rappaport is a ritual operator his fieldwork, unquestioned truth, religious sites of con-questioned truth of religious beliefs. He has unquestioned ultimate truth of religious traits and beliefs have major adaptive applicable and significance in human life and society.

Vayda (1968) has argued that cultures evolving. Culture unlike human populations and are not fed upon by predators, limited by food supplies, depilated by disease their biological ecology and its principles have their on place in the study of cultural ecology and that there should be a science of ecology. He argues that development of culture traits is affecting by environment. Vayda's environmental features carry of include other organism e.g. Disease, microorganism and as well as include other human group. American anthropologist Geertz, (1968) applied and explained through this concept the great demographic symbolic disparity that existed between Java-outer Islands of Indonesia. And Marvin Harris (1966) used it to study about India's sacred cattle in emic perspective (Ember & Ember, 2007).

2.3 The Review of Previous Studies

Bhandari, (2005) "The pollution of the Seti River in Pokhara and Anthropological study" studied about Precious of natural and cultural heritage of seti River and human dependent in culturally and its impacts of the pollution. This study has showed the local and poor people as the main agents who are responsible for polluting the Seti River. He have theorized Human Ecology such as human Ecology is the epistemological relating to seti River and natural resources and increasing pollution of the Seti River due to haphazard dumping of solid, wastes, garbage and local people, labor, construction contractors activities as well as due disposal of sewage drainage directly into these River.

Baral (2005) in his study concluded that “Impacts of conflict on Tourism Industry, A case study of Phewa Lakeside, Tourism Industry has back warded at least one decade since the number of tourist visiting in Nepal, here, it has related to cause and effect of problems occurred with Phewa Lakeside of Pokhara.

Blaikie (1985) the human activities are relating direct on Lake by the cultural and institutional or occupational norms and values. So, there is the political economy structuring the main social reason to degradation of the land as well as natural resources Bliakie (1985) it has been occurring in such a wide variety of social and ecological circumstances. Likewise, the population pressure useful exploratory power, explanation people by people. The numbers of central social issues in land degradation which received only economically apprising losses and different institutional arrangements for land management including common property, private property, institution and state fails to management the land resources. That’s why the reason to degradation of land as political economy exists well as on common resources.

Parajuli (2009), the Himalayan environment has been going to rapid pollution and deforestation. The deforestation has assailed with dramatic visions likewise Land sliding, large scale down streaming flooding, coupled with statements about uncontrolled population growth, increase poverty and malnutrition. These processes have physical, human, socio-cultural, socio-economic frequently linked in deforestation and environment hazard (Ives and Messerli, 1989). Environment and urbanization has closely interlinked and vice-versa. Each urban region has natural environment feature and man-made alternations that natural environment it may have produced environment hazards such as air, water pollution, noise, fires, floods and landslide. The human activities and cultural practices are most responsible to pollution and degrading the natural resource as well as common property resources

The sophisticated agro-economic techniques and indigenous agriculture, intensification practices farmers have been increased their economic growth with degrade the Phewa Lake. The poverty may be the cause of environmental degradation in some unspecified way. The population pressure on the inadequate natural resources base in driving a downward spiral toward increased to ruin the environmental and biodiversity as common resources regimes.

The human cultural practices are interacting with exploiting the nature that activities to degradation of the natural resources these has the main so-called modernization and urbanization has represented the activities also human cultural practice. It has impacted on degrade the natural resources. The policy maker, implicate and wise use and management as well other pressure on the resources on the human cultural practice. As well as the so-called development plan implication and construction technologies have caused to mass wasting, land sliding as well deposit of sedimentation and all land sliding and soil erosion and catastrophic is not natural disaster. Some deforestation has also called catastrophic increase in mass wasting surface erosion flooding and sediment deposition, Post 1950 (Ecokolm, 1970). The Mohonk Mountain conferences held on April 1986- in their emphasis myths and theory of the Himalayan environmental degradation basic assumption denote the degradation of the environment and highlight the issue as the subsistence farmer are not sole cause of the land sliding. There national policy is high responsible to degradation of the natural resources (Chipko movement 1976), this movement is the example to exploring the national policy to degradation and deforestation.

The Mohonk Mountain conferences (MMc) has denoted to the political economy, It has conflict with people and government with managed in own perception. The local people have sought to conserve the resources and preserve the local livelihood and their culture. So, it has been conflicting with local people and government.

In the name of environmental conservation or protection, various policies have implicated but Himalaya has been now facing the problem of the environmental degradation. The Mohonk Mountain conference (MMc) participants has high emphasized this program on Himalayan Mountain should be stopped and handed over to local native people so as to maintain Himalayan mountain ecology and their biodiversity.

It has been criticized and blamed by various reports as towards the Himalayan ecosystem degradation and native people as the internal factor for environmental degradation. The human beings have interacted to environment in various phases viz, in biological phase the human have concentrated only about now to survive in hunting and gathering stage their mode of production of subsistence direct relationship between human and environment.

The social phase in this phase human attains towards organization and food surplus with thorough the technology and mode of production. Individual phase in this phase man concentrate towards how to increase GDP,GNP per capita income etc through the exploitation of the natural resources.

According to the theory Socio-biology Wilson ,(1975), every kinds of animal as well as human beings have wanted to live and win every time and generation to generation and historically form the present time situation. That’s why the Human beings have wanted always to accumulate the resources and win their more capital for their struggle and aliveness of their gene. That’s why the human beings wants to accumulate the resource and win their activities are highly responsible for the degradation of the natural resource and common resource. It has mainly oriented who have power, technology and human resources and they have accumulated and exploited the common resources for their next incoming generation.

2.4 Conceptual Framework

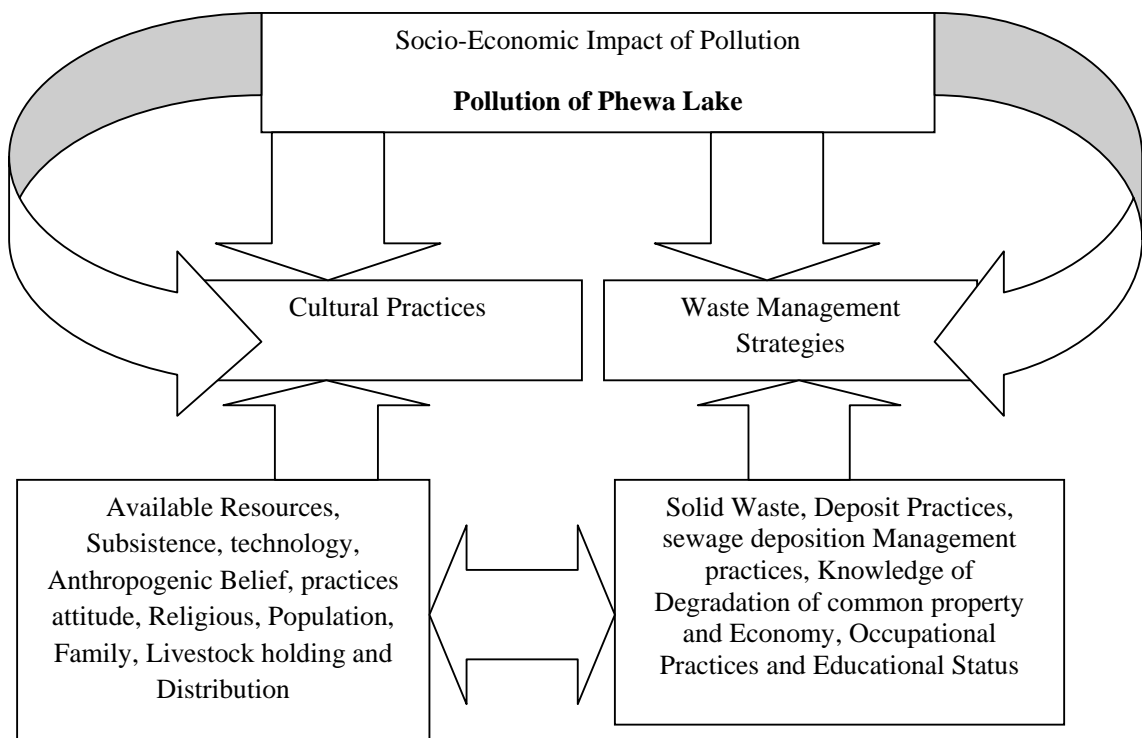


Figure No. 2.2: Conceptual Framework of the Study

In this research, it has raised in three different variables that are socio-economic impact, cultural practices and waste management practices in terms of pollution of Phewa Lake. Socio-economic activities like population composition, religious structure, family types, and sources of economy, occupational practices and educational practices are directly or indirectly impacted on the Phewa Lake. On the other hand culture is human mode of adaptation that is guided by specific environmental conditions. Culture, that is why, shared learned, achieved, adaptive and integrated behavior of individuals. No doubt there are cultures and the way of living is depending on the availability of resources. In the above figure, the main resource of respondents is Phewa Lake. On the basis of usable technologies, they are adopting different cultural activities according to the available resource. But such kind of cultural practices are impacted the quality of environmental and even effect the whole ecosystem. The divers' adoptive strategies are affecting the available natural resources. In this study, Lake Phewa is one of the Precious natural resource around the community. They are depending on such resource from ancient past. But they are less responsible to improve the condition and quality of such resource. They only harvest form it but never think to manage such resource. During the cultural practices and subsistence pattern, the waste management practices are importance for the communal resource management. In the Phewa Lake, form the diverse cultural societies or communities, the source of wastes are also different and management strategies are also diverse. The involvement of waste collection and involvement of waste management committee ultimately helps to manage waste from it.

Tragedy of the common doctrine released that freedom in a common brings ruin to all; common use by all that resources have be destroyed. The common resource is overexploiting by intensive or modern tools and technology as well as cultural practices. Likewise, it is the pressure and unwise implication of the natural resources of the Phewa Lake.

CHAPTER THREE

RESEARCH METHODOLOGY

A research is to investigate reality and establish a theory about empirical observation. 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, it 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. This chapter has clarified the methodological approaches applied and put forward a description on how information have collect and analyze.

3.1 Study Site and Rationale of Selection of Study Site

Phewa Lake is site of this research study. It is assumed that the cultural practices are the main causes of overharvesting of Phewa Lake. The activities of overharvesting or tragedy of common is one of the causes of pollution of Phewa Lake. To study under the research questions and objectives, the researcher investigated the primary data around the Phewa Lake. The respondents of the study were the stakeholders of the Phewa Lake. But especially attention was given to the respondents who were totally depending on Phewa Lake. The Kaski administrative district of Pokhara sub-metropolitan city ward no 6 as well as Sarankot Khapaudi ward no 26 have been selected which are in the side of Phewa Lake.

3.2 Research Design

The research design is setting of plan, structure and strategy of the investigation to conceive so as to obtain answer, research questioned. It's valuable in research. Anthropological study has been adopting in this study analyzing attitude using of Lake as well common property. It has been exploring the anthropogenic value, livelihood, cultural, symbolic and religious values as well as endangering of common property of Lake.

These studies have adopted both descriptive as well as analytical research design. Under the descriptive design, the researcher describe about the cultural practices and pollution of Phewa Lake. While under the analytical design, the researcher analyzes the socio-economic impact of polluting of Phewa Lake.

3.3 Nature and Sources of Data

Primary as well as secondary data were used in this study. Secondary data 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 field data.

The priority was given to collect the primary data. The collected data was qualitative and quantitative.

Primary data were collected by household survey, interview, questionnaire schedule, observation etc.

3.4 Population and Sample

A better tool and method of sampling can provide more validity reliability and legitimacy to the research finding. This study has based household from Baidam, Hallanchok to Khapaudi related to Phewa Lake. These places have located at Kaski administrative district of Pokhara sub-metropolitan city ward no 6 as well as Sarankot Khapaudi ward no. 26. The total population numbers of households are 2604 households as universe of the study. It has categories them on the basis of place i.e. Lakeside, Hallanchock, khapaudi, Gaurighat, for the representative sample, it has selected 20 respondents from each place using the purposive and quota random sampling. The total numbers of respondents were 80.

3.5 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.

3.5.1 Household Survey

In order to get the desired data and information on the stakeholders, all of the 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. At the end of the process, the researcher has engaged to identify about the cultural practices and its impact of pollution of Phewa Lake.

3.5.2 Interview Schedule

This technique has main tool for collection of primary data for the study it has helped to gathers require and essential data. It has taken door to door and face to face interview organized on local people and stakeholder

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

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.

3.5.4 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. 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 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. Likewise, most importantly, efforts have been made to interpret data as anthropologically as possible

CHAPTER FOUR

SOCIO-ECONOMIC BACKGROUND AND STATUS OF RESPONDENTS

The main aim of this chapter is to know or analyze the socio-economic impact of pollution of Phewa Lake. The chapter further analyzes the relationship between socio-economic condition of the respondents and its impact on Phewa Lake. For that the researcher has categorized various sub-headings to know about the socio-economic impact of pollution. Firstly, physical settings of the study area have been explained in detail. Secondly, different sub-headings were categories on the basis of research objectives like population composition, religious structures, family types, livestock holdings, major sources of economy, occupational practices and educational status of respondents were explained in detail. The emphasis has been given to why those components are directly or indirectly impact on the quality of Phewa Lake.

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 km² (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 Population Composition of the Respondents

Population composition refers to the demographic makeup of persons within a geographic area. The scattered settlement from different area around Phewa Lake, different community shows that the population of community has been increasing day by day . Most of females and males are involved in different activities. The following table 4.1 shows the population composition of those communities.

Table 4.1 Population Composition of Different Places

Places	Household Number	Total Population		Total
		Male	Female	
Lakeside	20	78	46	124
Hallanchok	20	63	86	149
Gaurighat	20	59	52	111
Khapaudi	20	98	87	185
Total	80	298	271	569

Source: Field Survey, 2014.

The table 4.1 shows that the total number of population consists in different selected area 569. The table shows the population is different areas Lakeside, while the composition shows that according to a different are is differ. Lakeside, one of the renowned tourist areas of Pokhara, Kaski, Nepal shows that, among the sampled 80 households selected 76 males and 46 females are altogether in the Lakeside. While 63 males and 86 females in Halanchok, 59 male and 52 female in Gaurighat and 98 males and 87 females in Khapaudi are the sub total number of population live in the area. Except Halanchok, the number of male than female is higher population. It

shows that the greater number of male represent the economic source of family than less number of female. It can conclude from the above table, the higher population or increasing population is always infected or degrade the open natural resources i.e. Phewa Lake. Because of the number of population, according to Malthus (1786), the geometrically increased population cannot carry the arithmetic increased resources.

4.3 Religious Background of the Respondents

Durkheim, (1912) argued 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 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

Here the researcher has categories or classified their religious structure on the basis of their belief. The table 4.2 shows the religious structure of the respondents and their family.

Table 4.2 Religious Structure

Population in 2014		
Religion	Population	Percentage
Hindu	463	81.37
Christian	50	8.79
Buddhist	56	9.84
Total	569	100

Source: Field Survey, 2014.

The above table explores that the religious structure of different family members live in different area of Phewa Lakewhich is complex and diverse with 81 percent of

population following Hinduism while 10 percent of the total population following Buddhism and rest of the population 9 percent of the population following Christinity. According to the different value and philosophy of different religious practices, Hindus try to worship the Lake water as a water goad, and worship the middle formed temple, Barahi in different ceremony by different fruits and flowers which can easily infected the purity of water in Phewa Lake. Likewise, Buddhist also worships the collective god by showing religious tolerance. This activity can help to degrade the purity of Phewa Lake.

4.4 Family Structure of the Respondents

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 enduring 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.

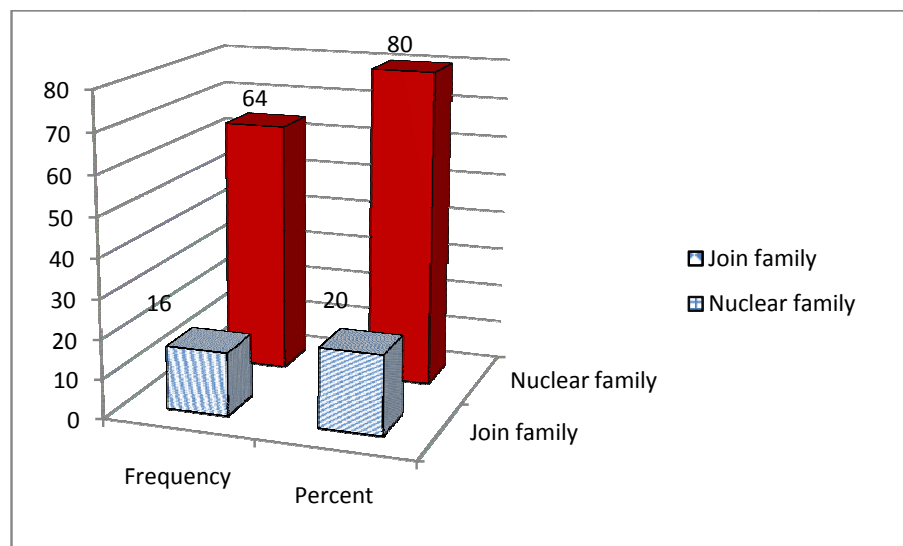


Figure 4.1: Distributions of Respondents by Family Type

From figure 4.1, we discern that 80 percent of families were of nuclear type. While 20 percent are the joint families. The collected data shows that, the joint types of family

is relatively higher in the area of Khapaudi than the another area of data collection. The cause of increasing nuclear family, according to the field survey, the early form of marriage and economically independent individuals having own business, foreign employment, job in different places and involvement of tourism can increase the number of such family.

4.5 Livestock Holding Condition of the Respondents

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. Live stocks are a precious 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).

Livestock contribute to human nutrition – particularly in areas where malnutrition is common –through their products (i. e. meat, milk, products and ages), which in turn provide high quality nutrients and micronutrients (e.g. Protein, vitamins and trace elements).

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).Domestication of livestock is the part of culture that plays significant role to determine the condition of nature. These animals are domesticated animal for subsistence use. Most of them are freely moved near and around Phewa Lake some of the respondents lie buffaloes and cow at home.

Table 4.3 Livestock Holdings, Types and Distribution

Particulars	Study area: Hallanchok	Study area:Gaurighat	Study area: Lakeside	Study area: Khapaudi	Total	Grazing in open area
	Number	Number	Number	Number		
Livestock types						
Buffalo	36	25	12	22	95	52
Goat	41	21	14	28	104	-
Hen	124	68	45	352	489	315
Duck	236	251	110	269	866	866
Cow	39	16	9	18	82	51

Source: Field Survey, 2014.

The table 4.4 shows that people in the study area were found to be involved in domestication few number of buffaloes cows and goats were domesticated Ducks are also kept by some people.

In the studied areas, the majority of people are found to be involved in traditional occupation. All of the community site, the household did not rear buffalo and goat because of low land capacity of them and involvement in tourism. The main sources of economy are seen; according to the field survey is tourism. Except tourism, another sources of economy is domestic animals like Duck, Hen somewhere Goat and Cow. This livestock types and distribution further shows that, among the total number 95 of buffalo, 52 are graze in open area. In the context of Duck and Hen, the total number, 866 (Duck) and 315 (Hen) are totally depending on open area and shore of the Lake. The main fodder and grazing land of domestic animal, Cow, is also grazing in open area around the Phewa Lake.

4.6 Major Sources of Economy of the Respondents

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.

Table 4.4 Statement of Family Income

Source of income	Places				Total
	Lakeside	Hallanchok	Gaurighat	Khapaudi	
Fishing only	-	2	1	13	14
Driver	2	1	-	-	3
Service/job with fishing	1	2	-	-	3
Business (Hotel and Restaurant)	14	13	15	2	44
Bushiness except hotel and restaurant (Laundry)	3	3	3	3	12
Boating	-	1	1	2	4
Total	20	20	20	20	80

Source: Field Survey, 2014.

The family can have different sources of economy based on the quality of individuals, available resources and usable technology. According to the Julian Steward (1955)

and Lesley White, the Techno-environmental model for the subsistence or sources of economic is the cultural activities which can be the economic sources. According to the above table, among the total respondents 80, the main source of economy is business (Hotel and Restaurant). While the rest of the 14 household or respondents, responses that their main source of economy is fishing in Phewa Lake. Because of the tourist area, another main source of economy is related business (except hotel and restaurant). Rest of the households' main economic sources is boating (4 household), Driver (3 household) and job (3 household). This shows the greater numbers of respondents are depending on their subsistence on Phewa Lake.

4.7 Occupational Practices of Respondents

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 link to the work of 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 a precious factor defining a person's prestige, class position, and style of life (Dictionary of Sociology, 1999).

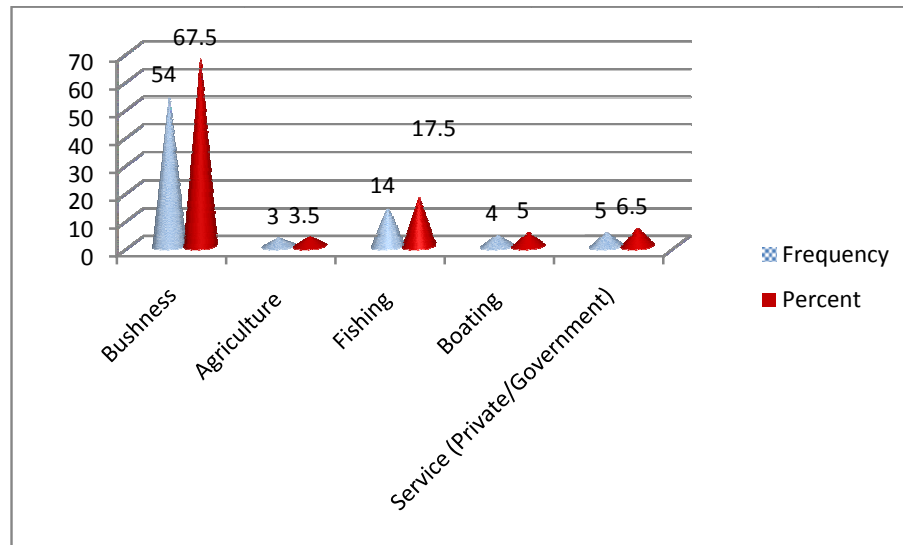


Figure 4.2: Major Occupations of the Respondents

About 67.5 percent respondents are found engaged in business as the major source of income. While 17.5 percent of the total population, is engaged in fishing. Only 6.5 percent in Services, 5 percent boating and 3.5 percent are engaged in agricultural activities. Such scattered or diverse source of income according to the different places shows that, there are various ecological and environmental settings and various opportunities in the areas.

4.8 Socio-cultural Composition the Respondents

Nepal has co-operated the higher numbers of caste, ethnicity as melting pot as well as cultural heritage. So Nepal is interconnecting unique culture, tradition and respects each other in this way as the Pokhara shows also adventure, unique, and various colorful caste and cultural groups and heritage. This composition has nexus as a Newar, Gurung, Magar, Sarki, Kami, Damai, Brahamin, Chhetri and bote (Jalari) so on. They are living together in the Pokhara valley as well. Cultural heritage has become a comprehensive concept that includes all traditions beliefs, ideas, norms values, unique places, shrines monuments. Socio-cultural heritage is relating the identity and caste behavior of local people as well as nation.

These people have their own religious goddess. There are Hindus, Buddhist, Muslims and Christians and other related religious people in the valley however no contradiction is found among there for sake of religious. There are regarding to each

others, and respecting as well. It has unique part of the valley as the western development of Nepal has rich of ethnic color group. Again the Pokhara is melting pot of the various ethnic groups' composition. Pokhara valley has unique cultural dress, style, it has celebrated for harmony, unity in divers cultural people, likewise , there is diversity in the traditional norms, values, religious, caste, ethnicity, language, custom, lifestyle as well as Mongo-lied and Aryan, of their people, however, always unity and harmony in protecting and regarding the each other.

4.9 Educational Status of Respondents

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. 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 is 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 community.

Table 4.5 Educational Status of Respondents

Sex	Illiterate (%)	Literacy						Total
		Up to SLC	+2/IA	BA	MA	Above MA	Total Literate	
Male	8	24	19	15	4	1	63	71
Female	3	4	1	1	-	-	6	9
Total	11	28	20	16	4	1	69	80

Source: Field Survey, 2014.

The above table shows the educational status of the respondents. Among the total respondents, the researcher has categorized them in two different broad categories i.e. literate and illiterate. Among the total number of male literate 63, the greater number of respondents, 24 are below SLC, while 19 are + 2 or intermediate level and 15 are BA, 4 are MA and one the respondent is above MA. It shows that the respondents are well educated and literate in the area. On the other hand among the 9 females respondents 6 are literate and rest of 3 are illiterate. This educational composition shows that the quality and the adoptive strategy are different according to their educational status.

CHAPTER FIVE

CULTURAL ACTIVITIES INTERMS OF UTILIZATION OF PHEWA LAKE

This chapter is to know about how cultural activities that are effect on pollution of Phewa Lake. It is believed that the cultural activities that always depended on the ecology. A central tenant of ecological anthropology however, is that relations between humans and their environments are mediated by culture. Culture is human mode of adaptation that is guided by specific environmental conditions. Culture is that complex whole which includes knowledge, belief, arts, moral and any other capabilities and habits acquired by men as a member of society (Tylor, 1877). Culture, that is why, shared learned, achieved, adaptive and integrated behavior of individuals (Ember & Ember, 2008). No doubt there are cultures and the way of living is depending on the availability of resources. Based on those theoretical assumptions of cultural ecology, the researcher also divided this chapter on various sub headings. To know about the relation between variables, the researcher has tried to explain or analyze different available natural resources around community, importance of Phewa Lake for their subsistence, usable technologies, value of Phewa Lake, religious Precious and utilization of Phewa Lake, and adoptive strategies with available environmental condition were explained detailed in this chapter.

5.1 Available Natural Resources around Them

Culture is always depending on usable technology and energy. But it is not enough for the culture because of its adopted; the culture is also depending on the available natural resources. Different community and societies have different cultural practices that are always depending on available natural resource around them. Like this, the table below describe about the available natural resources around different community. Here the researcher has identified different available natural resources on the basis of respondents' views and their easy access and assess around them, which has been taken form interview schedule conducted in field study.

Table 5.1 Available Resources around Them

Available Natural Resources	Frequency	Percentage
Phewa Lake	76	95
Land	1	1.25
Jungle	2	2.5
Rivers	1	1.25
Total	80	100

Source: Field Survey, 2014.

The table shows the available resources around the community. The foremost natural resources around the community are Phewa Lake, Land resources, Jungle resources, Rivers. Among the total respondents, 95 percentages are mobilizing and utilizing Phewa Lake as available natural resource around them. They are directly or indirectly utilizing this resource for their subsistence. Another data shows from above table is that, just 2.5 percent respondents are utilizing Jungle resource, 1.25 percent of respondents are using land and River resources. Overall this data shows that, the communities are infected and influence to the Phewa Lake directly or indirectly.

5.2 Importance of Phewa Lake for their Subsistence of the Respondents

There are diverse uses of water for human survival. The main objective of this data is to identify how those communities are impacted by Phewa Lake. The researcher has categories these on different views like positively, negatively and neutrally. The communities, most of respondents are positively infected by the Phewa Lake. According to them, they are directly or indirectly affected by it. The table 5.2 shows the detail information about the importance of Phewa Lake for their subsistence.

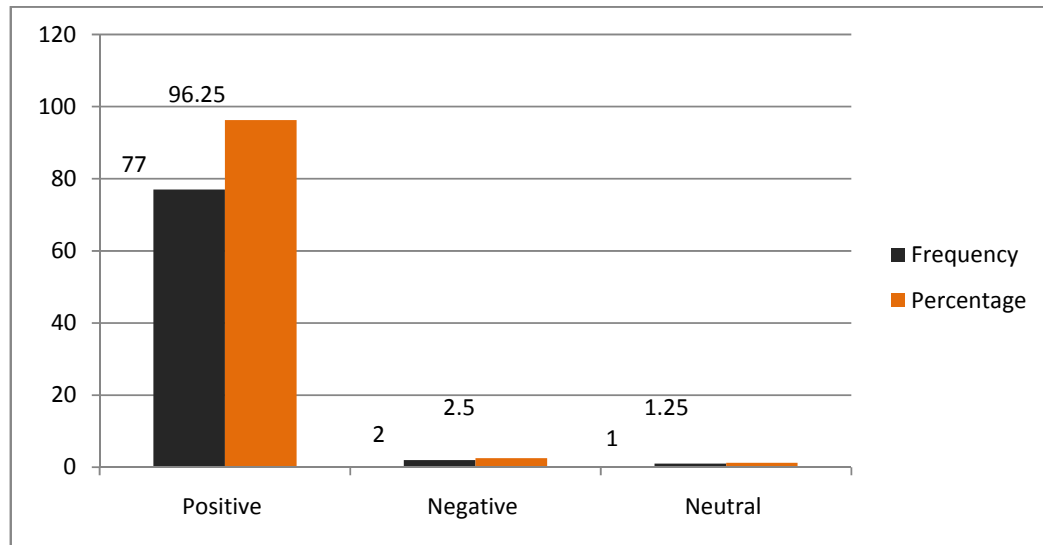


Figure 5.1 Importance of Phewa Lake for their Subsistence

Diagrammatically this figure shows that about 96.25 percent of respondents are positively impacted by the Phewa Lake. The rest of respondents, 2.5 percent negatively and 1.25 percentage are naturally impacted through this resource. It is easy to analysis about the above figure; the surrounded stakeholders are positively infected by the Lake resources.

5.3 Usable Technology for Subsistence on Respondents

Technology is one of the means of making culture. It always effects the human adaptation on environment. The modern technology is always preferable but it is believed that such technologies can affect the virginity of environment. Believing on Darwin theory (1859), struggle for existence and survival of the fittest, and the communities also adapting modern technologies for their survival. On the other hand, some communities, around the Lake Phewa, are still using traditional techniques for their survival. The table below, about the usable or adaptive technologies of those communities for their survival is explained in detail.

Table 5.2 Usable Technology for Subsistence on Respondents

Technologies	Frequency	Percentage
Traditional Techniques of fishing	4	5
Modern Techniques of fishing	16	20
Boat	4	5
Modern cooking Stove in Hotel and Restaurants	44	55
Electric Machine	12	15
Total	80	100

Source: Field Survey, 2014.

The table shows the usable technology for their subsistence. From the above table, we can see that, among the total respondents 55 percent are using modern cooking stove in hotel and restaurant to continue their business. Analyzing this data, the total amount of subsistence among the respondents who are establishing different hotels and restaurants are using modern cooking stoves. Behind it, fishing is another source of economy and subsistence strategy of the few respondents that 20 percentages among total one, are also applying the modern techniques for the better fishing. Likewise, 15 percent of the respondents are using electric machine for their subsistence. While, among the total respondents, 5 percent are using traditional techniques for fishing like hooking, small net and fishing by boat.

5.4 Attitude of Respondents on Anthropogenic Value of Phewa Lake

There are different values of water in human life. On the sacred part of human life, according to Durkheim (1912), water is one of the Precious human parts. Religiously, water is one of the forms of goddess that can help in difficult situation. Barahi temple, one of the goddess situated on middle of the Lake, take a significant role to conserve the purity of Phewa Lake. In the modern age, not only religiously it is precious but it is economically and ecologically. To know about the value of Phewa Lake, the researcher has prepared close ended question for the respondents providing three different values like economic, ecological, and religious. The table below explains the detailed information of value of Phewa Lake according to the respondents.

Table 5.3 Attitude of Respondents on Anthropogenic Value of Phewa Lake

Value of Phewa Lake	Frequency	Percentage
Economic Value	48	60
Religious /Cultural	28	35
Ecological/ Environmental Value	4	5
Total	80	100

Source: Field Survey, 2014.

Analyzing the above table, it is clear that the value of Phewa Lake is different in religious or cultural, economic value and ecological value. About the researcher's questions, the respondents are highly (60%) emphasized on economic value. They are economically dependent on over Phewa Lake. According to these people are applying Phewa Lake economic perspective rather than religious and ecologically value. But 35 percent of the respondents show their interest to addressing that the value of Phewa Lake is not only economic but also religious. They regularly use to bath in this Lake and even they worship regularly to the Barahai temple. While 5 percent of the respondents are strongly stresses that, the value of Lake is to continue the ecological ecosystem. It is analyzed after the respondent's opinion from the above table, the purpose or value of Lake is different according to the users.

5.5 Religious Precious and Utilization of Phewa Lake on Respondents

Among the various precious of Pake Phewa Lake, religious precious is one. To know about the religious Precious about the Lake Phewa Lake, the researcher has categories different variable like worshipping for water god, management of culture, bathing, and worshipping in temple. Worshipping for water god, in the Lake Phewa is one of the means of worshipping goddess. By worshipping, they offer different religious objects to the goddess in the water. Like that, bathing is another process of making goddess happy that can also make water pollution. It means, by different human activities, the pollution of Lake Phewa is increasing day by day.

Table 5.4 Religious Precious and Utilization of Phewa Lake on Respondents

Religious Important	Frequency	Percentage
Worshiping in Temple	49	61.25
Worshiping for Water God	14	17.5
Bathing	12	15
Management of Cultural	5	6.25
Total	80	100

Source: Field Survey, 2014.

According to the different purpose of using Phewa Lake, one of the precious purposes is religious. About the response of the respondents, according to the religious impact and utilization of Phewa Lake, 61.25 percent is worship in the middle placed temple while 17.5 percent is worshipping for water god. And 15 percent focuses on bathing is one of the precious religious activities during different days. Rest of 6.25 percent, emphasizes that management of culture is one of the religious activities in Lake Phewa.

5.6 Adoptive Strategy of Respondents

'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. The stakeholders of the Phewa Lakealso have different adoptive stratigies like hotel and restaurant, boating, fishing, domestication of animals and caged fish. The table given bellow tries to explain about the adoptive stratigies of the communities.

Table 5.5 Adoptive Strategy of Respondents

Adoptive Strategies		Frequency	Percentage
Tourism	Hotel and Restaurant	44	55
	Boating	4	5
	Fish Farming out of Phewa Lake	2	2.5
Non-Tourism	Cage Fish/Open Fishery	22	27.5
	Domestication of Animals	8	10
Total		80	100

Source: Field Survey, 2014.

According to the table, there are mainly two adoptive strategies of the respondents around the Phewa Lake. Under the tourism, hotel and restaurant, boating, and fish farming out of Phewa Lake are precious adoptive strategies of the respondents. While, under non-tourism, domestication of animals and caged and open fishery is also remaining adoptive strategies. Among both, 55 percent are adopting hotel and restaurant as their adoptive strategies in this area where as 25.5 percent respondents are engaging on cage and open fishery as an adoptive mechanism around the available resources. Here, 10 percent respondents are engaging in domestication of animal especially ducks and hens around the resource. Another precious adoptive strategy is boating. Among the total respondents, 5 percent is engaged in boating while 2.5 percent of the respondents even are engaging in fish farming out of Phewa Lake.

CHAPTER SIX

WASTE MANAGEMENT PRACTICE AND ITS IMPACT ON PHEWA LAKE

Solid waste management is a growing issue that has caused environmental pollution especially in urban localities of Nepal. Unmanaged solid waste disposal is one of the main causes of environmental degradation and increasing health problems. Rapid urbanization, population growth, and attitude and behavior of the people are another cause of effecting on ecosystem. Changing consumption patterns, breakdown in the traditional systems and lack of innovative integrated solution in managing waste have contributed largely to the environmental problem and pollution of Phewa Lake.

The main aim objective of this chapter is to explain and describe about the waste management practices of Phewa stakeholders and its impact on Phewa Lake. To explore about it, the researcher has categories this chapters in different sub headings like major sources of solid waste, waste deposit strategies and practices, management of personal dhal, purpose-wise usefulness of Phewa Lake, involvement of waste collection, types of involvement, involvement in Phewa management committee, perception of common property management, knowledge of degradation of common property, and general causes of Phewa Lake pollution.

6.1 Major Source of Solid Waste of the Respondents

The waste can be deposited by adopting different places waste of hotel, dust of home, plastic bottle and bags, waste related to infrastructural development, waste related to fish farming, religious/cultural wastages. The waste is deposited detail from the following table.

Table 6.1 Major Source of Solid Waste of the Respondents

Sources of Solid Waste	Frequency	Percentage
Waste of Hotel	44	55
Dust of Home	4	5
Plastic Bottle and Bags	9	11.25
Waste related to infrastructural development	7	8.75
Waste related to fish farming	14	17.5
Religious/ Cultural Wastages	2	2.5
Total	80	100

Source: Field Survey, 2014.

According to the above table, the main source of solid waste is waste of hotel. Among the total respondents 55 percent are accepted that the main source of solid waste is waste of hotels. 17.5 percent respondent response that the sources of solid waste are waste related to fish farming. Because of tourist area, 11.25 percent are emphasis on plastic bottle and bags are the main sources of pollution while 8 percent respondents are emphasis on waste related to infrastructural development is the prime cause of pollution in the area. They further stress that, the waste of repairing road, waste of building houses are the main cause of solid waste in this area. Among the total respondents, 5 percent see the main cause of pollution is house related dusts. And few 2.5 percent show that religious and cultural wastages are the main causes of solid waste in this area. They also further say that because of old tradition about the value of Lake and temple, most of religious persons are the main cause of Lake pollution.

6.2 Waste Deposit Strategies and Practices of the Respondents

The waste can be deposited by adopting different strategies. It can be deposited by the personal effort, self-burn, through in common place, make it reusable and use municipality vehicles. It is easy to say that waste can be deposited by different human activities and practices. In the context of Phewa Lake stakeholders, according to the place, implies different methods to deposit solid waste. The table below explains about the different activities of individuals in terms of waste deposit strategies and practices.

Table 6.2 Waste Deposit Strategies and Practices

Deposit Strategies	Places				Total
	Khapaudi	Lakeside	Halanchok	Gaurighat	
Use Municipality Vehicles	-	11	13	9	33
Self-Burn	4	2	1	2	9
Through in Phewa Lake	14	5	4	6	29
Manage for Further Use	2	2	2	3	9
Total	20	20	20	20	80

Source: Field Survey, 2014.

Among the total 80 respondents from different places, 33 are use municipality vehicles for the waste management while 29 respondents through their waste in Phewa Lake. Rests of 9 are managing individually and rest 9 respondents manage such kinds of waste for further use. The above table also shows that, among the total respondents of Khapaudi area, 14 are using Phewa Lake as a waste deposit spot or place. It can easily assume that the main cause of being pollution of Phewa Lake is deposit of waste by the community and concerned member around the Lake.

6.3 Management of Personal Dhal (Safety tank) of the Respondents

Among the different solid waste, safety tank is one of the source of solid waste among the human community. To know about the waste management practices among the respondents, the researcher has tried to know about the personal dhal or safety tank management practices of respondents. The management of safety tank is different according to time. During past or primitive society, the waste of tank easily through in common place like River, Lake, open space and small drain. But in the modern age, safety tank manage individually or house wisely. The figure below show the safety tank management practices among the respondents.

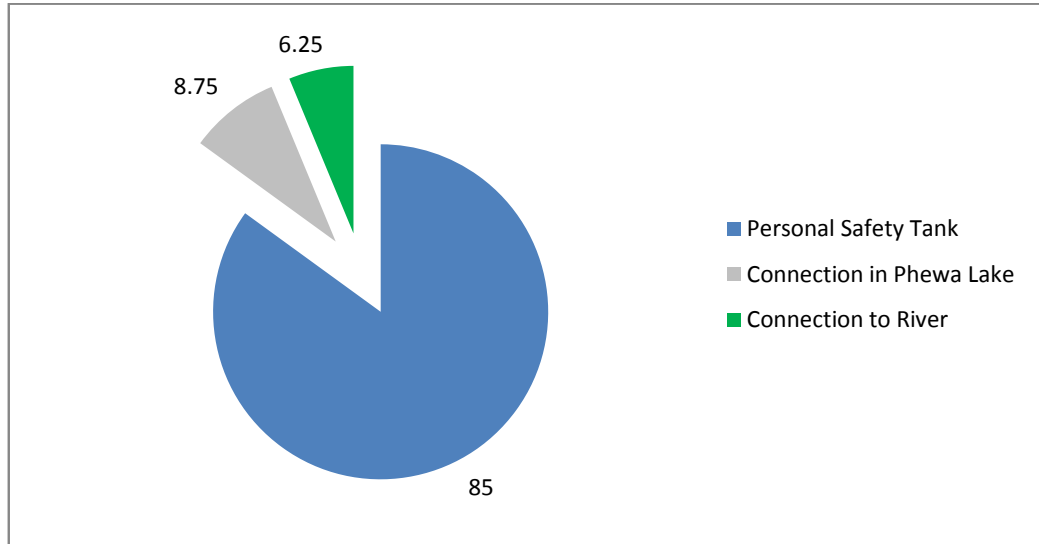


Figure 6.1 Management of Personal Dhal (Safety tank)

About the management of personal dhal or safety tank, according to the above figure, among the total respondents, 85 percent are managing their safety tank individually i.e. personal tank in their own houses. While 8.75 percent are connecting their tank in to Phewa Lake and rest of them, 6.25 are connecting their tank in nearest River or small stream. It is also shows that another cause of polluting Phewa Lake is to management of personal dhal in the place.

6.4 Purpose-wise Usefulness of Phewa Lake on Respondents

There are different purposes of Phewa Lake. It always affect by the adopted culture. In general, the different activities that an individual following for their survival is culture. According to the cultural practices, the purpose of Phewa Lake is different. On the basis of adoptive cultural practices, the researcher has categories it on different purpose like open fishing, boating, cage fish and sanitation and drinking. It can easily explain that, the respondents who are adopting different activities on Phewa Lake have diverse cultural practices. The table below explains that the purpose-wise usefulness of Phewa Lake.

Table 6.3 Purpose-wise Usefulness of Phewa Lake

Usefulness of Phewa Lake	Frequency	Percentage
Open Fishing	2	2.5
Boating	4	5
Cage Fish	23	28.75
Sanitation and Drinking	51	63.75
Total	80	100

Source: Field Survey, 2014.

Table above depicts that in the purpose-wise usefulness of Phewa Lake. The main or prime uses of Phewa Lake are sanitation and drinking water. About the 63.75 percent of the respondents response that the because of pollution of water, they usually use as a sanitation work and drinking purpose of domesticated animals. The main occupation of Jalari community is cage fish; they are using this resource for the cage fish. Boating and fishing openly are another purpose of Phewa Lake. 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.

6.5 Involvement of Waste Collection of Respondents

Waste can be managed by different activities and practices. Personal involvement is one of the importance strategies for solid waste management. Individual can be implemented as a key responsive for waste collection around community. Communal waste can manage individually or communally. According to the collected data, about the waste collection in Phewa Lake, their involvement is different like strongly involved, partially involved and not involved. Further, the following table shows the number of involvement of waste collection in Phewa Lake.

Table 6.4 Involvement of Waste Collection

Involvement of Waste Collection	Frequency	Percentage
Actively Involved	34	42.5
Partially Involved	18	22.5
Not Involved	28	35
Total	80	100

Source: Field Survey, 2014.

Pollution around the human community is universal fact that should manage communally. The table shows one of the total respondents, 42.5 percent are totally or actively involved in the management process while 35 percent are not interested or not involved in such process. Rest of them, 22.5 percent are partially involved in the management practice. It shows that there is no individual responsibility to manage the waste around the Lake Phewa and community.

6.6 Types of Involvement for Waste Collection of Respondents

Individual can be implemented or played different roles for involvement of waste collection. Individual effort can be played the crucial role for the management of common propriety resources. But the types of involvement can differ according to situations. Here, in the context of Phewa Lake, there are especially two roles for the waste collection. The table below explains about those different involvement practices in the waste management.

Table 6.5 Types of Involvement for Waste Collection of Respondents

Types of Involvement						Total
Personal /Physical involvement			Donation/Psychologically Involvement			
Daily involvement	Weekly Involvement	Monthly involvement	By Local Institutions	By Organization	By Government	
-	2	9	23	5	13	52

Source: Field Survey, 2014.

The involvement practices are categorized in two different ways that are personal or physical effort and donation or psychological involvement or effort. Under personal involvement there is no daily involvement practice by the respondents while they are involved weekly and monthly. On the other hand, under the psychological or do

national involvement, they provide some amount to the local institutions, organizations and governmental effort for the waste collection. According to the above table, they are interested to provide money rather than personal involvement for the waste collection.

6.7 Involvement of Phewa Management Committee

Among the different mechanism of sustainable utilization and management practices of common property, management committee can play the key role for management of common property resources. Common property can manage communally. Basis on the philosophy, the individuals who are interested to management communal resource can involve in the management committee. The responsibility and role can different who are responsible for the management of common property. But on the other hand, who are not involve in the communal committee, those role and responsibility can different than other but they can also involve in the management practices.

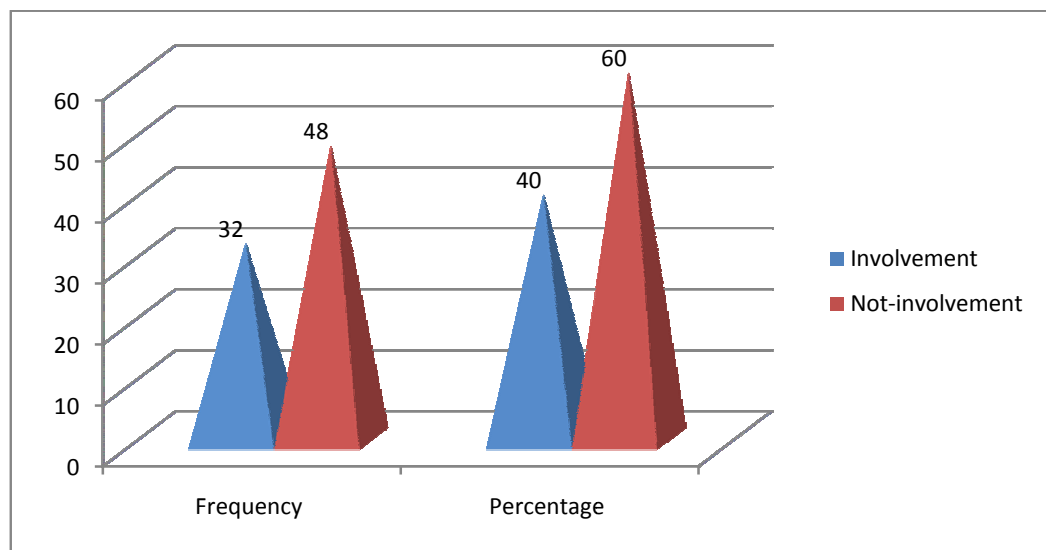


Figure 6.2 Involvement of Phewa Management Committee

According to the above figure, out of total respondents, 60 percent are not involving in the Phewa Lake management committee while rest of them, 40 percent only are involved in this committee. It shows that they are less responsible to management of Phewa Lake while they are directly or indirectly involved to harvest the benefit from it.

6.8 Perception of Common Property Management of Respondents

There are diverse perceptions on the common property management. According to Hardin (1968), on the one hand, it can be ruined by the individual selfishness over common property. But on the other hand, Andelson (1991), stressed on it can be managed by personal or communal effort. To know about the perception about the common property management, the researcher has categories different perception for the management of common property. On the basis of Andelson, common property can be managed by different practices like management individually, communally, locally and making state policies. The bellow table emphasis on the different perception of respondents that response for the common property management.

Table 6.6 Perception of Common Property Management of Respondents

Perception	Frequency	Percentage
Management Individually	12	15
Communally Management	23	28.75
Locally Management	31	38.75
State Management	14	17.5
Total	80	100

Source: Field Survey, 2014.

About the researcher interest to know about the perception of common property management strategy, 38.75 percent of the respondents' response that, local management is the best strategy for the common property management. While 28.75 percent emphasize. Communal management is one of the best strategies of the common property management. About the 17.5 present focus on, such kinds of common property should manage by the state while 15 percent are sought management individually. The diverse perception, according to the table depict that the stakeholders are not clearly make the management strategies for management of common property.

6.9 Knowledge of Degradation of Common Property of Respondents

No doubt every resource is degradable. But the degradable resource can manage by adopting different strategies. But the general knowledge is that, the resources which freely provided by the nature is never degraded. For the adaptation process of the community and society, the common property is degrading day by day . But there is no common knowledge that common property can be destroyed or degraded. In the context of Phewa Lake, the stakeholders, reporting that, they are neither strongly emphasis on not degraded nor emphasis on can be degraded. The figure can clearly analyze about the knowledge of common property resources in terms of its degradation.

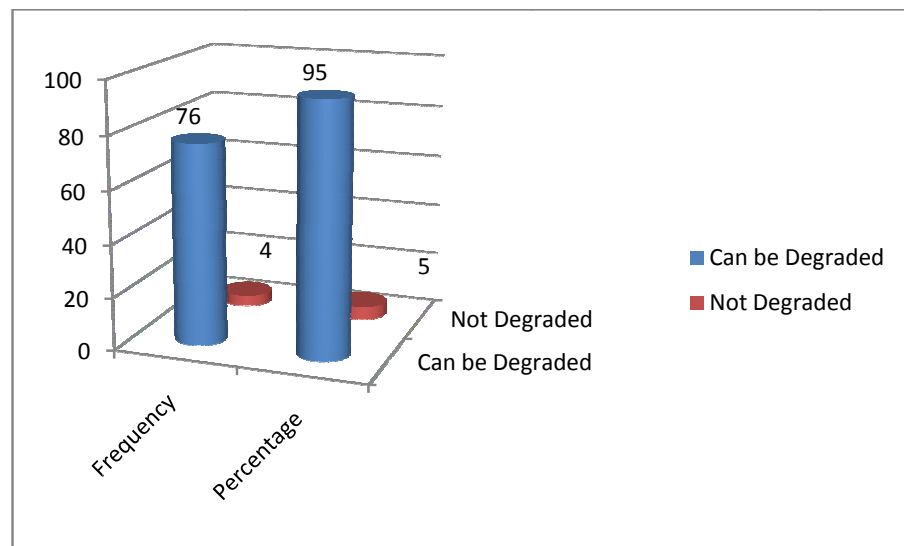


Figure 6.3 Knowledge of Degradation of Common Property of Respondents

About the perception of knowledge of degradation of common property, according to the above figure, 95 percent are agree with common property can be degraded while 5 percent are strongly emphasis on; such property cannot degraded by the communal activities.

6.10 Views over the Causes of Phewa Lake Pollution of Respondents

Human activities and natural activities are the main sources of pollution on natural resources. Under the human activities, there are different causes can play the vital role

for pollution. Cultural activities are one of the prime causes of being pollution. On the other hand, physical or natural causes like flood, landslide, earthquake, and another natural disaster can affect the natural resources. Here the researcher tries to know about the perception of respondents for the causes of Lake Phewa pollution.

Table 6.7 Views over the Causes of Phewa Lake Pollution of Respondents

Causes of Lake Pollution	Frequency	Percentage
Cultural Activities (worship, farming, boating, sharadda, washing)	54	67.5
Causes by the Watershed area (construction and development activities)	14	17.5
Physical Causes (soil, sedimentation, floating)	12	15
Total	80	100

Source: Field Survey, 2014.

There are different cases of Phewa Lake pollution. Among them the foremost causes are cultural activities, physical causes of Phewa Lake and causes by the water shaved area. According to the response of respondents, 67.5 percent are emphasis on cultural activities that can help to being pollution of Phewa Lake. 17.5 percent respondents focus on behind the pollution of Phewa Lake is causes and activities by the water shaved area while 15 percent says that physical causes is one of the prime cause of pollution.

CHAPTER SEVEN

SUMMARY, MAJOR FINDINGS AND CONCLUSION

7.1 Summary

This study has been conducted to draw cultural impact on pollution of Phewa Lake. To know about the cultural practices and impacts on Phewa Lake, several issues and assumptions were raised and combinations of qualitative and quantitative methods are adopted during the research. On the basis of the research objectives, socio-economic impacts of the pollution and cultural activities have performed in terms of utilization of Phewa Lake analyzed and explained. Further, the adaptive mechanism, cultural practices and their impacts of Phewa Lake also been explored in detail.

This research have been Guided by some theoretical frameworks such as, Tragedy of the common and common without tragedy perspectives, political ecology, 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, to know about the primary data, the researcher has identified different respondents from different area like Khapaudi, Gaurighat, Hallanchok and Lakeside have been taken. For the representative sample, the researcher has been selected 20 respondents from each place utilizing the stratified random sampling. The total numbers of respondents were 80.

For the purpose of the study, observation, interview, focus group discussion as a part of techniques of anthropological research were adopted so as to collect data. However, the primary data is dominant. Some of the precious secondary data have been incorporated too. To give a vivid picture of the lifestyle and adoptative mechanism of respondents, the researcher has tested on different subsistence pattern, livelihood strategies, occupational practices and economic activities of the respondents.

Human beings have been devising specific forms of strategies to adopt themselves in changing environment conditions. In other words, such strategies can be labeled as the strategies for proper management of resources. In anthropological terms, these

adoptive strategies vary according to cultural. So, the adoptive and subsistence pattern of individuals are different on the basis of available natural resources. They make their culture according to their environment. Culture can play the vital role for the ecosystem. For that, the communities also have a specific cultural practice to adopt with the environment by different activities like boating, fishing, caged fish, and hotel and restaurants. Phewa Lake, among diverse natural resources, is one of the Precious resources of stakeholders. Most of communities are depending on this resources making different cultural activities, but such kinds of communal property can be degraded by the over use of individuals. It is harshen reality that the banks of the Lake are occupied by urban centers are becoming more polluted day by day by various activities or human exploitation to the resource. During the field survey, it is observed and found that, there is less knowledge of common property and its value on ecosystem. The main source of solid waste around the stakeholders used to deposit on such communal place. Among the different causes, the main cause of pollution of Lake is cultural and human exploitation. Stakeholders are less responsible and less participation to manage such common property is another cause of pollution of Lake. The religious activities also another main cause of pollution of Lake Phewa.

Major Findings

At the end of the research, the following findings are found that are listed below-

- In the different community 81% of the person follows Hinduism, 10% Buddhism and rest of person 9% are Christians.
- The respondents' types of family have been found especially of two types' joint and nuclear family. Out of total respondents, 20% live in a joint family while 80% live in nuclear family.
- About 67.5 percent respondents are found engaged in business as the major source of income. While 17.5 percent of the total population, is engaged in fishing. Only 6.5 percent in Services, 5 percent boating and 3.5 percent are engaged in agricultural activities.
- The majority of respondents are literate. Among 63 male respondents, 24 are bellow SLC, while 19 are + 2 or intermediate level, 15 are BA, 4 are MA and one the respondent is above MA. On the other hand among the 9 female respondents 6 are literate and rests of 3 are illiterate

- The foremost natural resources around the community are Phewa Lake, Land resources, Jungle resources, Rivers. Among the total respondents, 95 percentages are mobilizing and utilizing Phewa Lake as available natural resource around them.
- The main source of fodder for the domesticated animals is open area around Phewa Lake. More than 80 Percent of animal are depending on it.
- 96.25 percent of respondents are positively impacted by the Phewa Lake. The rest of respondents, 2.5 percent negatively and 1.25 percentage are naturally impacted through this resource.
- The large numbers of respondents are using modern technology for their economy. 55 percent are using modern cooking stove in hotel and restaurant to continue their business, few respondents that 20 percentages among total one, are also applying the modern techniques for the better fishing. Likewise, 15 percent of the respondents are using electric machine for their subsistence. While, among the total respondents, 5 percent are using traditional techniques for fishing like hooking, small net and fishing by boat.
- About 60 percent of the respondents are stress on economic value of Phewa Lake. They are economically dependent on over Phewa Lake. But 35 percent of the respondents show their interest to addressing that the value of Phewa Lake is not only economic but also religious.
- 61.25 percent of peoples are worship in the middle placed temple while 17.5 percent are worshipping for water god. And 15 percent focus on bathing is one of the Precious religious activities during different days. Rest of 6.25 percent, are emphasis that management of culture is one of the religious activities in Lake Phewa.
- 55 percent are adopting hotels and restaurants as their adoptive strategies in this area where as 25.5 percent respondents are engaging on cage and open fishery as an adoptive mechanism around the available resources.
- Among the total respondents 55 percent are accepted that the main source of solid waste is waste of hotels. 17.5 percent respondent response that the sources of solid waste are waste related to fish farming.
- 33 percent of respondents are using municipality vehicles for the waste management while 29 respondents through their waste in Phewa Lake. Rests of 9

are managing individually and 9 respondents manage such kinds of waste for further use. Among the total respondents of Khapaudi area, 14 are using Phewa Lake as a waste deposit spot or place.

- 85 percent are managing their safety tank individually i.e. personal tank in their own houses. While 8.75 percent are connecting their tank in to Phewa Lake and rest of them, 6.25 are connecting their tank in nearest River or small stream.
- 42.5 percent are totally or actively involved in the management process while 35 percent are not interested or not involved in such process. Rests of them, 22.5 percent are partially involved in the management practice.
- 60 percent are not involving in the Phewa Lake management committee while rests of them, 40 percent only are involved in this committee.
- 38.75 percent of the respondents' response that, local management is the best strategy for the common property management. While 28.75 percent emphasize. Communal management is one of the best strategies of the common property management. About the 17.5 percent focus on, such kinds of common property should manage by the state while 15 percent are sought management individually.
- 95 percent are agree with common property can be degraded while 5 percent are strongly emphasis on; such property cannot degraded by the communal activities.
- According to the response of respondents, 67.5 percent are emphasis on cultural activities that can help to being pollution of Phewa Lake. Among another cause 17.5 percent reported by watershed area and 15 percent by physical causes.

7.2 Conclusion

Culture is one of the prime ways of living. It is adoptive, learned, transmitted, and shared pattern, but culture always depend on the available resources i.e. environment. On the basis of environment, the diverse adoptive strategies are made for the subsistence, but such kind of cultural practices can impact the quality of environmental and even effect the whole ecosystem. The divers' adoptive strategies also can affect the available natural resources. In this study, Lake Phewa is one of the precious natural resources around the community. They are depending on such resource from ancient past, but they are less responsible to improve the condition and quality of such resource. They only harvest form it but never think to manage such resource. After studying on cultural impact on pollution of Phewa Lake, it can

conclude that they are just using it but never thinking about the whole ecosystem. They are using different modern cultures for their subsistence and using Phewa Lake as a source of economy rather than the part of environment.

It is concluded that unmanaged solid waste disposal is one of the main causes of environmental degradation. Rapid urbanization, population growth, and attitude and behavior of the people are another cause of effecting on ecosystem. Changing consumption patterns, breakdown in the traditional systems and lack of innovative integrated solution in managing waste have contributed largely to the environmental problem and pollution of Phewa Lake. This research has been emphasized on pollution of common property such as Phewa Lake caused that cultural activity. This has manifested conclusion of pollution of the Phewa Lake.

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APPENDIX I

List of Question for Questionnaire Schedule

1. Introduction

Household No:.....

Ward No:.....

Full Name of Interviewee:

Tole:.....

Caste :

Age:.....

Culture/Religion:

Sex:

Language:.....

a. Description of the Family Members

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

b. What is your family structure?

i. Joint

ii. Nuclear

2. Socio-economic Impact of Pollution of Phewa Lake

a. What is your source of economy?

i. fishing only

ii. Driving

iii. Service/Job with fishing

iv. business and hotel and restaurant

v. Laundry

vi. boating

- b. What are your occupational Practices?
 - i. Business ii. Agriculture
 - iii. Fishing iv. Service (Private and Government.)
- c. What is your educational Status?
 - i. Literate ii. Literate (a. Up to SLC, b. +2/IA, c. BA d. MA e. Above MA)
- d. Are you satisfied with the occupational structure? If not why?

.....
- e. Is there any relationship between occupational structure and role of education?

.....

3. Cultural Activities in terms of Utilization of Phewa Lake

- a. What are the available natural resources among you?
 - i. Phewa Lake ii. Land iii. Jungle iv. River
- b. Are you depending on these resources for your day to day life?

.....
- c. What is the importance of Phewa Lake for your Subsistence?
 - i. Positively ii. Negatively iii. Neutrally
- d. What are the positive impacts of Phewa Lake for your subsistence?

.....
- e. What are the usable technologies to harvest from the resources?
 - i. Traditional Techiques of fishing
 - ii. Modern Technologies of fishing
 - iii. Boat
 - iv. Modern technologies in restaurant
 - v. Electric Machines
- f. Are you satisfied with those techniques for your daily usage?

.....

g. What are the anthropogenic values of Phewa Lake?

- i. Religious/ Cultural
- ii. Economic Value
- iii. Ecological and environmental Values

h. What is the religious or cultural value of Phewa Lake?

.....

- i. What is the religious importance and utilization of Phewa Lake?
- ii. Worshipping for water god
- iii. Management of culture
- iv. Bathing
- v. Worshipping in temple

j. What is the adoptive strategies with available Natural Resources?

Tourism		Non Tourism	
i.	Hotel and restaurants	i.	Domestication of animals
ii.	Boating	ii.	Cage fish/open fisheries
iii.	Fish farming out of Phewa Lake		

4. Waste Management Practices and its impact on Phewa Lake

a. What is the solid waste?

.....

b. What are the major sources of Solid waste?

- i. Waste of hotels
- ii. dusted of home
- iii. Plastic bottle and bags
- iv. Waste related to infrastructural development
- v. Waste related to fish farming
- vi. Religious and cultural wastages

c. What are the waste deposit strategies and practices ?

- i. Use municipality vehicles
- ii. Through in Phewa Lake
- iii. Self-born
- iv. Manage for further use

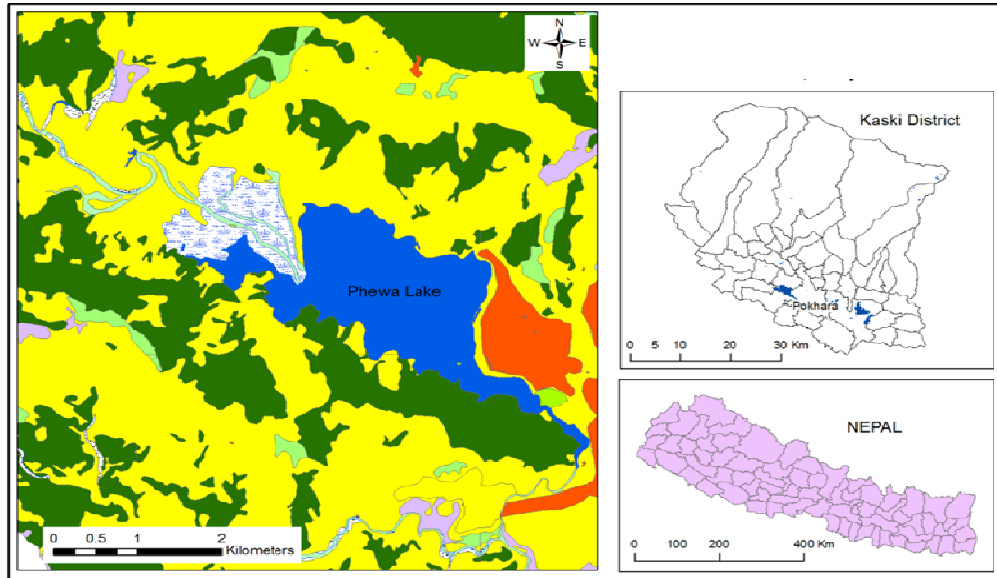
- d. Is there own safety tank in your home?
 i.yes ii No
 If no, where is the deposit sport?
 i. Connection in Phewa Lake
 ii. Connection in River
- e. What is the main purpose of Phewa Lake in term of personal utilization ?
 i. Open fishing ii. Boating
 iii.Cage fish iv.Sanitation and drinking
- f. Are you involved in waste collection?
 i. Actively involved ii.Partially involved
 iii.Not involved
- g. What are the types of involvement for waste collection around Phewa Lake?

Personal and physical involvement i. Daily ii. Weakly iii. Monthly	Donation and Psychologically i. By local involvement ii. By institutional involvement iii. By organizational involvement iv. By governmental involvement
---	--

- h. Is there any management committee for waste collection in Phewa Lake
 i. yes ii. No
 If yes, are your involve for it?
 i. Involvement ii. Not involved
- i. What is your perception on common property management?
 i. Management individually ii. Communal management
 Iii. Locally management iv. State management
- j. Knowledge of degradation of common property
 i. Degradable ii. Non degradable
- k. What are the views over the causes of Phewa Lake pollution?
 i. Cultural activities ii. Physical causes
 iii. Causes by the watershed area

APPENDIX II

Study Area



Location Map Phewa Lake Pokhara, Nepal

APPENDIX III

Photo Arcade



Lake is polluted by washing clothes and bathing.



Sewage system connects into the lake.



Water is used for household purpose.



Garbage is thrown every where in the lake.



Lake is covered by Jal-kumvi



Children are fishing in the lake.



Overflow of drains into the lake.



Lake is polluted by animals



Peoples are swimming in the lake.



Researcher takes data with Respondent.