

**Master's Thesis**

**Inter- Sectoral Water Use Conflict in Bhotekoshi River: A  
Perspective from Hydropower and Rafting**

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**Inter- Sectoral Water Use Conflict in Bhotekoshi River: A Perspective  
from Hydropower and Rafting**

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## **Dedication**

I would like to sincerely dedicate this thesis work to my beloved parents, Mr. Rajendra Prasad Pandey and Mrs. Gayatri Devi Pandey for their efforts and persistent encouragement to forward my carrier

## ABSTRACT

Using the same water resource by the multiple users has the chances of disputes among them as they have incompatible goals and varying interests. Such incompatibilities should be addressed through negotiation, in order to address the dynamic nature of issues. Nevertheless, when such incompatible issues are not addressed properly and left unsolved, the incompatibility can easily turn into a conflict. Hence the inter-sectoral water use conflict at Bhotekoshi River: A Perspective from Hydropower and Rafting was studied to analyze how the incompatible issues turned into conflict between the hydropower developer and rafting agencies (recreational users) at Bhotekoshi River and how were the issues addressed. This study aimed to assess the existing interrelationship between the conflicting parties, contribution of them to the local people from economic viewpoint and the legal as well as the institutional mechanism to govern the sectoral water use and hence address the conflict, at the time of need.

Hydropower and rafting are both non-consumptive water users and there was a huge possibility of establishing cooperation between hydropower developer and rafting agencies, regarding the construction of 102MW capacity hydropower plant in the study area.

The laws, policies and institutions related to water resources are the foundations to manage the water resources at basin level. The strong laws and policies as well as the planning helps to achieve the sustainable water resource utilization. Water Resources Act and Water Resources Regulations are pivotal legal documents to manage water resources as well as to address the conflicts. Integrated Water Resource Management (IWRM) concept has been initialized by National Water Plan for supporting the Water Resource Strategy and to have holistic water resource development and management of water use.

If the local people are getting benefits explicitly from the use of resources then resources management will be effective and sustainable. In such situation, the contributions of the local people to address the likely conflict could be high. With this assumption, economic analysis in terms of job opportunities provided and income generated was done to know the viable livelihood option for the local people.

To understand the above propositions, interviews were conducted with concomitant entities and local people for the primary data collection. Data were also obtained from the secondary sources and supported with the literature. Policies, legal and the institutional arrangements to implement those policies were analyzed. Conflict mapping and Need Fear mapping tools were employed to understand the interrelationship of the conflicting parties, their varying interests and the actions they did to meet their interests.

From the study, for the local people, over the hydropower, rafting was found to be the sustainable livelihood option. The policy and legal frameworks, except whether rafting was only a recreational use or industrial (business) use, were found fairly sufficient. However, the effectiveness in terms of transferring those policy provisions were not realized due to absence of proper institutional mechanism at the implementation level.

Finally, the lack of the proper negotiation because of the institutional gap was found to be the major contributing factor to the existing water conflict between the water users

## Disclaimer

I hereby declare that this study entitled “**Inter- Sectoral Water Use Conflict in Bhotekoshi River: A Perspective from Hydropower and Rafting**” is based on my original research work. Related works on the topic by other researchers have been duly acknowledged. I owe all the liabilities relating to the accuracy and authenticity of the data and any other information included hereunder.

Signature:

Name of the student: Sarita Pandey

Date:

## Recommendation

This is to certify that this thesis entitled, “**Inter- Sectoral Water Use Conflict in Bhotekoshi River: A Perspective from Hydropower and Rafting**” prepared and submitted by Sarita Pandey, in partial fulfillment of the requirements of the degree of **Master of Science (M.Sc.)** in “**Interdisciplinary Water Resource Management**” awarded by Pokhara University, has been completed under my supervision. I recommend the same for acceptance by Pokhara University.

Signature:

Name of the supervisor: Er. Ram Prasad Bhandari

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## Certificate

This thesis entitled “**Inter- Sectoral Water Use Conflict in Bhotekoshi River: A Perspective from Hydropower and Rafting**” prepared and submitted by **Sarita Pandey** has been examined by us and is accepted for the award of the degree of **Master of Science (M.Sc.) in Interdisciplinary Water Resource Managemnet** by Pokhara University.

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## Abbreviations and Acronyms

ADR	Alternative Dispute Resolution
AWO	American White water Organization
BOOT	Build, Own, Operate and Transfer
CHCPL	Chilime Hydropower Company Limited
DoED	Department of Electricity Development
DWRC	District Water Resource Committee
EIA	Environmental Impact Assessment
GoN	Government of Nepal
GRM	Grief Resolution and Management
HAT	Hydropower, Agriculture and Tourism
HRE	Himalayan River Runner
ICRC	International Community Rafting Center
IPP	Independent Power Producer
IWRM	Integrated Water Resource Management
MBJCL	Madhya Bhotekoshi Jalvidhyut Company Limited
MBKHEP	Madhya Bhotekoshi Hydroelectric Project
MBR	Madhy Bhotekoshi River
MoPE	Ministry of Population and Environment
MoSET	Ministry of Science, Technology and Environment
MW	Megawatt
NATHM	Nepal Academy of Tourism and Hotel Management
NARA	Nepal Association of Rafting Agents
NEA	Nepal Electricity Authority
NR	Natural Resource
NRCT	Nepal River Conservation Trust
NSC	National Steering Committee on Peacebuilding and Conflict Management
OECD	Organization for Economic Co-operation and Development
WECS	Water and Energy Commission Secretariat
WRA	Water Resource Act
WRM	Water Resource Management
WRR	Water Resource Regulation
UNESCO	United Nations Educational Scientific and Cultural Organization
VDC	Village Development Committee

# Chapter 1

## Introduction

### 1.1. Background

There are complex and tangible links between water and conflict. While water resources have rarely been the only source of violent conflict or war, there is a long history of tensions and violence over access to water resources. In the context of Nepal, Water Resource Management (WRM) is characterized by an unfair and insufficient use of water, contradiction and conflicts. The social dimensions of WRM are still getting little attention both in policy making and in practice. Water scarcity, competition among the users and conflict are common characteristics framed under social, economic, political and legal issues in Nepal (Upreti, 1998a; cited from Upreti, 2001).

Access to water in sufficient quantity and quality can drive competition where different interests are perceived as incompatible. There have been an increase in the total number of reports of violent conflict over water. Unlike the situation in the early and middle parts of the twentieth century, an increasing proportion of reported cases have to do with subnational disputes, terrorism, and local violence rather than global incidents (Gleick & Heberger, 2013). Nepal has also gone through the subnational and regional conflict with its neighboring country in the trans-boundary water resources. On the other hand the dispute also occurs within the nation between the different water using groups. It is important to note that all Natural Resources (NR)-related conflicts are created in differentiated and specialized local environments across the country (Upreti, 2001). Many conflicts are small in scale, involving local violence over water allocations and use or violence over local development decisions that affect environmental and economic conditions at the community scale (Gleick & Heberger, 2013).

Access to water and water allocation and water use can initially become the focus of tensions, which may potentially spill over into conflict, within or between states. Direct violent conflicts over water are most likely on a local level. Where they have occurred, water-related conflicts have tended to be internal – between local groups (Postel & Wolf, 2001). Within states, at the local level, competition over water use, its availability and allocation can lead to low-scale violence, which can escalate into instability within states and across sub-regions. Tensions between citizens and authorities over water issues may initially manifest themselves in the form of civil disobedience. Water allocation and use can still be hotly contested. The coexistence of a variety of uses and users – such as agriculture, industry, different clans or ethnic groups, and rural and urban users – increases the likelihood of conflicting interests over water. These can drive or exacerbate existing threats of conflict on intra- and inter-state levels. In addressing the governance and management of water, the complex inter-relationships among other factors affecting the dynamics of conflict and peace must, therefore, be taken into account (OECD, 2005).

According to Hynes & Hanley (2004), apart from different conflicting issues in water resource hydro-electric schemes are a particularly acute problem from the point of view of whitewater recreational activities as they alter the dynamics of a river. To make a whitewater rafting trip worthwhile, a river with numerous rapids with irregular waves and broken water is required. On the other hand, the operation of a small hydro-electric scheme on a river

requires only one section of rapid and high gradient flow of water or a single fall of water. For this reason, the number of rivers suitable for hydro-electric schemes is far greater than the number suitable for whitewater rafting. This would seem to suggest that a substantial middle ground is available where hydro-electricity and whitewater rafting can exist without coming into direct conflict. However, in other cases, sites which are attractive from an electricity generation viewpoint will be those most valued by rafting for recreation.

The complexity of water related issues is very vast as it is connected with quality, quantity, use and user groups, laws and policy. There are many nations where there is conflict over the hydropower and recreational uses of it. Ireland is a country where the conflicts between the preservation of whitewater resources and their development for hydro-power is a major concern. Furthermore, according to the American Whitewater Organization (AWO), “wild river” protection from hydroelectric development is one of the greatest unresolved land management issues in the United States (Hynes & Hanley, 2004).

Water allocation is not a new issue, but the debate has been largely led by economists in the context of an overall push for allocation to be undertaken through markets rather than the government (Meinzen & Appasamy, 2002). Inter sectoral allocation of water has not been explored in detail from a law and policy perspective. This is partly due to that laws concerning the water sector tend to adopt a piecemeal and sectoral approach rather than integrated. In the absence of mechanisms to ensure that its different uses are considered in view of its overall availability exacerbate inter-sectoral water allocation conflicts. Such conflicts may arise in different contexts and due to different reasons. Conflicts between different users of a single source of water, such as for drinking water, irrigation, and industrial use, is one example (Cullet, et al., 2015).

## **1.2. Statement of the Problem**

Bhotekoshi also had to go through the situation of conflict when Madhya Bhotekoshi Jalvidhyut Company Limited (MBJCL) started to develop a 102MW electricity power plant. There was a protest by the Nepal River Conservation Trust (NRCT) and Nepal Association of Rafting Agents (NARA) against the MBJCL accusing that it kills whitewater rafting in the river. The conflict was dragged to the Supreme Court and the court gave verdict in favor of the Hydropower as it is given higher priority by the water law than that of the rafting (recreational use) (Shrivastav, 2012).

In a limited number of cases, conflicts over water allocation, reach the courts. At that level, the existing legal framework is applied by courts. In the absence of appropriate guidance, judgment is largely ad hoc and may not necessarily consider all the relevant dimensions. Further, the courts are not well placed to follow up and ensure that the principles introduced are applied in a systemic manner. The decisions tend to focus on conflicts of use, which is what litigants bring to the court, rather than issues related to protecting the source of water (Cullet, et al. 2015).

In the case of allocation of water, the legal aspects of water-use conflicts have not been given much attention in the literature, except in the case of interstate river water conflicts and international water conflicts (Nariman 2009; Iyer 2002 as cited by Cullet, et al., 2015). This suggests that there is a lack of documentation of conflict related to the allocation of water. Hence, this is very relevant to document a case of inter- sectoral water allocation conflict.

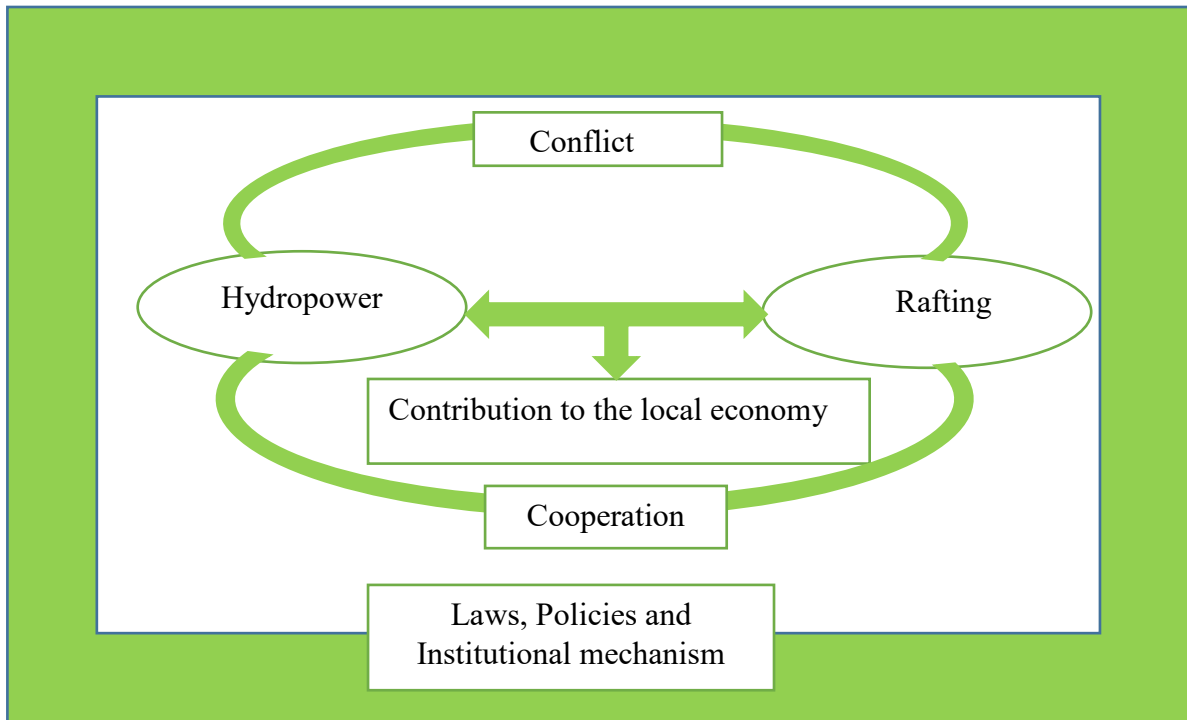


### **1.3 Conceptual Framework for the study**

The conceptual framework for the study was to establish and conceptualize the whole idea of this research. To understand the conflict comprehensively conflict analysis should combine an analysis of actors, structures and dynamics; that means analysis of structures and actors and how the involving parties interact with each another. Structural analysis focuses on the institutions (political, economic, and social) which may predispose an in compactable issues to conflict. Actor analysis involves a ‘fine grained’ analysis of individual incentives and motivations. There are two dominant sectors using the same water source and there may be the relation of competition or cooperation between them. Hence it is essential to know the interrelationship between them.

Understanding of conflict come from the ‘political economy’ approach. This focuses on the political and economic interests of those engaged in conflict and draws attention to those who might see an advantage in using conflict for their own ends. If the political economy of conflict brings opportunities, there will be strong interests in perpetuating and managing conflict for purposes of personal gain. Both the sectors, hydropower and rafting, are using the resources for their own profits and to enrich the nation’s economy. But the impacts in the livelihood of the local people by the two sectors are also very significant. Economic Analysis plays a useful role in water allocation decision making. The comparison between economic contributions made by the rafting and hydropower to improve the livelihood of the people will show, which is viable water use options for the local people is.

In order to use of the same water sources by different sectors there is need to stress on coordinated development rather than the unilateral intervention. Finding the common ground between the different water users and to have integrated water resource management practice is difficult due to the varying interest. To have the cooperation between the different users at the same basin there should be the strong legal framework and appropriate institutional mechanism to look after. The failure to establish a clear and strong legal framework for inter-sectoral water use and management also poses an obstacle to have the integrated water resource management and allows a space for the conflicting situations. Therefore, the study was focus on the inter-sectoral water use competition and cooperation from conflict, economic contribution to the local people and also law, policy and institutional Perspective.



**Figure 1.1 Conceptual Framework for the study**

#### **1.4 Research questions**

Based on the ground of the statement of problems and conceptual framework various research questions were formulated to seek the answers.

- i. What interrelationship exists between the Madhya Bhotekoshi Hydropower developer and the recreational sectors of the Bhotekoshi River?
- ii. What are the contributions made by the two sectors to the local people?
- iii. What are the prevailing policies, laws and institutional mechanism to govern the water resources management and thus addressing the conflict between the two sectors?

#### **1.5 Research objectives**

The overall objective of the research was to explore the inter-sectoral water use at the study area from the conflict and policy viewpoint and the economic impact to the local people.

- i. To explore the interrelationship between the Madhya Bhotekposhi hydropower developer and the recreational sectors at the Botekoshi River.
- ii. To assess the contribution made by the two sectors on the local scale.
- iii. To review and analyze the prevailing laws, policies and institutional mechanism that govern the water resources management and thus addressing the conflict between the two sectors.

## **1.6 Significance of Study**

The study aimed to know the existing interrelationship between two dominant non-consumptive water users at the same source, within the frame of existing water use laws and policy and the contribution to the local economy. These findings are expected to be helpful for:

- a) Baseline information to the water users, decision makers, stakeholders, experts and water resource management personnel about interrelationship between inter-sectoral water users at the same water source to improve the effectiveness in water management laws and policy in contributing to conflict prevention and reduction.
- b) Concerned government and non-government organization and decision makers to make the effective and integrative water laws, policies, institutional mechanism and plans for water resource management and addressing of possible conflict.

## **1.7 Scope and Limitation**

### **Scope**

In view of the lack of literature on the subject, a case study of an inter-sectoral water dispute in Bhotekoshi River, which reached the Supreme Court of Nepal, has a significant contribution to illustrate the limits of the existing law, policy framework and institutional mechanism on inter-sectoral use of water and related conflicts. The study shows the interrelationship between the two competing uses of water at the same river, which was found a case of conflict rather than cooperation and hence illustrate the poor practice of Integrated Water Resource Management (IWRM) a case of failure of cooperation in the study area.

### **Limitation**

Some of the limitations encountered at the time of study are as follow:

1. The study was mainly focused on the two non-consumptive water use sectors that are Hydropower and Rafting, There were others conflicting issues like sand mining, drinking water, irrigation, fishing and the quality of water and pollution and ecological aspects were not covered by the study.
2. Inadequacy of published data and studies on inter-sectoral water conflict management and their impacts.
3. The income made by possible secondary source like remittance and the investment of the money in other sectors and the earnings generated from that were not incorporated in economic benefits.
4. The construction of hydropower has been completed only 30% hence both positive and negative impacts due to the construction was difficult to determine at this point of time.

## Chapter 2

### Literature Review

#### 2.1 Understanding Water conflict

Conflict is defined as the state of perceived or confirmed incompatibility in goal or means to achieve the goal. It refers to the disagreement, opposition, argument, clash, fight, battle etc. It is a natural disagreement resulting from individuals or groups that differ in attitudes, beliefs, values or needs. Conflicts in water management often involve interactions between various sub sectors and stakeholders engaged in the water resource management process. Contemporary water resource management is a combined process of sharing water and resolving conflicts among stakeholders. A stakeholder in this context refers to an individual, organization or institution that has a stake in the outcome of a decision related to water sharing, because he, she or it is either directly affected by the decision or has the power to influence or block the decision (Nandalal & Simonovic,2003).

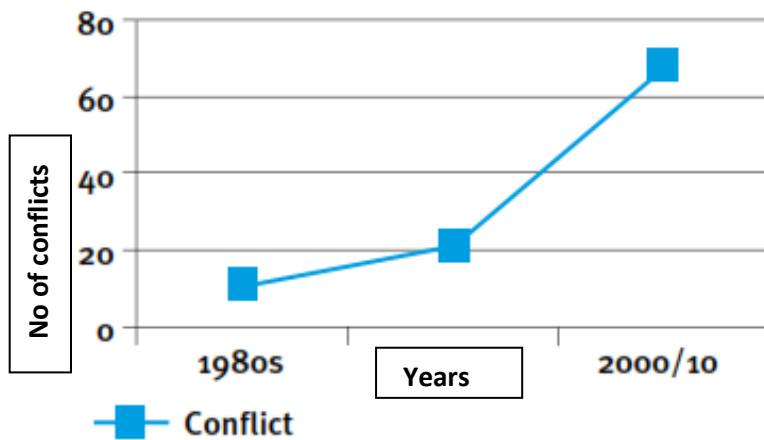
When water-related disputes arise within a context of ineffective or illegitimate governance, it can stoke the flames of discontent (grievance) or be the match that lights the fire (trigger). For example, poor water service delivery could undermine people's confidence and trust in the state. A specific event, such as a new law that changes water pricing or the failure of a dam, can spur people's decisions to join a protest, insurgency, or armed group. Additionally, disputes between communities or individuals over access or usage rights could easily turn violent in the absence of strong, legitimate governing institutions where the rule of law extends clearly over water rights. Within this complex web of interactions, water disputes and challenges can also open opportunities for constructive change. Frequently, peacebuilding is a necessary, if too often unacknowledged, element of long-term sustainable water resource management (Gleick & Heberger, 2013).

Two main schools of thoughts exist concerning conflict. One school of thought views conflict as 'pathological and dysfunctional'. In this perspective, conflict generally carries negative connotations and is understood as something irrational that needs to be suppressed because it is opposite to co-operation and peace. Another school of thought considers that conflict can also be a functional means for social change and acknowledges its prevalence (Upreti, 2001).It is not that all the conflict are dysfunctional, some has cooperation and means of positive social changes. In the largest empirical study of historical water conflict and cooperation completed in 2001 at Oregon State University, cooperative events were more than twice as common as conflictive events – there were 1,228 cooperative events (67.1 %) and 507 conflictive events (27.7%), with ninety six events (5.2%) delineated as neutral or non-significant (Wolf et al, 2002 as cited by Kyle, 2004).

In a river basin, water is generally managed for multiple uses such as power generation, food production, industrial development, municipal water supply, recreation, or a combination of them. Different user groups having different objectives may have conflicts in arriving at a common schedule of quantity and time of water distribution.

A study done by WaterAid in 2012 shows the increasing trends of water source conflict in Nepal. According to it water scarcity and water surplus both were found as the causes of water source conflict. It shows that the trend of the conflict is in increasing order. Less conflict were used to occur until early 90s, as water was used for very limited proposes but

latter on as the water has been used for various commercial purposes like; hydropower and irrigation, the water source conflict increased. In 30 years (from 1980s to 2010) the conflict related to water had been increased to more than 4 folds (WaterAid, 2012).



-Source-WaterAid, 2012

**Figure 2.1 Water Conflict Trends**

It has been seen that Water conflicts resulting from human-initiated developments such as dams and diversions, are found to be more severe than those resulting from natural events like floods, droughts, etc. The most of the conflicts occur for the water quantity and among them only very less conflicts occurs for the non-consumptive use of water.

## 2.2 Non consumptive use of Water

According to ecological dictionary the Non-consumptive water use includes water withdrawn for use that is not consumed, for example, water withdrawn for purposes such as hydropower generation. This also includes uses such as recreational (rafting) and fishing where the water is still available for other uses at the same site. Hence, Non-consumptive water use does not substantially change the withdrawn water, almost all of it returning to the system (Kohli, et al., 2010). According to Liu, et al., (2011) non-consumptive use is when water use does not diminish the source or impair the future water use. Additionally, when water is diverted and returned immediately to the source at the point of diversion following its use in the same quantity as diverted and meets water quality standards for the source is known as the non-consumptive water use.

### 2.2.1 Recreational Use of water

Recreational water use means the use water for recreational purposes, including all activities that require the use of water, for the exclusive purpose of sport, tourism or leisure and activities which contribute to the general health, well-being and skills development of individuals and society. Rafting is considered a unique outdoor recreation activity. It is an

exciting form of water adventure that not only satisfies the need of tourists to interact with nature, but also represents an invigorating recreational experience (Wu & Liang, 2011).

Industry is not the only user of rivers - where humankind has access to rivers, lakes and other water bodies, recreational use is made of the amenities offered. Water-adventurers in kayaks, motorboats, and canoes enjoy the challenges of gorge traversing, white-water rafting and water-skiing. In countries or regions endowed with abundant natural water systems, in the form of lakes, rivers and streams, a considerable part of the well-being and income of their inhabitants is derived from recreational activities. In America alone, for example recreational activities and fishing creates 1.2 million jobs nationwide (Wetzel, 2009).

### **2.2.2 Hydropower generation**

Generation of Hydropower from high gradient flow of water is also non-consumptive use of water. In this, the electricity produced by the movement of fresh water from rivers and lakes. It is a form of renewable energy source dependent upon the hydrologic cycle of water, which involves evaporation, precipitation and the flow water due to gravity. Gravity causes water to flow downwards and this downward motion of water contains kinetic energy that can be converted into mechanical energy, and then from mechanical energy into electrical energy (Adhikari, 2006). In the context of Nepal most of the hydropower are Run of River (ROR) type. In ROR project, a small dam is usually built to create a headpond ensuring that there is enough water entering the penstock pipes that lead to the turbines which are at a lower elevation. In general, projects divert some or most of a river's flow through a pipe and/or tunnel leading to electricity-generating turbines, then return the water back to the river downstream.

### **2.3 Development of Hydropower in Nepal**

Nepal is regarded as the one of the fortunate country in the context of having water resources with large potentials to generate huge amount of the energy from the hydropower projects. The climate and topographic condition are favorable to develop hydropower projects. According to report of Ministry of Population and Environment (MoPE) in 2000, the annual rainfall in Nepal varies from 250 mm to 5200 mm with an average of 1770 mm/year. The annual runoff from the country is 222 billion cubic meter from snow-fed major river systems alone is 4930 m/s.

Steep mountainous terrain and the flow in more than 6000 rivers/rivulets makes hydropower widely available throughout the hilly region of Nepal. River systems in the country are divided into four major river basins, namely Koshi, Gandaki, Karnali and Mahakali. Studies have shown that the hydropower potential is distributed throughout the country. It has been shown different estimations of total installed capacity of the country, e.g. 200,000 MW (Pradhan, 2008) and 53,836 MW at 40% dependable flows (Jha, 2010). There is no surprise that different estimates show different capacities, because the assumption made on different factors, techniques of the estimation and resolution of data used, etc. will affect the final result. Actual hydropower capacities are the summation of all the viable projects in the

country whose capacity depends on available technology, tariff rates, market conditions, etc. A project which is not economically viable in a particular condition/ assumption may become an attractive alternative in some other condition.

The first hydropower plant (500 MW) was built in Pharphing in 1911, the second hydropower plant (640 KW) was established at Sundarijal in 1936 (Adhikari, 2006). These first two plants were built by the then rulers of Nepal to use electricity for their personal use, and the general public had almost no access to the produced electricity. It was only after construction of the 2.4 MW Panauti hydropower project in 1965 that the general public started greater access to electricity (Sharma & Awal, 2013). The political system in the country was changed in 1990, which changed the existing investment policy on the hydropower sector in Nepal. The hydropower sector was opened for private investment thereafter, which otherwise was owned and developed by the government-linked Nepal Electricity Authority (NEA) only. The intention was to promote participation of the national/international private sectors to invest in the hydropower business. After that, there was progress on the development of the hydropower in Nepal, two foreign invested projects, 60 MW Khimti and 36 MW Bhotekoshi, were completed in 2000. The government linked NEA built 144 MW Kali Gandaki A and 70 MW Middle Marsyangdi in 2002 and 2008 respectively (Sharma & Awal, 2013). The increasing in number of cities and the use of technology had increased the demand of the energy. According to the estimations of NEA, Power demand projection of Nepal, National Energy Strategy 2010 (GoN, 2010) energy demand will grow in the next 17 years, with an average annual rate of 8.34%. As per this projection, the energy demand on the assumption that the country's economic growth will remain at 5.6% on average till 2030. It has been aimed on the report to meet the growing demand of electricity by building more hydroelectric plants and reduce the dependence on bio mass and fossil fuels.

Hydropower is important to Nepal because it is the only resource available to generate electricity on a large scale and small local scale both, in any part of the country. Hydropower can satisfy long term energy demands and can also have a good export potential to neighboring countries. Since this energy resource is renewable and more environmental friendly than other major resources, the country needs to shift its energy dependency to locally available hydropower. Understanding the fact, Nepal has given priority to hydropower development for a long time on a policy level. It has formulated various strategies/plans to generate and expand energy services using hydropower from time to time. The Water Resources Strategy 2002, National Water Plan 2005, National Energy Strategy 2010, Hydropower Task force (2010), etc. are the recent examples.

## **2.4 White Water Rafting in Nepal**

The Nepali river tourism industry has a relatively short history and it shares many aspects of its origins with trekking. Nepal's river tourism began in the late 1960's when a few teams of French, German and American began to explore the lower reaches of several Himalayan rivers, The Sun Kosi and the Trisuli River was explored by the teams much thoroughly. Aside from the Sun Kosi and Trisuli, other teams began to explore other rivers in the mid-seventies, including a Czech attempt on the Dudh Kosi in 1973 and English attempt on the same river in 1976 (Knowles,1999). Similar expeditions with marginal Nepalese participation followed in the 1980s and 1990s on other more remote and difficult rivers in Nepal (Vandeberg, 2003).

The first commercial rafting company in Asia was launched in 1976 AD. Owned by Al Read, this company was based out of Kathmandu. Realizing the tremendous commercial potential in developing a rafting company on the Himalayan Rivers, Read formed his own rafting company and named it Himalayan River Runners (HRE).

The Nepali rafting industry has been organized and overseen by the Nepal Association of Rafting Agents (NARA), an organization comprised of rafting company owners. The organization came into existence in 1989 and was formally recognized by the Government of Nepal (than HMG of Nepal) on December 27, 1989.

The government of Nepal officially recognizes sixty-one river operators employing over 3000 Nepali employees. Historically, over the past 25 years, approximately 96 government sanctioned rafting companies have been members of the Nepal Association of Rafting Agents (NARA, 2000). In reality, approximately 40 companies operate today although only about half of those companies have consistent rafting business with the rest drawing the majority of their income from the sales of package tours and guided treks.

Although westerners originally owned several higher profile companies, the majority of all companies today are Nepali owned and operated and all of the companies employed only Nepali citizens. In fact, the rafting industry leaders of Nepal have erected legislative safeguards to protect Nepali raft guides and offer them modicum of job security by way of excluding foreigners from serving as raft guides. Westerners can only gain employment in the Nepali rafting industry by acting as safety kayakers and the positions that require more technical skill and high priced equipment. However, a growing number of Nepalese who have become technically proficient at both kayaking and client rescue and have started to fill those positions previously occupied by westerners.

According to the unpublished report of NARA, It is also said that the ratio of tourist and the employment is 1:9 and among the total visitors in Nepal 15% of the visitors go for the rafting to enjoy the natural high gradient flowing white water. In additional three rivers namely the Sunkoshi, The Bhotekoshi and Karnali, bear high recognition on perfect class destinations of white water rafting in the world. So there is great opportunity to promote rafting business in Nepal.

## **2.5 State laws and regulations related to Water resources**

Complexity and interwovenness of the legal environment is the source of both conflict and its resolution in natural resources. Access to and control over natural resources may be defined differently by different legal systems. These different legal constructions provide an additional potential source for conflicts. In reality, the existence of plural legal systems in a community is in itself a source of conflict in NR (Upreti, 2001). State laws seek to regulate NR according to their framework whereas local and customary norms may or may not follow this framework. Many times the state laws are modified or changed in practice, by the actors themselves, to fit the local situation. This type of variation becomes a source of conflict in practice. Practically, NR users have different and even sometimes conflicting perspectives, values, objectives and knowledge systems. These differences are reflected in their behavior. Their course of action is shaped by various normative and customary rules. In the context of NRM, the concept of legal pluralism leads to the conclusion that conflict is the inevitable product of plural legal situations.



There is great inter-relationship among politics, legal, security, economic and environmental factors. In legal terms, law can act as both a cause and trigger of conflict. As a cause, law and the application of the law provoke conflict by commission as well as by omission. There may exist deficient legal provisions that are manifestly unjust and perpetuate conflicts. More often, however, legal provisions indirectly contribute to conflict by omission, by a failure to apply legal provisions, the limited scope of legal provisions, or their absence all together (NSC Secretariat, 2011).

### **a) Water Resource Act (WRA), 1992**

The Water Resource Act (WRA), 1992 is an umbrella act that was enacted to regulate all forms of water resources. Which specified water utilization issues and states that water in the kingdom is state owned. However, the right to use water is granted to the public with certain provisions. Water rights relate not only to consumption, but also to discharge, destruction, pollution and related conservation work (Oli, 1998; Khadka, 1997 as cited by Upreti, 2001). The WRA is intended for the judicious and effective use of water. The emphasis has been placed on harnessing the country's immense hydro- energy resource. The WRA does not recognize the existence of individual or community ownership of the water resource of Nepal, irrespective of its origin, place, mode of use, or the nature of its management (Upreti, 2001).

According to this act any water source located on private land is the property of the state and denies the constitutionally awarded property right to use it by the Nepalese people. According to the WRA, individuals are entitled, without obtaining a license, to utilize water for their own drinking and domestic use, to irrigate their own land, to run local water turbines, for personal transport by boat, etc. without causing damage to others.

According to section 4 of the WRA, no person is entitled to use the water resource, except for the purposes of listed below without obtaining a license.

- a) For one's own drinking and other domestic use on an individual or collective basis,
- b) For the irrigation of one's own land on an individual or collective basis,
- c) For the purpose of running water-mill or water-grinder as cottage industry,
- d) For the use of boat on personal basis for local transportation,
- e) For the use, as prescribed, of the water resources confined to a land by the owner of such land.

The sub section 3 of section 4 it is stated that a person or a corporate body making use of water resources shall make its beneficial use without causing damage to other.

The section 7 of the WRA had specified the Priority for obtaining a license which states that while utilizing water resources following priority order shall, in general, be followed:

1. Drinking water and domestic use;
2. Irrigation;
3. Agricultural/animal husbandry enterprises;
4. Hydro-electricity;
5. Cottage industries/industrial enterprises/ mining;
6. Navigation;

7. Recreational use;

8. Other uses.

In the sub section of the section 7 has stated that (2) If a dispute arises while utilizing water resources, the prescribed committee shall, on the basis of priority order as set out in Sub-section (1), the beneficial use or misuse made of the water resources in accordance with Subsection (3) Of Section 4. And also by conducting other necessary enquiries, decide as to whether or not or in what manner such use could be made.

(3) The decision made by the prescribed committee pursuant to Subsection (2) shall be valid to all concerned.

### **b) Water Resources Regulation (WRR), 1993**

Water Resource Regulation (WRR) is an umbrella regulation for management of water resources. In exercise of the power conferred by section 24 of the Water Resources Act, 1993, Government of Nepal has made the Water Resource Regulation/ Rules (WRR). Water Resource Rules is comprises of formation of Consumer Association for the use of the resources on institutionalized basis. Formation of the Water Resource Committee in each District for the purpose of issuing the license pursuant to Sub-section (1) of Section 8 of the WRA in order for the utilization of Water Resources contained within Nepal. Provision relating to service charge, under which charge fixation committee and annual charge payment to the GON by license holder, for utilizing the water resource for commercial purposes has also mentioned on WRR. Similarly, the provision of the acquisition of house and land and compensation is also incorporated in WRR.

Inquiry relating to the Dispute regarding Water Resources is one of the most important aspects of the WRR. This corroborates to settle down the dispute among the parties in the local level. It has provision of formation of Water resource utilization committee consisting of Ministry of water resources as a chair person and a representative, concerned district development committee and a representative from regional office of the national planning commission for resolving the dispute and has also prescribed the procedure to be followed while settling the dispute which are as follows:

(a) If a dispute arises as to fixation of preference of utilization of water resources between the local people to be benefited from the water resources utilization project or as to grievance to the local people against the running of any project related to water resources, a reasonable time-limit shall have to be fixed to the concerned licensees and local people for submission of written information mentioning the facts to support their claim, separately or collectively.

(b) After a written information is received within the time-limit as prescribed under Clause (a) a field study of the project-site shall have to be made and be appraised of the following matters:-

- i. Total cost of the Project,
- ii. The standard of benefits from the project,
- iii. Possible effect to the people or group utilizing the concerned water resources while running the project,
- iv. Number of consumers to be benefited from the project,
- v. Effect on environment due the operation of project,
- vi. Need of the local people,

- vii. Opinion of consumers to be benefited from the project,
  - viii. Other necessary matters.
- (c) After being apprised of the matters as mentioned in Clause (b), on the basis of the same, the decision shall be made whether the use of water resources is beneficial or not and whether the use of the said water resources is to be allowed or not.
- (4) The Water Resources Utilization Inquiry Committee may, while deciding the matter regarding the utilization of water resources pursuant to Clause (c) of Sub-rule (3), set-forth conditions for utilizing any water resources.

### **c) Water Resource Strategy (WRS), 2002**

National Water Resource Strategy (NWRS) describes how the water resources will be protected, used, developed, conserved, managed and controlled in accordance with the requirements of the policy and law. The central objective of WRS is to manage water resources to ensure that water is used to support equitable and sustainable social and economic transformation and development. The NWRS seeks to identify opportunities where water can be made available for productive livelihoods, and also the support and assistance needed to use the water effectively.

Recognizing water as central to all economic activity, WRS has been formulated to provide a platform for the essential collaboration and co-operation among all departments in all spheres of government involved in economic development. It is considered as the important input to the evolving National Spatial Development Framework. Which will assisting to provide a better understanding of the contribution that water can make to development in all departments, areas and activity.

Water Resources Strategy Formulation (WRSF) involves the reconciliation of a range of problems and constraints to sustainable water resource development, including those related to government policies, financial and human resources, institutions and actions. A key objective of WRSF is to identify effective, scientific, sustainable and consensus-based mechanisms to facilitate the implementation of action oriented initiatives and programs and in doing so, successfully bring about this reconciliation.

The Water resource strategy has pointed out some of the issues on water resources which are as follows.

- Need for comprehensive water resources policy
- Lack of integrated river basin planning and management
- Water pricing and cost recovery
- Potential of water transportation – navigation
- Macro-economic implications
- Absence of an effective central planning organization
- Blurred responsibilities between policy, implementation, operational and regulatory institutions
- Absence of an institutional framework for coordinated and integrated development
- Jurisdictional overlaps and the challenge of maintaining coordination between public and local bodies

The Water Resources Strategy outputs will contribute national goal of “Living condition of Nepali people are significantly in sustainable manner” through the achievement of short-,

medium- and long-term purposes. Where in short term purpose, which is 5 years timeframe, it has emphasized on the fulfilling the basic needs and in medium term purposes which is 15 years, has focused on increasing benefits for sustainable water use and the long term purposes, which is 25 years' time period has engrossed to maximization of benefits and sustainable water use.

The ten strategic outputs has been modeled to achieve time framed purposes, which are categorized in three main aspects of Security, Uses and Mechanism. In the water uses aspect includes the sectoral water uses and their purposes within the short, medium and long period time frame. In output 5 it has mentioned about the hydropower, where in 5 years timeframe, it has purposed to develop projects which meets the domestic needs and viable exports, than in 15 years mid-term time frame, has purposed to maximization of development of hydropower to have different uses of electricity in extensive way mainly in industries and exporting of power. In the long term it has planned to optimize the water use. WRS has included the recreational and tourism along with fisheries, industrial water uses, agriculture and navigation in other economic activities. Where in short term time frame it has purposed to implementation of these economic activities. In the mid-term it has emphasized on enhancement of water use in the economic activities and economic uses of water and water bodies by recreation, tourism, fisheries, aquaculture navigation and industries optimization is the long time frame purpose.

Water Resource Strategy has also includes the policy and legal outputs in output number 9, which has purposes of establishment of appropriate policy and legal framework including equitable water use rights, Adequate legal framework functioning, and adopting to changing circumstances are included in the short, mid and long term time frame respectively. The legal framework for water use in Nepal must address emerging issues such as water use rights, user conflicts, compensation for reductions in water quality and/or quantity, and the need for improvement in the enforcement of statutory laws and regulations. WRS has set an indicator that within the first five years (2002- 2007), existing sub-sectoral policies, enabling laws and regulations will be reviewed and equitable water use rights will be developed to allow the effective implementation of water-related developments. An Integrated National Water Resources Policy will be developed and approved by Government, and conflicting laws related to water resources development will be harmonized and amended, as necessary. Communication with the general public regarding their water rights and obligations will be improved. In the following ten years (2007-2017), regular monitoring and updating of enabling laws will be carried out to ensure that the legal framework continues to function satisfactorily. Conflict resolution mechanisms will be developed so that the majority of conflicts can be resolved quickly. All individual and community water use rights will be registered and documented and regulatory compliance will be strictly enforced. By the end of 25 years (2027), mechanisms will be in place to ensure that legal frameworks are functioning and able to adapt to changing circumstances. Water-related conflicts will have decreased substantially and those remaining will be quickly resolved. Output 10 is related with the intuitional mechanism, which has mentioned the activation of the appropriate institution in short term, institutional mechanism for integrated water management functioning in the mid-term and functioning of all institutions efficiently with changing circumstances in long term purpose.

#### **d) National Water Plan (NWP), 2005**

National Water Plan, 2005 is a Framework to guide, in an integrated and comprehensive manner all stakeholders for developing and managing water resources. With the broad objective of contributing in a balanced manner to overall national goals of economic development, poverty alleviation, food security and public health and in order to implement the activities identified by the WRS, Water and Energy Commission Secretariat (WECS) started formulating National Water Plan (NWP) in 2002. NWP has recognized that traditional water resource management was focused on water supply side, where only technical solutions were considered to meet the growing demands for water. Isolated projects on different sectors were developed for enhancing the economic growth but somehow lacking of consideration of environment and social impacts. Which results in inter sectoral, inter regional and riparian conflict. Hence the optimal utilization and benefits were not made in terms of efficiency, equity and environmental consideration in the particular river basin. So concept of Integrated Water Resources Management (IWRM) and River Basin Management (RBM) was realized by NWP for management of water resources and hence to reflect the interactions between various demands, and coordinated within and across the sectors.

NWP has mentioned that for implementation the IWRM principle there should certain structure which are as follows:

- Enabling environment which formulate and implements the appropriate water policies and legislation.
- Institutional framework, which clearly defines the institutional roles of central and local level government institution in relation to river basin management.
- Management instruments: Development of Decision Support Systems (DSS)/tools for various management decisions such as regarding water resources assessment, water allocation and conflict resolution.

The major doctrines of NWP are: integration, coordination, decentralization, popular participation and implementation of water-related programs within the framework of good governance, equitable distribution and sustainable development. NWP has mentioned that it seek to avoid acrimonious conflicts and disputes over water allocation and management and also avoids the irresponsible, ineffective, unjust, or unwise and unsound management decisions on development in the integration doctrine. Furthermore, in this doctrine it has also mentioned that the District Water Resource Committee (DWRC) which will administered under the District Development Committee (DDC) will act as an adjudicator when conflict arises.

In the coordination doctrine it has bring up Water and Energy Commission (WEC) as a single neutral coordinator and administrator at the central level responsible for integrated national water planning, policy analysis and development, in addition to development of appropriate legislation and mechanisms for broad water management functions and practices, including central level program fixation and resource allocation. Likewise, it has put DWRC for coordinating the activities and programs at the district level.

In the case of Decentralization it has remarked that local intuitions will be functional for the dealing with the conflicts over water use and effects of pollutions. It has also further added

that the inconsistencies in the provisions of different Acts and Regulations will be noted and will be harmonized to make the local institution effective and functional.

National Water Plan has also included the uses aspects in its planning. It has made an action program of optimization of the hydropower by 2027 up to 4,000 MW to meet the domestic demand excluding exports and export substantial amounts of electricity to earn national revenue.

In water uses aspects for tourism NWP has stated that the water bodies, like rivers or lakes are protected and maintained in good conditions. It has specified that water tourism in the form of water rafting and kayaking are becoming popular and providing employment for many. It has estimated that, the total number of tourist for rafting all over the Nepal's river is expected to 40,000 annually and is expected to grow in the conducive environment.

It has clearly stated that while developing the water projects, due consideration should be given to avoid adverse effects on water tourism. Furthermore, it has set targets to facilitate initiatives to develop water-based cultural, recreational and eco-tourism related activities and also conduct studies on water tourism such as white water rafting and studies to identify stretches of the river. However NWP has not set any action program for the development of the water tourism alike of other sectors like hydropower and fisheries.

NWP has also included the legal framework in its planning and designated the action program which has stated that Integrated Water Resource Development Policy has been already prepared for discussion and deliberation and also based upon the proposed policy, a new Water Resource Act and Regulation have been framed, which will be adopted after possible consultation with all stakeholders and the due compliance of governmental procedure.

## **2.6 Conflict Analysis**

Conflict Analysis is very important aspects of conflict management. It is consider as the systematic study of the profile, causes, actors, and dynamics of conflict. It helps development, humanitarian and peacebuilding organizations to gain a better understanding of the context in which they work and their role in that context (NSC Secretariat, 2011).

Analyzing conflict using conflict analysis tools helps to focus on certain aspects of the conflict and organize the information. Analyzing of conflict using conflict mapping tools, help to focus on the important aspects of conflicts and organizing the required information. The tool enables to assess the origin and underlying causes of conflict, highlights the linkages between factors that lead to conflict arising, and will assist in developing a clear picture of the conflict.

The aim of Conflict Analysis is to better understand the historical and structural antecedents of violent conflict and to better understand what converts latent conflict into open conflict or intensifies existing open conflict. The methodology, in conflict analysis has focused on analysis of conflict structures, triggers, actors and dynamics. Conflict analysis helps to know the in-depth of conflict. It initially estimates of the immediate positions and demands of different stakeholder groups, and their deeper underlying values, interests, needs and concerns. There are many tools for analyzing the conflict, amongst them, conflict mapping and need fear mapping tools are been used for analyzing the conflicts related natural resources. In a community based resource management conflicts, in Papua New Guinea and Fiji conflict analysis was done using the conflict mapping tool, to know the current and

potentials of conflicts of cluster related conflicts. Similarly, in study of the conflict of Agro-Pastoralists in Kenya, conflict mapping tool was also used to know the interrelationship between the land cultivators and pastoralists.

### **a) Conflict Mapping**

Conflict mapping is one of the methodical tools for analyzing conflict. Similar to a geographic map that simplifies terrain so that it can be summarized on one page, a conflict map simplifies a conflict, and serves to visualize; the actors and their “power”, or their influence on the conflict, their relationship with each other, and the conflict theme or issues. A conflict map represents a specific view point (of the person or group mapping), of a specific conflict situation (Mason & Rychard, 2005). In another word conflict mapping is a method entails producing a graphical representation of the conflict actors, their relationships and the respective conflict issues.

It is used for analyzing the conflicts, actors and their interrelationships or to know whether there any positive or reconciled relationships between conflicting parties.










This helps the observer to identify patterns of power, alliances, neutral third parties, potential partners for cooperation and possible points where influence could be exerted. In addition to the actors and their relationships, the issues causing the conflict between the respective parties can also be mapped. The position adopted by the more important actors can also be included in more detail, in a type of speech bubble. This is a good lead-in to an analysis of the conflict causes and issues in the dispute (GTZ, 2001)

Conflict mapping provides a greater understanding of the relationships and balance of power between the parties involved in the conflict. It helps in identification of potential cooperation partners and target groups, examination of their position in the conflict.

Actors or “parties” are people, organizations or countries involved in a conflict. If they are directly involved in the conflict they are called “conflict parties”, if they become involved transforming the conflict, they are called “third parties”. Stakeholders have an interest in the conflict or its outcome, but are not directly involved.

Conflict mapping is a good tool to start analyzing a conflict. In the conflict mapping the power asymmetry can be represented by the relative size of the actors circles. Animosity and cooperation are symbolized with lines.

### Possible symbols used in conflict mapping

	Circle = parties involved in the situation. The size of the circle symbolized the power of the conflict party in relation to the conflict. The name can be written in the circle.		Arrow = predominant direction of influence or activity
	Straight line = close relationship		Zig zag line = discord, conflict. Lightning bolts can be added to indicate hot events.
	Double line = Very good relationship, alliance		Crossed out line = broken connection
	Dotted line = weak, informal or intermittent links		Half circles or quarter circle = external parties, third parties
			Rectangular boxes = issues, topics or things other than people and organizations

-Source ( Mason & Rychard, 2005)

Conflicts by definition refer to frictional relationships between parties. Issues are the topics of the conflict; what people discuss or fight about.

Dynamics refer to the escalation level of the conflict, the intensity of interaction, the “temperament” and the energy of a conflict that transforms people.

### b) Needs and Fears Mapping

It is used to map the underlying needs and fears of key stakeholders. In this method the underlying needs and fears are distinguished and sorted to find areas of common ground among the conflicting parties. It emphasizes on the different perspectives of the various parties. By putting them side by side, one can see where there are differences and things in common. It is a good preparation for a mediation, can also be used to coach one conflict party. It does not look explicitly at structures or context. It focuses on actors and their issues, interests, needs, fears, means and options. It allows for a clear comparison of actors similarities and differences in the form of a table.

The Needs-Fears Mapping is an actor oriented clarification tool. For each actor, the issues, interests/needs, fears, means and options are listed in a table. This enables comparison and quick reference. Here the parties mean the actors of conflict; issues refers to their problems; interests/needs refers to their prime concerned agenda; similarly, options refers to ways to deal with the conflict, strategies that are used or could be used, conflict party or third party efforts to de-escalate the conflict.



## Chapter 3

### Research Methodology

#### 3.1 Research Design

The Research design adopted for this study is shown in figure 3.1

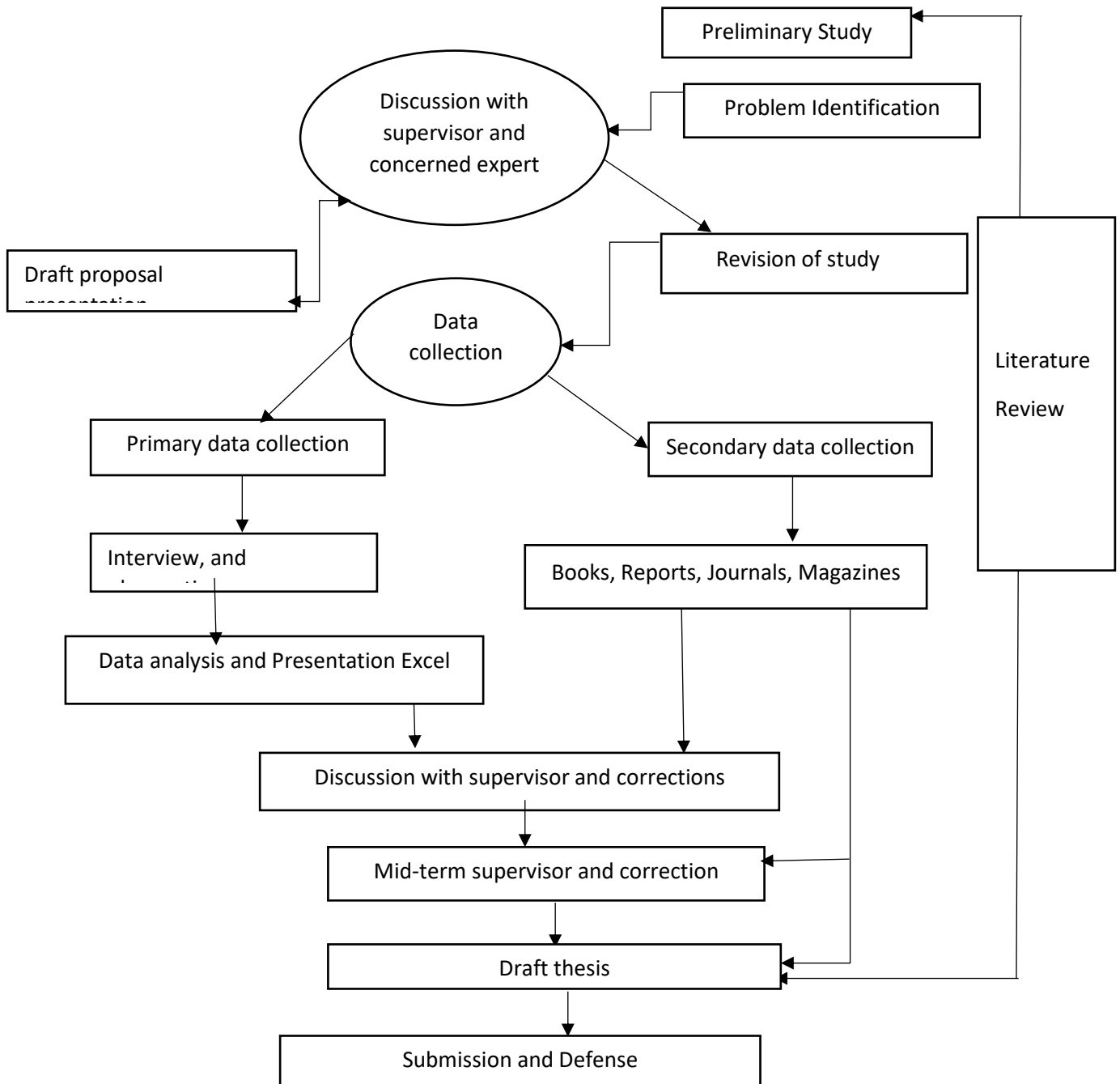


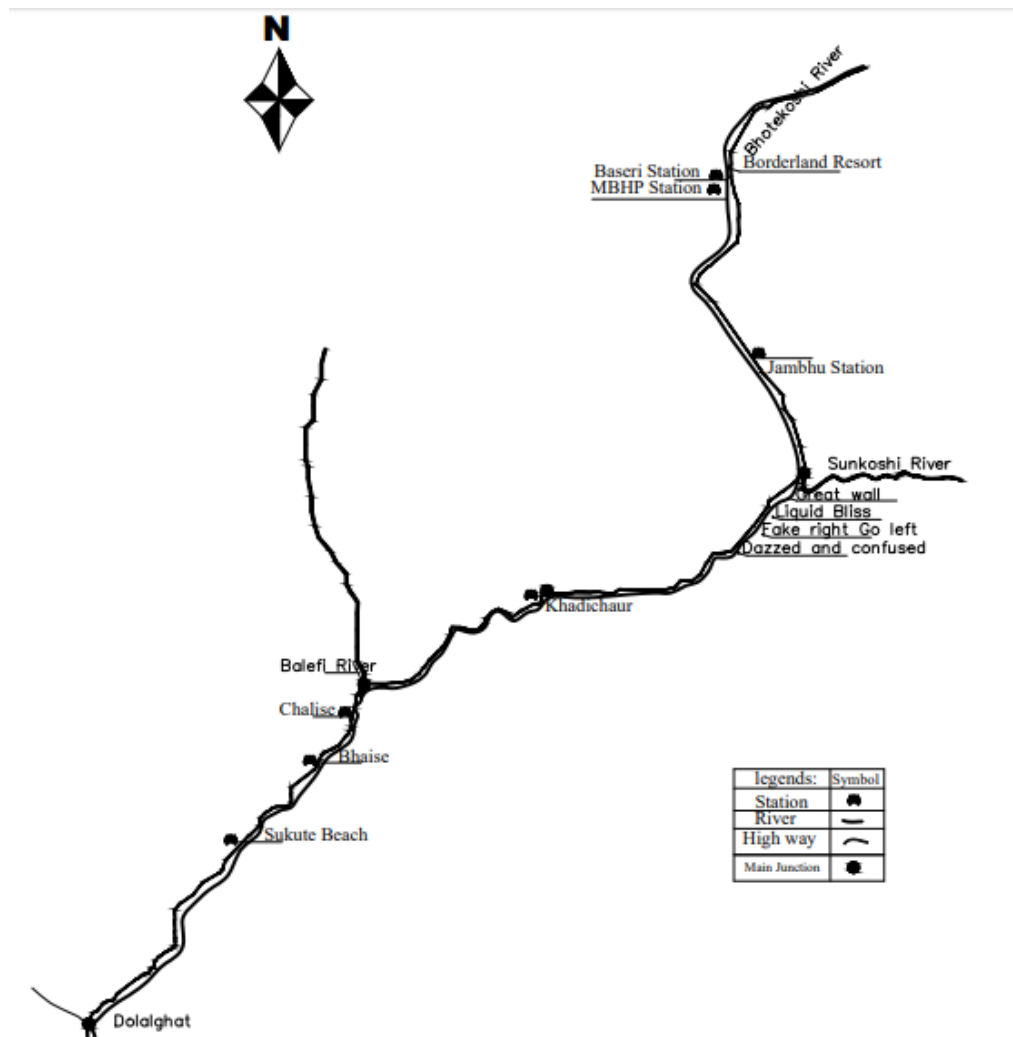
Figure 3.1 Research Design

### **3.2 Research Approach**

Inductive approach was adopted for this study which was based upon the specific observations. However, it involves degree of uncertainty. In order to pursue this study both qualitative and quantitative approach were carried out. First of all personal interview was conducted with the primary conflicting parties, MBKHEP developer and rafting agencies and the obtained data was analyzed using the conflict mapping tool. In order to know the economic contribution made by the sectors to the local people, interview was taken with the job holder from corresponding two sectors. For knowing the governing water laws and policies to manage the inter- sectoral water use, all the related documents were analyzed using the method of content analysis.

### **3.3 Study Area/Location**

The Bhote Koshi River originates from the Tibet Autonomous region of China and set steep across the high Himalaya with 27°43'58"North latitude and 85°46'47"East latitude. The river lies in Sindhupalchowk district of Nepal.



**Figure 3.2 Location of Power Stations and Rafting point at Bhotekoshi River**

The section of the Bhotekoshi studied is located approximately three hours bus ride from Kathmandu and is situated directly adjacent to the Arniko Highway that connects Kathmandu with Tibet. Due to its close proximity to Kathmandu, the Bhotekoshi River has been the most heavily rafted run among all of Nepal's rivers. The study area is started from Baseri rafting station to the Dolalghat as shown in figure 3.2. Thus the study area covers about 38 km stretch of the River.

### 3.4 Method of data collection

Both quantitative and qualitative data were collected. Field visit, Personal Interview was the main technique to collect the data. Some data was gathered from contacting the people especially involved in conflict issues and the secondary sources. Qualitative approach of content analysis of the documents was used to collect the relevant data related to laws, policies and institutional mechanism.

To know the economic contribution made by the two sector in the local scale, which is the integral part of the study, the secondary data obtained from the corresponding intuitions and the Interview among the employers and the stake holder associated with the two sectors and local people were utilized.

### **3.4.1 Primary Data Collection**

#### **Personal Interview**

Interviews with informants were held to collect information and data. The Interviewees were selected from the sector wise (from rafting and hydropower) and local people.

#### **Sample Selection**

This research has 6 different sampled actors e.g. employers from the rafting and hydropower company, hydropower developers, Rafting agencies and NARA members and resorts owners of the Madhya Botekoshi River. Hence, the research population and sample size is different accordingly. Among the 200 workers working in the rafting agencies for Bhotekoshi River 24 interviews were conducted. Similarly among 164 workers working at Hydropower construction site, 19 interviews was done. In both the cases, snowball sampling method was followed to choose the informants.

Furthermore, among the total existing 63 registered rafting agencies in NARA, 10 were interviewed. Similarly, 7 interviews were conducted with MBKHEP developer, using the snow ball sampling methods. Even though there are many resorts located at MBR site but only 7 resorts lies in the study area, among these resorts 5 resorts were selected for interview by simple random sampling methods. However 2 more resorts were found under construction during field visit, which is not incorporated in the total population.

Snowball sampling method was used to select the local influential personal, local leader and elder citizen and members of social groups. Unstructured interview were conducted with them. To sum up, a total of 77 interviews were taken based upon the checklist prepared. (Annex 2)

### **3.4.2 Secondary data collection**

The required and relevant secondary data were collected from different published and unpublished documents. Beside these, concerned offices such as NARA, Rafting organization, NRCT and MBKHEP were visited to collect relevant information. Likewise, the secondary information was collected from the various articles published in the journals.

### 3.5. Data Analysis

Data collected through the interview were tabulated in MS Excel and analyzed in an interpretative way. All the collected data were analyzed qualitatively and quantitatively. Furthermore, conflict analysis tool was used to analyze the conflict and to show the interrelationship between the conflicting parties, the conflict mapping and Need Fear mapping were done.

To know the contrasts and similarities of laws and policies for allocation of water in different sectors and provision to manage the conflict, the relevant laws and policies documents were analyzed by content analysis method.

### 3.6. Research Matrix

**Table 3.1. Research Matrix**

<b>Objective</b>	<b>Data Used</b>	<b>Source of Data</b>	<b>Methods of collection</b>	<b>Analytical Tools</b>
To understand the interrelationship between the hydropower and the recreational sector	Qualitative	Published and unpublished data NARA, NCRT and Newspapers	Personal Interview and Secondary Sources	Conflict Analysis Tool
To know the economic benefits made by the two sectors to the local people	Quantitative and Qualitative	Rafting Agencies and Hydropower Company, Local people	Personal Interviews and secondary Sources	
To access the existing policy, law and institutions that govern the water resources management and conflict	Qualitative	Existing policy, strategies, planning and legal documents	Secondary sources	Content analysis

## **Chapter 4**

### **Results and Discussion**

#### **4.1 Analyzing Conflict**

For the study of the existing interrelationship between the hydropower developer and the rafting association, at the study area, conflict was analyzed using the conflict analysis tool.

##### **4.1.1 Actors of the conflict**

The Bhotekoshi River which is also known as the upper Sunkoshi River has various water users. The hydropower developer and the rafting are the dominant water users and they are the main actors of the conflict. The conflict arose between the Madhya Bhotekoshi Hydroelectric Project and the rafting groups and in some extent the resorts owners of the study area.

##### **4.1.2 Hydropower**

In the study site there are 2 hydropower at operation level, 2 are proposed and 1 in construction phase. Within the distance of 38km all together there are 5 hydroelectric projects. All the hydropower projects are runoff river type. Upper Bhotekoshi hydropower which is about 36MW and located in Chaku was completed in 2001 and now it is not function after the major earthquake in 2015 and GLOF in 2016. Sunkoshi hydropower, 10.5MW is located in Lamosanghu, which was commissioned in January 1972. Upper Bhotekoshi 1 and Kalika hydropower are proposed hydropower projects. Madhya Bhotekoshi Hydroelectric Project 102 MW is in construction phase and about 30% work had been completed till date.

##### **4.1.3 Madhya Bhotekoshi Hydroelectric Project**

Madhya Bhotekoshi Hydroelectric Project is ROR type hydro project, with installed capacity of 102 MW located in Sindhupalchowk district, developed by Madhya Bhotekoshi Jalavidyut Company Limited (MBJCL). Which is a subsidiary company of Chilime Hydropower Company Ltd., was established on 29/07/2010. Study license with the name of MBJCL was issued on 8th April 2011. The power purchase agreement with NEA was done in 14<sup>th</sup> November 2011. The project had done public hearing on 15<sup>th</sup> August 2012. The EIA for 102 MW project was approved by Ministry of Science Technology and Environment (MoSTE) in 12<sup>th</sup> November 2013 and had received the generation license in 3<sup>rd</sup> December 2013. The project was proposed to complete by the end of 2015 but due to the conflict with rafting agencies and resorts owners, Jure landslide in 2013, devastating earthquake on 25<sup>th</sup> April 2015, the flashflood from Tibet in 2016 and negotiations with GauriShankar Conservation Area, as some part of the conservation area also covered by the project, had

delayed the project. Due to these various constraints only 30% work had been completed at the time of study.

The project had directly affected the farming land of Bhotekoshi Gaupalika's (Rural municipality) 5 places namely Gati, Marming, Listikot Ghumthan and Manesowara. Among these five Ghumthan and Manesowara are less affected places. So far, the project had not relocated any villages, which is the best part of project. Beside that it also covered some parts of Gaurishankar Conservation area.

The company had Equity participation for the development of the hydropower, the company includes stakes of 38% for CHPCL, 10% for NEA, 1% each for three local hydropower developers namely Nepal Araniko Hydropower Company Ltd., Sindhu Investment Pvt. Ltd., Sindhupalchowk Hydropower Company Limited, 49% for general and local public (field visit 2017).

#### 4.1.4 The Rafting business owners

The rafting was started in Nepal in the late 1960s. It is said that two French nationals descended to parts of Sunkoshi 1968. Then after that Trisuli River, Dudh Koshi, Upper Arun, Kaligandaki, Marshyangdi and Karnali River were explored by the foreigners from different nations. Then Nepalese teams were invited to attend International Rafting Rallies: in Switzerland in 1988, in Siberia in 1989, USA in 1990 and Turkey in 1993 (NARA, 2013)

Appraising of the commercial rafting and concluding it could be important source for revenue generation, the government set a system of rafting permits in 1985. Then for promoting the rafting business in Nepal the rafting owners realized a need of association and formed Nepal Association of Rafting Agencies (NARA) in 26 December 1989. Since then NARA is promoting Nepal River rafting nationally and internationally. They are also lobbying for their right with government and also working policy formation for rafting agencies.

Considering the potentials and the growing nature of the business about 80 companies registered but currently only 63 are functioning. According to an authority of NARA the reasons behind the decreasing the number of companies is that they are insecure about the sustainability of rafting business in Nepal. Currently the rafting agencies running rafting at 16 major rivers as the Government of Nepal (GoN) had permitted 16 rivers for white water rafting which are as follows.

**Table 4.1. Major rafting rivers in Nepal**

Rivers	Class (classification of rapids)	Volume ( m <sup>3</sup> /s )	Total days	Scenic wild	River star
Trisuli	2/3+	300	1-4	*	**

Upper Kaligandaki	4-	120	3	**	***
Lower Kaligandaki	2	250	5	**	**
Seti Khola	3-	40	2	**	**
Marshyangdi	4+	80	5	**	***
Budhi Gandaki	3	90	3	*	*
Sun Koshi	4-	400	10	**	***
Upper Sunkoshi	2	40	1	*	**
Bhote koshi	4+	90	2	**	***
Lower Arun	4-	215	4	**	**
Tamur	4	150	11	**	***
Dudh Koshi	5	100	9	**	*
Karnali	4	300	10	***	***
Mahakali	3	30	10	***	*
Seti/Karnali	3	130	9	***	**
Bheri	3+	200	8	***	**

Total days= Total days for a typical trip, to and from Kathmandu or Pokhara

Scenic/Wild= subjective rating for scenery and wildlife by NARA

River star= Rating of the river as a rafting trip-based upon experience

\*\*\* Highly recommended, \*\* Recommended, \*Special interest.

Rafting in Bhotekoshi started in 1996, which became one of the best destinations to the rafting visitors due to the high gradient of flow; hence it was classified to 4+ class as shown in table 4.1. The rafting trip had given three stars to the Bhotekoshi River on the basis of trip experienced by the tourists, which means it is highly recommended for rafting.

#### 4.1.5 Resort Owners

When the rafting started in Bhotekoshi River there were no resorts and hotels nearby. The rafting agents used to carry tents, food and boat with them and used to stay in the open space of the river bank. Now there are seven resorts in the study area namely, Sukute Beach, River Bay, Sunkoshi Beach Camp, Sunkoshi River Side, Rafting Star, Boarderland and Rock Riverside Resort. The Last Resort is located in the starting point of rafting in Gati, which



lies above the study area. Among these resorts, two resort owners, River Bay and Sunkoshi River Beach Camp owners are from the same area and others four are from different parts on Nepal. The oldest resort, Sukute resort was established in 2000, with the purpose of providing lodging and fooding to the rafting enthusiasts in the Bhotekoshi River.

## **4.2 Conflicting Issues**

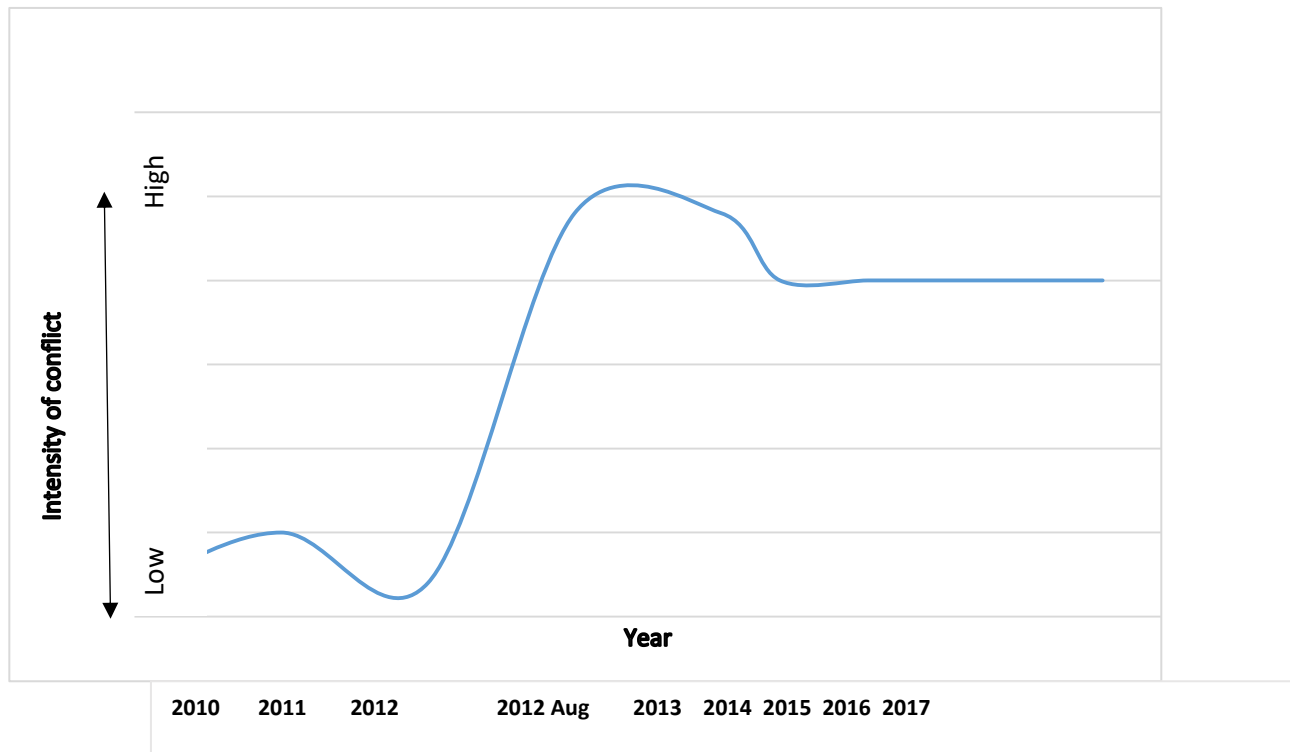
Since more than a decade, rafting business and hydropower were running in the Bhotekoshi River, the both groups were using the same source of water for their respective use. There was neither cooperation among them nor any conflicting situations.

The main issue of conflict is the construction of Madhya Bhotekoshi Hydroelectric project of 102MW. The project was initially proposed of 80MW and was situated to build nearby the Sakhuwa. Initially the survey was done for the 80MW. This was mentioned in NEA annual report of 2010 that, Chilime Hydroelectric Project Limited (CHEPL) is at development level of Madhya Bhotekoshi 80MW hydroelectric project. Later on the developer came out with the result that it could be extended to 102MW and the project extended to 102MW. Due to this extension the power station of the MBKHEP was just 3km distanced from the Baseri rafting point. According to NARA, Baseri is renowned for the world best white water rafting point, because of its gradient and high intensity of flow. If the power house is within just 3 km distanced than there will be no water in rafting seasons and the world's best rafting place would be no more. Hence the rafting agencies started to protest against the development of 102MW project and asked for construction of only 75 MW for saving the world's class rafting station. But the developer doesn't want to step back and reduce it. As they said that even it is said that the Baseri is the starting point of rafting but more number of tourist are recorded to the second section of the rafting, which 21km below the MBKHEP station. In the concept booklet of MBJBC it is said that no rafting data was found within a year of survey in Baseri rafting section. For the lower rafting section (Baseri station) the water will be diverted again in river after generation of power so that there would be no harm to the rafting business owners. The rafting agencies and the resort owners strongly disagreed that point and they opposed the construction of the MBKHEP 102 MW.

## **4.3 Dynamics of conflict**

The conflict is always dynamic as it passes through different stages at the different interval of time. The intensity of conflict can be increased or decreased as the time evolved. It can be escalated or de-escalated at different stages.

In this case the conflict was in latent stage when the power developer proposed to develop a power plant of 80 MW initially in the Bhotekoshi River in 2010. There was an incompatibility but the conflict was in hidden stage and at low intensity. When the developer found the potential to generate 102 MW and proceed to develop 102MW hydroelectric project in 2011 the intensity of conflict was increased as the rafting agents started to protest and the confrontation between the two parties had initiated. In the starting of 2012 the intensity of conflict was low as the conflicting parties assembled for the negotiations.



**Figure 4.1 Dynamics of Conflict with timeline**

In most of the cases the conflict de-escalated during negotiation and come out with a positive output as the consequences of which the intensity of the conflict is decreased. But in this case the conflict was amplified in the absence of the proper negotiations and that non-presence of the unbiased third party, and was further escalated. The intensity of the conflict enlarged and the two conflicting parties were distanced. The rafting agents, along with the members of Nepal River Conservation Trusts (NRCT) and the local organized rallies and protest program against the power developer and the conflict reached to the level of crisis as shown in figure 4.1. Hence in August 2012, the conflict reached to the peak and one of the conflicting parties, the rafting agencies, choose litigation as the way of solution and file the case in the Supreme Court against the power developer asking for stay order. The Supreme Court did not grant the stay order. After the denial of court to issue stay order the intensity of conflict was decreased slightly. But then again, the member of NARA, NRCT along with the local people, environmentalists and rafting enthusiasts had organized a protest rallies against the construction of the 102 MW power plant in 2012, against the court order and the intensity of conflict increased. Though many protest program was organize to pressurize the Supreme Court to give verdict in favor of rafting, even then the court did not issued stay order. Then, slowly the intensity of conflict started to de-escalate as the time passes. Since then to till date the case is stuck on de-escalation phase. It is still in court and yet, no final verdict was given by the court.

#### 4.4 Conflict management practices

The conflict management has been presented in a narrow and a broader sense. It is the process of limiting the negative aspects of conflict while increasing the positive aspects of it. In this case, both the conflicting parties sit for negotiation for the management of conflict. Hence initially the conflicting parties select the Alternative Dispute Resolution (ADR) technique for addressing the incompatible issues between them. The MBKHEP developer offered the Eco- hydro tourism model and also promised for certain budget for parallel development of Hydropower, Agriculture and Tourism (HAT) to the rafting association in 2012. The following offers were included in the Eco-hydro model.

1. International Community Rafting Center (ICRC) will be built, where different program will be run. Like: Rafting Teaching and Learning, Rafting museum, Conference Hall, Rafting pool and takeoff ladder. Different training will be provided to the rafting guide in rafting center so that they will have highly skilled rafting guide.
2. The power developer will help in making the stopover at the different section of the rafting route and also will support financially for making the pay gateway nearby Dolalghat.
3. After the completion of construction of ICRC all responsibility will be handed over to the local community and will enhance the rafting business through the involvement the local and skilled manpower in rafting to enhance the livelihood of the local people and increase the revenue collection of Sindhupalchok district ( MBJCL, 2013).

The both conflicting parties gathered for the negotiations in many rounds, but were not able to reach in concrete conclusion. Both of the conflicting parties stacked to their own demands. The rafting association was demanding to reduce the power plant capacity and save the world class top 10 rafting section. While the developer argued that National Geographic website mentions that the Sun Koshi River, which begins much downstream from where the powerhouse is situated, is one of the top ten rafting rapids in the world – and not Middle Bhote Koshi River. Many rounds of table talk were held in the presence of the conflicting parties and the local leaders, but it was not directed towards the cooperation.

The University for Peace stated that , “mediators generally have vested interests in the resolution in a given conflict or dispute, but they must be able to operate neutrally and objectively”. So the third party should be unbiased and fair towards conflicting parties. In this case the unbiased and neutral third party presence was lacked and hence the negotiation could not become fruitful. In this case the local leaders who were assembled for negotiations also directly involved in the conflict and supporting for their own group (Field visit, 2017). Hence, the power play game, the lack of the third party was clearly seen while having the negotiations. Therefore, instead to resolution of conflict, it was escalated. Hence the conflict continued and due to lack of the moderator, the situation was worsened.

Water Resource Act and Water Resource Regulation have mentioned that if any kind of dispute arises while utilizing the water resource then a water utilization enquiry committee will be formed for the settlement of such issues. For that either license holder or those who are beneficiaries or those who are suffering from grievances has to give written application mentioning their claim. Even though legal framework has this provision but, none of the conflicting parties informed the District Water Resource Committee and registered the case in DWRC. This shows that the conflicting parties lack the trust to the local institutional mechanism and its functioning. Instead of giving written information to the water resource

enquiry committee and resolving the conflict at local level, rafting agencies filed a case against the power developer in the Supreme Court.

#### **4.5 Types of Conflict**

The conflict was between the two water users belonging to the different sectors, hydropower and rafting (recreational water users). The type of conflict is inter-group conflict, where two different groups have incompatible goals. Besides that, during the field assessment it was also observed that the intra-group conflict within the rafting agencies. Among the interviewee of rafting agencies, 40% of the rafting agents had strongly supported that the NARA should go with the litigation method to resolve the conflict but 60% were in favor of taking the negotiation offer provided by the power developer. Hence after the court rejection of issuing stay order to the project, follow up were done for around a year, but after that no follow up and hearing had been done. They assume that this is mainly due to the varying interest within the rafting agents. Now 60% of the rafting agents are saying that the offer provided by the power developer was really good and it would be win-win situation for both the conflicting parties.

#### **4.6 Interrelationship between the conflicting parties**

Water conflict does not emerge in one single dimension. It has different dimensions from which it develops many dynamics. In the study area, there are numerous actors involved in the conflict directly or indirectly. Numerous dimensions of conflict have been observed in the study area. While analyzing conflict, Warner and Jones (1998:09) suggest some activities that include:

- Mapping of the conflicts (their magnitude and connectivity);
- Mapping the geographical distribution of the conflict/s;
- Prioritization of the conflict into ‘urgent’ and ‘significant’;
- For the prioritized conflict, identification of the key stakeholder groups and their Perspective representatives;
- The motivating objectives and underlying ‘needs’ and ‘fears’ of the different stakeholder groups.

Some activities from their framework have also been applied here for this research to analyze the conflict.

To know in depth of the conflict, conflict analysis was done. The parties involved in the conflict had various interests. For the purpose of knowing the insight of the conflict needs fear mapping tool was also used to analyze the situation. The needs and fear of the conflicting parties, resorts owners, local people and political parties and leaders involved in negotiations is shown in table 4.2.

#### **4.6.1 Needs fears mapping**

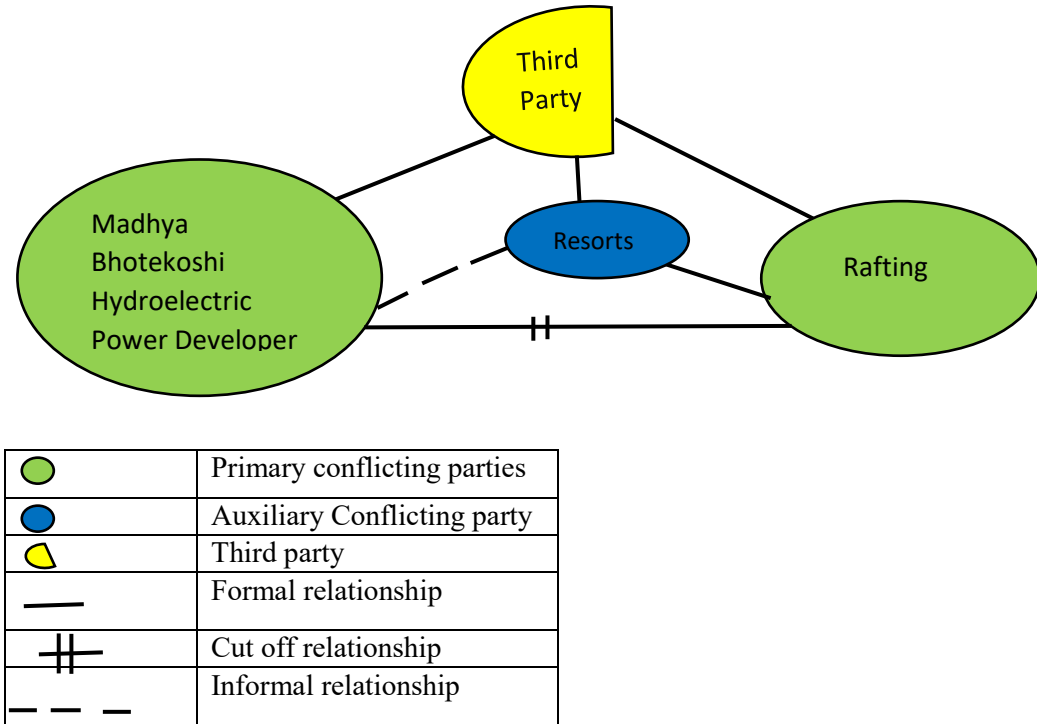
There are different parties directly or indirectly involved in the conflict, hence the different parties had different motives to be the part of the conflict and means of the fulfillment of this. The need and fear mapping table as shown in table 4.2 shows the involvement of different parties and what were the issues and their prime interest, their threats as well as the means they used to fulfill their interest and options that could be used to achieve their respective interests.

**Table 4.2. Needs Fears mapping**

<b>Parties</b>	<b>Issues</b>	<b>Interests/Needs</b>	<b>Fears</b>	<b>Means</b>	<b>Options</b>
<b>Hydropower Developers</b>	Generating more energy from the high gradient flow	Income generation and more power production	Local people, the rafting agencies and resort owners protests	Political lobbying, Incentives and policy	Join the dialogue process, negotiation and providing shares for those who are affected
<b>Rafting Agencies</b>	Water flow for rafting	Income generation, protection of white water river and promote rafting	Diversion of water by power developers at high rapid flow sections	Political lobbying, Litigation	Join the dialogue process, proper negotiations and follow ADR process
<b>Resort Owners</b>	Sustainable resort business	More visits of tourists	Loss of rafting will reduce the visits of tourists	Political lobbying from local level	Join the dialogue process and negotiation
<b>Local Government/ Political Parties</b>	Economic growth without social turmoil,  Royalty for local government	Good governance and development, Win the election and popularity	Loss in election, blame of biasness	Political means, Policy	Joins the dialogues and be the neutral mediators
<b>Local People</b>	Development and economic growth	Increase in life standards and social harmony,	No job opportunity and low life standards	Incentives, employment Shares in hydropower	Incentives and shares who are affected and alternative livelihood opportunity

#### 4.6.2 Conflict mapping

The present interrelationship between the power developers and the rafting agencies is shown by the conflict mapping tool.



**Figure 4.2 Mapping of the water use conflict in study area**

The size of the circle represents the power of each of the conflicting parties. In this case the hydropower developers are more powerful than that of the rafting agencies and the resort owners. The hydropower developer is powerful, in terms of the laws and policies as the water laws of Nepal had given higher priority to the power developers than that of the recreational users. In addition, the hydropower is strong in terms of the investment and the economic return after the completion of the project.

After the court decides not to issue stay order, the relationship between the hydropower developer and the rafting agents had been completely broken and no any formal relationship exists between the MBKHEP developer and that of the rafting agent. The two vertical lines between the joining of the rafting and hydropower show the broken relationship between the two parties. However the lobbying process for resolving the issues by the third party had made thin line of very weak connection between them.

It was found that the relationship of rafting with the resort owners is closed one. Both the parties depend upon each other for their business motives and it was also found that, some of the rafting agencies have their own resort too. Hence, they are interdependent with each other, and the relationship of rafting and resorts is in good order.

Parties in conflict often need the support of a third party in facilitating the conflict management process when they have become so caught up in their differences that they are no longer able to find constructive ways forward. It is important that the third party is

perceived as neutral and has no stake in the conflict ( Engel & Korf, 2005). But in this case there was lack of good mediator while negotiating. Resorts owners, local leaders and the members of political parties were involved in the negotiation process. But those were biased and were taking stand of respective conflicting parties. This is shown in figure 4.1 by joining the solid line. The conflict was escalating due to the absence of the proper negotiation and mediation. This was mainly due to the absenteeism of the fair third party. The half circle shows the third party, which has direct linkage with the conflicting parties and taking their stances, which is one of the main constraints to resolve the conflict and build cooperation. In the negotiation the third party should be unbiased and fair-minded to both of the conflicting parties and hence to lead the win-win situation. While negotiating the third party plays an important role of facilitator, organizer, and record keeper to manage and resolve the conflict and lead towards the peace building process. However in this case the third party has not come out to play above mentioned roles and not able to create the trust and cooperation among the conflicting parties and hence the conflict rather processing towards the resolution it further escalated and hence went to the litigation process.

The relationship of the hydropower developer with resort owners is weak and shown by the dotted lines. As the hydropower affects the rafting business and implicitly resort business has also gotten affected. Hence, the relationship of the resorts owners and power developer is weak one. During field visit 2017, it was found that the relationship between power developer and Borderland resort is quite stressful. This is due to construction of the power plant nearby Baseri station, would cause dry up of that section and hence causes a less number of visitors which will directly impede the business of the resort. Moreover, the developer also alleged that there is nothing to do with the renowned Baseri station, yet the Borderland resort business owner misused his power as he wants to make more earnings from his business and making the issues of Baseri rafting station. Additionally, being on the executive member of NARA, the owner of Borderland resort pulled the case to court. It was also found that during the construction of the MBKHEP, the owner of the Boderland resort was secretary of the NARA.

The owner of Borderland resort admits that, he was in NARA's executive committee. The decision of petition the case against the MBKHEP, to save the world class white water rafting section was not only his decision it's the decision of NARA. Moreover, the owner denied there is some connection with the business of Boderland resort. However, during field visit it was found the construction work of MBKHEP has caused the disturbance in the business of the Borderland resort.

During the field visits 2017, it was observed that the rafting was divided into two sections. The upper section, which is 21 km long, starts from Baseri rafting station and ends above the Sunkoshi river junction. The lower section starts just few km below the Sunkoshi Power house, extended to 35 Km to Dolalghat station. The Balefi rafting station is situated 12 km distance from this lower section. Even though, Baseri is renowned rafting station, but allmost, all the rafting by the visitors was taken from the Balefi rafting stations or few kilometers above it. It was also found that the numbers of domestic visitors in Bhotekoshi are in increasing trends due to proximity to the Kathmandu. Hence, it can be said that the construction of the MBKHEP has no direct affects to the visitors to the lower section. However, from the conservation point of view the Baseri rafting stations has its own importance.



## **4.7 Benefits to the Community**

Natural resource is one of the source for income generation for the local people. It is an important factor of the development and economic growth. The proper utilization and its conservation makes economic benefits along with sustainability of the resource. Which could be only achieved when the local people get benefited by the resource use. If the community start to get benefits by the use of the resource they will be more concerned about its sustainability. Hence, ultimately also start to conserve the resource and maintain the resource in good condition, along with maintaining the social harmony. The success of implementation of the community forest rule in Nepal has also proved that, participation of the community people for the utilization and management of the resource then they show more concern for its conservation.

### **4.7.1 Livelihood of the Community People**

During the field visit it was found that farming is the main way to sustain life and almost each household have livestock for meeting their livelihood needs. The resident of the study area had their own land and engaged with the farming activities. The land near by the river is used to grow paddy, maize and seasonal vegetables. Some of the people are engaged with the small business, like owning shops and hotels. It was also found that more number of people are working as labor in sand mining and quarrying. It was also found that some are hotel and resort business owners and many of them are working as the ground level staffs in hotels and resorts. Besides that some are found in driving profession. From the interview it was also found that many people are involved in the construction work laborer after the major earthquake in 2015.

### **4.7.2 Economic Impacts to the people**

The economic Impacts is viewed by the impact to the people resulting from the opening or closing of business or programs. In the study area it was analyzed from the jobs provided by the both sectors, and income generated by the local people from hydropower and rafting business.

### **4.7.3 Economic Impacts and job opportunity by the Hydropower**

Hydropower chiefly contributes to the national economy. However it is also beneficial to the district and village level. In the case of the MBKHEP, it has separated 1 % share worth of 6 crores money, for the affected 145 household. It had planned to distribute these share through the local company namely Sindhu Investment and Aaraniko Investment Company. Further the hydropower had also planned to distribute the 10% of equity share worth of 60 crore money, for the people of Sindhupalchok District after completion of 50% construction work. More over with the purpose of making people of Sindhupalchok District as a

stakeholder it has also separated 3 % of promoter share worth of 18 crore of Chilime Company. Now 30 % work had been completed and the company had started to process of distribution share, to the affected household.

In the field visit it was observed that most of the labor worker and drivers were from the same locality. In the construction of tunnel except from the skilled manpower the other were people from the nearby villages. It was found that among 164 of field labor and semi-skilled man power, 60% were local people. Some of them are from other parts of Nepal and the technical worker and contractor were from China. Some of the local people are also running small tea shop near by the power house. One of the women respondent said that, after her land was taken by the hydropower she was given some money and she invested that money to open tea shop and now it is a way of sustaining her lives (field visit, 2017).

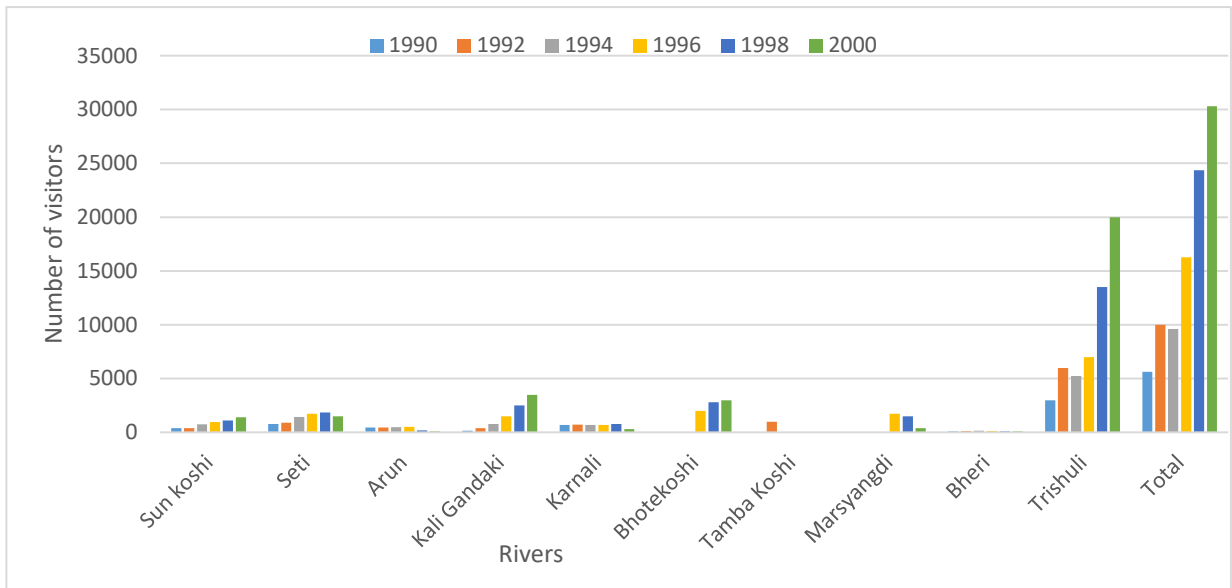
The hydropower project had formed Gunaso Samanwaya Samitee, Grief Resolution and Management Committee (GRM), whose main task is to resolve the grievances of the people. The committee had been working on improving the life standard of the local people by providing 30 lakhs annually to the affected six VDCs (now rural municipality) for the development and enhancement of water supply, better school and health care facilities. Beside that the project is also planning to support Gauri Shankhar Conservation Area as some parts of the area is also covered during the construction of Hydropower.

During a field visit it was found that the local people seem to be quite upset with the Chinese laborers behavior. According to the local people the Chinese are not cooperative with them. Moreover, Chinese people arrange their food by themselves, and they hardly consume the local products, which also causes the disappointment among the local people as they wish the Chinese worker also use the local production and enrich the local economy.

#### **4.7.4 Economic Impact and job opportunity by the Rafting Business**

##### **Numbers of Visitor**

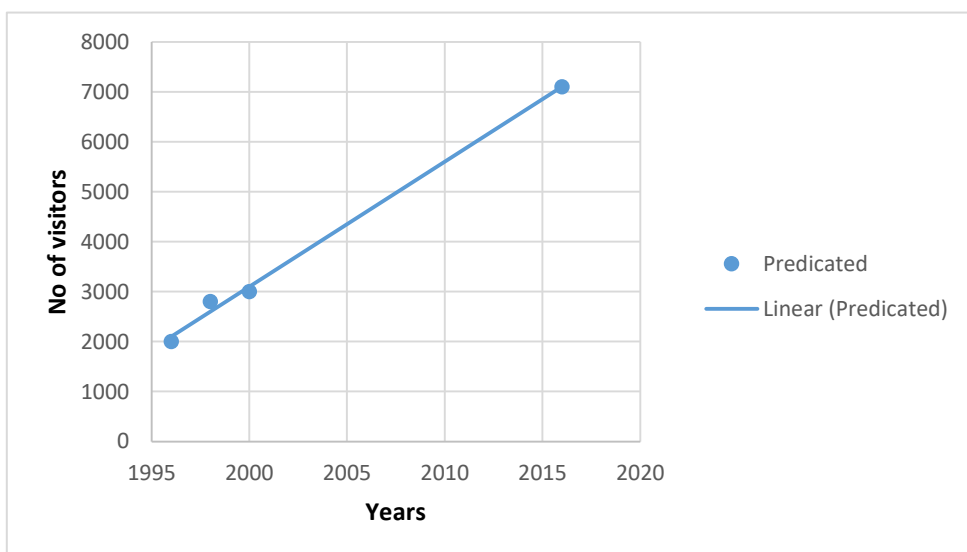
White-water rafting in rivers of Nepal is a form of nature tourism, has gained a reputation as the premier wilderness river trip in the world. Each year thousand number of people come to Nepalese's River for rafting. The data for number of visitors in different permitted rivers of Nepal was recorded from 1990 to 2000 (NARA, 2000). The irony was that the data is only available for 2000. Till 1999 permitting system was maintained by the Nepalese government and the number of rafter in each of river was recorded. When government repealed the permit system in mid-summer 1999, allowing rafters to traverse the commercially approved rivers without the need for such are registration procedure, it made difficult to keep track of the visitors. Therefore with limited existing data the trend of rafting in rivers of Nepal was analyzed and is shown in figure 4.3



**Figure 4.3 Rafting visitors**

Analyzing the available data from NARA, shows that the total number of the visitors are gradually increasing. It was found that the visitors had increased 5 folds from 1990 to 2000. The number of visitors in Bhotekoshi river is available for only 1996- 2000, which is also in increasing order. Despite of not having any good physical infrastructure structure the rafting on Bhotekoshi river was flourishing and was increased by 12% since 1996 to 2000.

Furthermore the number of the possible visitors in the Bhotekoshi River was forecasted from the available data from NARA. The available data was extrapolated, as shown in figure 4.4 and the prediction was made, even the limited data was available.



**Figure 4.4 Extrapolation of Visitor in Bhotekoshi River**

According to NARA unpublished report, in the year of 2016 around 8000 tourists, including internal and external visitors made trip in this place and is being more popular amongst the Nepali visitors. When the available data was extrapolated, it was found that 7100 visitor made visit in the year of 2016.

#### **4.7.5 Economic Impacts and job opportunity**

Currently there are 63 active companies, which are registered in NARA, and carrying out rafting in Bhotekoshi and others rivers of Nepal. These had been providing job for 2500 employees (NARA, 2002). It is also providing rafting training to Nepalese guides and had given an opportunity to become trained as kayakers and rescue technicians, they have also been able to travel the world together with western raft guides and kayakers making a living as seasonal raft guides in a wide variety of countries. Nepalese kayakers have been moving in circular migration patterns to many countries, including the U.S., U.K., Japan, Israel, Iceland, Norway, India, Turkey, France, Chile, Canada, Sweden, as well as visiting other countries for international competitions, such as the- Spain and New Zealand. The rafting industry has enabled Nepalese the opportunity to not only gain employment in a country with a shortage of meaningful employment for young males, but to also explore the world using the skills that they have gained while employed in the whitewater industry. Further, many guides have earned international rescue, first aid and instructional certifications while traveling abroad and as a result, have been able to command a higher wage at home when they return for the main rafting seasons in Nepal (post and pre-monsoon seasons).

Rafting had brought positive impacts on the local economy and the job opportunity to the local residents. Each year thousands of visitor visited the Bhotekoshi River. The analysis was done on the basis of trip related expenditure. The rafting trip ranges from 3000 to 6800 Nepali rupees per person depending upon length of trip. According to NARA out of total visitors, 30% visitors took day trip, in which most of them were Nepalese visitors, and remaining 70% had taken day trip and night stay. Hence rafting along in Bhotekoshi brings in some NRs.2, 26, 40,000 per year from the trip basis expenditure.

It was found that the workers are mainly from the local areas. According to the respondent 60% of the worker are from local area. They are working as river guide, kayakers, trip guide, ticket salesman, drivers and porter. The income of the workers ranges from NRP10,000 to 40,000 per months. It has two types of payment for kayakers and river guides: salary basis and another is trip basis. However both of the workers facilitated with free boarding and lodging. Even though the rafting is seasonal business and run from mid-October to mid – June, the salary basis workers paid in offseason too.

Rafting has direct linkage with the resorts. Some of the rafting agencies had their own resorts as well. In the resort almost all the workers were from local regions working as cook, housekeepers, gardeners, dishwashers and helpers. The employers working in resorts are paid for whole year and the salary ranges from NRP 7,000 to 25,000 per month. Besides that food items, especially vegetables, meat and dairy products are used in resort are purchases from the local market. However the cost for food items purchases from local market had no exact figures. It is estimated that 50% of the income goes for the food and vegetables.

In the Bhotekoshi River no Perspective studies of whitewater rafting have been performed so far, to assess the rates of gradual change or to show the impact on the society. However the activities done by the rafting agencies and resorts owners are congregated. Besides providing the job to the local people and enhancing the local market, they are also investing in the educational programs. According the respondent they had been supporting for the local schools namely, Sukute Primary School, Bhimsen Higher Secondary School, Kali Primary School, Simha Devi Prathamik Vidhyalaya, Buddha Secondary school, Siddhartha Madhyamik Vidhyalaya, etc. Furthermore, along with NARA with collaboration with Nepal Academy of Tourism and Hotel Management (NATHM) College had been providing training for river guides and kayakers. The skilled manpower and rescue team had been helping in the time of need. They are rescuing local people during flood and other disasters and also during the national disasters (Field visit, 2017). The agencies are also concerned with the conservation of rivers and performing river cleaning campaign and others activities annually in different rafting rivers.

#### **4.7.6 Sustainable local benefits**

In this regards it has been found that both the rafting and hydropower have been providing jobs opportunity to the local residents along with the outsiders and contributing to the local economy. The employers in hydropower are mainly field laborers, which will only provide the job opportunity till the construction of hydropower; once the project is completed there will be no job opportunity to them. But the rafting is paying their workers in off season too and hence, it was found that the rafting is more sustainable option in long run over to job opportunity provided by the power developer. Local people are getting direct benefits from the consumption of their food product from the resorts. Hence, from the Perspective of local people rafting is viable livelihood option for them. Moreover, local people are not looking for the long term benefits and the national benefits from the construction of hydropower. Hence they are in favor of Rafting as they are getting direct benefits from rafting. So that when the protest program were organized by the NARA, the local people also participated in several rallies. Hence, in future If the rafting business is hampered by the construction of power project then the livelihood of local people who are engaged directly and indirectly in rafting would also be suffered and hence in future this might again be a triggering point for escalation of conflict.

#### **4.8 Analysis of laws and policies related to hydropower and rafting**

##### **4.8.1 Analysis of Hydropower policy in Nepal**

Water resource is considered as the one of the important natural resources from the viewpoint of the economic development in Nepal. The geo-physical features along with the availability of plentiful water resource had provided ample opportunity for the hydropower production in Nepal. Although there is potential of 83,000MW electricity generation but only 42,000MW power appears to be feasible from financial and technical Perspective. Appreciating the internal consumption and export possibility it is said that hydropower is

the safest investment for the overall development of the country. Hence different policy and regulation were developed to enhance the development of the hydropower after the restoration of democracy. Till date Government of Nepal (GON) has formulated Hydropower Development Policy in 1992 and also in 2001 and promulgated Electricity Act in 1992 and Electricity Regulation in 1993.

The hydropower policy in 1992 was formulated with the objective of

- To supply electricity as per the demands of the people in urban and rural areas through the development of the high potentiality of the water resources that the water resources that exists in the country.
- To enhance the development of hydro-power to meet the energy needs required for the industrial development in the country.
- To motivate the national and foreign private sector investment for the development of hydroelectric power.
- To render assistance in the conservation of environment by supplying clean energy through the development of hydroelectric power.

It was focused on the maximization of development of the hydropower to meet increasing rural and urban demand and as well to meet the industrial requirement and to substitution of petroleum products and minimization in use of fuelwood. The beauty of this policy is that it has opened the door for the private investment from national and foreign investor. Before 1991, Hydropower development in Nepal was carried out by the efforts of Government only. After restoration of Multi-party Democracy system (BS 1990), the Government of Nepal decided to open its doors to the private sector involving both local and foreign investors to promote Public Private Partnership under the Build, Operate, Own and Transfer (BOOT) system in 1992, in order to fulfill the growing electricity demand using Nepal's abundant hydro potential. After 1992 there were different organizations actively involved in hydropower development. Government Organization: Ministry of Energy (now Ministry of energy, water resources and irrigation), DoED, AEPC, etc. - regulatory mechanism- plan and policy formulation, rules and act modification and their implementation.

Semi Government Organization: NEA- development/production, transmission and distribution,

IPP Organization: Private domestic and Foreign Company like BPC, LEDCO, HPC, Chilime etc. - contributed mainly to production and less in transmission and distributions.

To boost sustainable economic development in the hydropower, the hydropower policy 2001 was framed. It is the revision and improvement of the previous policy.

Which is based on the experiences gained in the course of implementing the principles followed by the Hydropower Development Policy, 1992, emerging new concept in the international market and their impacts, new technology development, possibility of export of hydropower energy, possibility of foreign investment and commitment in environmental protection with a view to make it clear, transparent, practical and investment friendly.

The main objective of the Hydropower policy 2001 are as follows:

- To generate electricity at low cost by utilizing the water resources available in the country.

- To extend reliable and qualitative electric service throughout the Kingdom of Nepal at a reasonable price.
- To tie-up electrification with the economic activities.
- To render support to the development of rural economy by extending the rural electrification.
- To develop hydropower as an exportable commodity.

The policy has provision related to the environment, water rights, investment in generation, transmission, distribution and power purchase, to attract investments from private investor from Nepal and outside. It has provision to release higher of either at least 10% of the minimum monthly average discharge of the river /streams of the minimum required quantum as identified in the environmental assessment study report. There is also provision for acquiring necessary private and public land for implementation of the project, and the government is obliged to assist developers in this respect. It also has provision that the developer is responsible for the rehabilitation and resettlement of any family that is displaced in the course of construction of power plant, transmission and distribution network, as specified by the GoN, at the cost of the project proponent. It envisages issuing licenses for study or survey as well as implementation of projects for generation, transmission and distribution of electricity, including captive generation. The policy stipulates specific timeframe within which license are to be issued. The survey license is for a period of five years while generation license will have a term of 30 to 35 years. Similarly, the term of the electricity transmission and distribution license is to be 25 years. The policy has waived the license requirement for projects of up to 1 MW. The policy also envisages handing over responsibility of operation and management of small hydropower plants in mountainous rural areas outside the national power system to community groups. It also has made provisions for non-power benefits such as irrigation, flood control will be evaluated in such a manner as to acquire maximum benefits from large multipurpose projects, taking into consideration the national interest. It has mentioned in policy that if the benefits are in excess and the lower riparian are benefited substantially, the benefits obtainable thereof shall be determined through negotiations with the lower riparian states. However this is not applicable for the resource sharing case. For aiding the local people the policy has provision of providing 50% of the royalty obtained by GON, from projects to the VDCs and districts that are directly affected by the power projects.

Hydropower is considered as an important component – perhaps the most important component of renewable energy. The growing demand of electricity, the current low electricity coverage and increase in coverage in future, and mismatches in electricity demand and supply mean that installed hydropower capacity has to increase in the country. Hydropower will remain an important component in the overall electricity portfolio. Thus, hydropower development needs to be promoted through policy initiatives and by encouraging private investment as well as from the policy Perspective. The Hydropower policy has been successful for the increasing the investment from private developers as well from NEA. But the hydropower development is moving in rapid way rather than responsible manner. Even the policy lags at some points. It has the provision of the 10% environmental flow, but it has ignored the dry season demand of water for human consumption and to others sectors like: irrigation, fisheries and rafting. Beside that the lack of compliance, proper monitoring and follow up mechanism for the environmental flow after the completion of the project has caused not to follow the rules strictly by the developers.

There is provision of the no substantial adverse impact can be made to the environment in Electricity Regulation 1993 and Electricity Act 1992. Which basically inclined to the soil erosion, flood, landslide and pollution but the policy has not included any points for the conservation and protection of the river site consider significant from aesthetic and cultural value.

In the Electricity Regulation 1992 there is provision for the formation of Compensation fixing committee for fixing the amount to be compensated to those whose land and house has been acquisitioned. However it has not mentioned about the compensation for the other water users who sustained the loss. The policy clearly lacks the provision of intuitional mechanism for the coordination and management among the other water users and hence settlement of dispute.

#### **4.8.2 The Rafting Rules, 2006**

In exercise of the powers conferred by the section 56 of the Tourism Act, 1978, Government of Nepal made the rafting rules. The rules has centered for the process of obtaining of license for rafting business, within the river made opened by the Government of Nepal, for rafting purpose. It has mentioned the mechanism followed by the rafting business owner and also the river guide. The rule also constituted the provision related environmental clearing and management waste, generated while doing rafting. It has strictly instructed to take the license for performing rafting in the river prescribed for rafting by Government of Nepal.

Initially in 1990s the Government of Nepal required that all rafting clients pay for a permit that allowed them to participate in a rafting trip on a particular river for a specified number of days. Prior to any client's rafting trip commencement, it was necessary for all outfitters to ensure that all clients had their permits and thus it became important to have an organizational body that could act as an intermediary between the government and the individual rafting companies and thus NARA was formed. One of the primary reasons for the organization's existence was to have body that was able to issue government rafting permits to rafting companies for clients that signed up later in the day and on days that were traditional government vacation days (of which there are many in Nepal due to the intensive religious calendar). This permitting system was maintained by the Nepalese government until the summer of 1999. After that the government repealed the permit system, allowing rafters to traverse the commercially approved rivers without the need for such a registration procedure.

The government permit system was the only system for management of the database on rafting business and can be consider as reliable source. With its demise, a void in record keeping has made it difficult for the industry to keep track of its progress of the number of visitors in river. With the permitting system came the ability of the government to issue only a certain amount of permits per day on any given river, thus keeping the raft traffic managed and relatively coordinated.



### 4.8.3 Critique of the legal documents and policies

In comparison to the legal documents available for the hydropower development it is found that there is lack of legal documents which corroborates the protection of the world class rafting river. The one and only legal document of rafting business the “Rafting Rules 2006” which is only oriented towards the license generation and renewal process. There is no any provision for water use right and protection of the world’s class rafting sections of the rivers. Knowles, 1999 has mentioned that the feasibility studies ultimately resulted in the creation of Nepal’s Least Cost Generation Expansion Plan, which comprised of more than twenty medium to large-scale hydropower projects to be constructed throughout the river systems of Nepal, eleven of which will impact the whitewater industry of Nepal. Even the Rafting Rules that has been formulated after the construction processing of Kaligandaki A, which has huge impact on the rafting, the authority has not learned any lesson from losing this section and no strong legal document has been formulated to protect the potential rafting river section. Furthermore, in the context of changing worlds people are building the artificial rafting river like Vector Wero Whiter Park in Auckland, investing millions dollars, Nepal is blessed with natural high gradient flow, rapid rivers so policy should pay attention for the conservation of potential sites instead of regretting latter.

While giving priority the WRA has keep recreational uses at second last position and no any provision has made to promote and protection of the river site consider importance from point view of rafting (recreational use). Furthermore, water resource strategy also is oriented towards the development of hydropower and lacks at the point of giving importance to the recreational water use. The available documents for developments of hydropower has mainly inclined towards the development of the hydropower only although has huge opportunity to incorporate the positive impacts on industrial development, agriculture and water tourism (recreational use). For making use of water resource more accountably WRA has provision that the beneficial use of water resource by a person or a corporate body should be done without causing harm to other. It indicates, the policy is demanding that the one user while utilizing water resource should be cautious to possible damages to the other water users. Hence, WRA is making water users more responsible towards each other. Nevertheless due to lack of monitoring mechanism in policy as well as in practice, in implementation level one users explicitly or implicitly causes harm to other users and hence dispute may arises. For resolution of possible disputes both WRA and WRR has provision of Water Resource Utilization Inquiry Committee at the national level provided with the membership of representation of the Ministry of Water Resources (MOWR) as chairman and one representative each from the concerned DDC and the regional office of the National Planning Commission Secretariat. The enquiry committee will fix a reasonable time limit for submission of the written information by the conflicting parties mentioning the facts that supports their claims and only after receiving the written information within time limit the committee set an enquiry on the field study site of project and decision shall be made on going through the details about the projects and the beneficiary as well as those affected. The policy has provision of formation of inquiry committee which will made decision whether the use of said water resources is to be allowed or not. However the provision is for formation of inquiry committee and the policy lacks formation of arbitration group comprising of conflicting parities and experts and representatives from governmental organization hence the disputing issues can be negotiated amongst the disputing parties.

In the regards of integrated water resource management, the Government of Nepal (then HMG) has already taken some positive steps to institutionalize the water use through the

integrated and cooperative manner. The formulation of Water Resource Strategy and National Water Plan is a good initiative by WECS. However, the other laws, policies and regulations related to water were formulated before 2002; means before the conceptualization of integrated water resource management. Hence, there is a huge gap among the existing water laws and policies regarding the sectoral water use.

#### **4.8.4 Institutional Mechanism**

For the management of water resource and making the existing laws and policy functioning responsibly, the institutional structure and mechanism plays a vital role. At national level Water and Energy Secretariat (WECS), acts as central body which assist Government of Nepal (GoN), different ministries relating to water resources and other related agencies in the formulation of policies and planning of projects in the water and energy resource sector.

There are committees and commission such as the District Water Resource (DWRC) and Water Resource Utilization Investigation Committee, established under different Acts, for regulation of water use and to resolve the dispute in water sector at local level. At national level, Ministry of Energy, Water Resources and Irrigation is a pivotal body that governs the development and implementation of energy, including its conservation, regulation and utilization. Previously there used to be separate ministry of energy, now the water resource and irrigation are combined with ministry of energy and the WECS is an organization under the ministry of Energy, Water Resource and Irrigation.

The intervention of local water management committees and commission was not found in the conflict between hydropower and rafting. According to the WRA for resolving the conflict, either of conflicting parties have to submit a written application to the DWRC mentioning the facts to support their claim. Neither Hydropower nor rafting registered any complain regarding the water use conflict between MBKHEP and Rafting in Bhotekoshi. If the issues was presented at local level water managing bodies, then the conflict could be fixed at local level or have less chances of escalating the conflict and reached to the Supreme Court. This shows the lack of proper coordination between the water management and water using bodies at local level.

There is a strong interlinkage between the policies and institutional arrangements in implementation of the policies. Unless there is collaboration, innovative and incentive system that facilitates cross-sectoral action and shared accountability among the ministry, agencies, level of government the integrative water resource management is not possible. According to HI-Aware Working paper by Regmi & Shrestha, 2018 “Though there is Water and Energy Commission Secretariat (WECS), there is an institutional gap to deal the overall water issues”. It also states that there are issues of collaboration between the institutions and lack of coordination in terms of policy implementation. Moreover it has also stated that the overlapping responsibilities and lack of clarity in role within the central water resource management ministry, departments and offices often lead to ineffective translation of policies.

When Oregon State University researchers looked closely at water management practices they found that the likelihood of conflict increases significantly if two factors come into play. First, conflict is more likely if the basin’s physical or political setting undergoes a large or rapid change, such as the construction of a dam, an irrigation scheme, or territorial

realignment. Second, Conflict is more likely if existing institutions are unable to absorb and effectively manage that change. Hence Institutional mechanism must be strong and effective to reduce and management of the possible conflict.

The sector wise fragmentary law and the Legal pluralism in the water use has created the tensions among the water users and hence conflicts among them. It is seen that there are only water using bodies and lack of the apex integrative water management body which works for the overall research and development of water sectors and bolster the integrative water resource management. Which will work on settlement of the conflict and lead to the win-win situation for possible conflict. This will set the environment of cooperation among the users and also prevents to choose the path of litigation. Hence along with the policy integration, implementation arrangement is a major challenge for integrative water management in practice and addressing the possible conflicting issues. Although significant policy reforms in water sector for management of conflicts; issues of institutional effectiveness and implementation gap exists, as there is lack of a pivotal integrative water resource management body. Henceforth for having sustainable water resource management along with integration of policy, it has to go reformation of the institutional structure and governance mechanism to achieve collaborative and coordinated water resource management.

## Chapter-5

### Conclusion and Recommendations

#### 5.1 Conclusions

Hydropower and rafting are the major water using bodies in Bhotekoshi River and hydropower generation is a dominating use over to rafting. The relationship between the MBKHEP developer and Rafting agencies is incompatible, regarding the water flow and that of installed capacity of the Hydropower and the case is still on court procedure indicates the conflicting situation between them. Sharing the same water source causes the competition among the users and hence causes the dispute among them. If there is integrative policy, legal environment and institutional arrangement to realize proper negotiation for the conflicting issue, then the case can be settled down and a win-win situation could be obtained. Conversely, lack of the proper negotiation and presence of the biased mediator would lead to the conflicting situations. It was found that some of the rafting agents were in favor of accepting the eco-hydro models, offer provided by the power developer. Which indicates that the eco-hydro modes could be a point of conceding cooperation between the conflicting parties. It can be inferred that, there is a good probability of win-win situation among the conflicting parties, if the negotiation was done properly and the third party have played an impartial role.

Both the sectors are providing employment opportunities to the local people and benefiting them. It was found that the local people are unaware of national importance of hydropower as well as the benefits of buying the share provided by the hydropower. They are only looking for immediate benefits and money in hand. Hence, regarding for sustainable livelihood option, the job opportunity provided by the rafting is more viable options for the local people rather than provided by the Hydropower, as the local farmers are getting benefits from the rafting business as their products such as meat, milk and vegetables are consumed by the rafting business.

Furthermore, proximity to Kathmandu had made Bhotekoshi rafting more popular than that of the other rafting rivers, among the rafting enthusiasts and the visitors are in increasing trends. Hence, it can be inferred that rafting could be good livelihood options for the local people.

In this regards, it indicates that even though both the sectors are providing their best contribution to the local people but somehow rafting contribution to local economy affixed more and viable contribution than compare to rafting.

The legal documents related to water allocation and use, were found in fragmentary rather than integrative. Due to the legal pluralism, there is possible of disputes among the users rather than cooperation. Moreover, Water Resource Act is also focused on development of hydropower and the recreational sector given least priority. The document has not given the clear direction for the management of the water, from the integrative Perspective and management of possible conflicts. The legal documents were based upon the development of the hydropower in speedy manner rather than responsible integrative water uses and development. However the good initiations for development of water resource is already initiated by formulation WRS and NWP. Now, as recognized by the NWP there is need to amendment of the WRA and WRR as well as the other water related sectoral legal document for having coordinating water resource use.

Looking at the institutional level there is lack of effective implementation mechanism of the existing laws and policies. Unless the institutional mechanism works effectively and efficiently the laws and policy would not grasp in implementation level. Moreover, there is need of strategic policy and institutional mechanism that can lead the inter sectoral water resource management and conflict management among the users in more efficient and effective way in national as well as the local level.

## **5.2 Recommendations**

The incompatibility between the MBKHEP developer and the rafting agents is still there from last 5 years.

Therefore, it is very important for all the concerned authorities; government bodies, local leaders and law and policy developers to focus on the integrative water resource management and resolution of possible conflicts. Hence based on the Conclusions of the study the following recommendations have been made.

1. This study, although carried out in small section of the Bhotekoshi River, has succeeded in identifying the existing conflicting situation between the power developer and the rafting agents. In figuring out the interrelationship between the conflicting parties it was found that the both the conflicting parties were in negotiation table but not succeeded to reach at a concrete point and hence resolve the conflict. Hence, for resolve the possible sectoral water use conflict and to have the win-win situation to the both parties, strong apex body intervention for the management of water and conflict resolution would be highly necessary.
2. The study mainly focused on the conflict between the power developer and the rafting agents although other water users might have conflicts amongst them. This aspect was not covered by this study and had significance for the future study.
3. During this study period, as the hydropower project is still under the construction process and was found no visible impacts to the rafting business as well as the other water users. However, the incompatible situation is still prevailing there. Hence, it would be great significance to explore both positive and negative impacts of the hydropower to the rafting business after the completion of the projects.

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**Appendices**  
**Appendix A: Photographs**



**Photograph 1: Power house on construction Phase**



**Photograph 2: Baseri Rafting station (3 km downstream Power house)**



**Photograph 3: Tunnel construction**



**Photograph 4: Interview with Local People**



**Photograph 5: Rafting Vistors at Kothe Rafting station**

## **Appendix B: check list for Interviews**

**Code No-**

### **Check list for Informants**

#### **A. Personal Information**

Name: Age:  
Sex: Education:  
Profession: Post:  
Office Address: Email:  
Contact No:

#### **B. Questionnaire**

##### **1) Rafting Organization**

###### **a) Conflict and cooperation**

1. How long you are in this business?
2. What infrastructure or requirement made this place suitable for rafting?
3. Who are the main water users of Bhotekoshi River?
4. Which sector is more dominant in Bhotekoshi River? (Power/Number)
5. How is the relationship between the users especially between Hydropower and Rafting?
6. There was conflict during the construction of Hydropower, what was the main issues?
7. Was that issues negotiable?
8. What was the constraints for the negotiation so it went for litigation process?
9. Court denied to issue stay order and made decision on the favor of hydropower, on what basis it was done?
10. Are the both sectors following the court order and direction properly?
11. Is there any major dispute after the court decision?
12. Who are the main visitors to Bhotekoshi for rafting? (internal/international)
13. What effects have been faced due to construction of MBKHEP (flow/business) or is there any complained by visitors?
14. What are the main threats to rafting?
15. Is there any possibility of dispute regarding water use in future?
16. Would you like to give any suggestion for sustainable water use of MBR and conflict resolution?

###### **b) Contribution to local people**

1. What has been done to enhance livelihood of the local people?
2. How many employers are there and out of them how many are from this locality?
3. What type job they have been engaged with?
4. What is their earning range?
5. Do you pay them off seasons?

6. Is there any major contributions had been done till date to the local people? If any mention it.

**c) Policy and institutional mechanism**

1. What are the weakness of current water resource act that need amendment?
2. What would be the mechanism to solve dispute among the user in future?
3. Is there any joint committee for the management and development of MBR? (when established/ recent meeting/ agendas/ means of communication)
4. Is the institutional mechanism working effectively for managing water resource?

**2. Hydropower Sector**

**a) Conflict and Cooperation**

1. What are the main features that made Madhya Bhotekoshi suitable for generation of Hydroelectricity?
2. What was the main conflicting points with Rafting Sectors?
3. Was the issues and points were negotiable?
4. How was the negotiation done? (Third party and its role)
5. Why conflict went to the litigation process?
6. What were the main constraints for having the negotiation?
7. Was there any major dispute between rafting and hydropower sectors after the court denial of issuing stay order?
8. What were the court instruction and do the both sectors obeying it?
9. What are the possible threats for hydropower?
10. Is there possibility of any dispute regarding water use in future?
11. What would be the process to address those issue?
12. What you think the relationship between the water users in present context?

**b) Contribution to local people**

1. How many total employers are there and among them how many of them are local?
2. What type employment is provided? (Post)
3. What is their earning range?
4. How hydropower enhancing livelihood of people (Shares, job opportunity etc.)
5. What major contribution are made by this organization to this locality?

**c) Policy and institutional mechanism**

1. Is there any joint committee or association for jointly monitoring and management of use of water?
2. Who are the records and information keepers regarding water use and monitoring?
3. How the information of water use are communicated?
4. Do you think is there any need to change in the water use policy?
5. Is the institutional mechanism working effectively for managing water resource?

### **3. Local Residents /Employers**

1. Which occupation do you have to support your life service?
  - a) Agriculture
  - b) Rafting
  - c) Hydropower
  - d) Others
2. How much wedges or income do you have annually?
3. How much income would be sufficient annually?
4. What benefits are you getting from Rafting/Hydropower?
5. Do you fully dependent on Rafting/Hydropower?
6. Do you think this employment makes you sustain in future too?
7. Which sectors giving you more benefits and how?
8. Development of which sectors will be appropriate in MBR?
9. What do you think regarding the conflict between hydropower and rafting?
10. Do you think that the conflict was handled properly?
11. What should have been done to avoid or handling the conflict?
12. In your opinion which sectors should be given more priority in this area and why?

### **Appendix C: Informants**

#### **Respondent of Madhya Bhotekoshi Hydroelectric Project**

Sunil Kumar Lama, Project Manager  
Murali Prasad Sharma, Legal Advisor  
Nripendra Kumar Shrestha, Engineer  
Mr. Chekku Lama, Engineer  
Anil KC, EIA Officer  
Sange Lamu Lama, Engineer  
Mr. Ram Raj Raya, Administrative officer

#### **Respondent of MBKHEP (Local Employer)**

Dipendra Lama, Driver  
Sanam Shrestha, Driver  
Mahendra Shrestha, Driver  
Siva Khadka, Supportive Staffs  
Sanumaya Karki, Cook  
Bal Bhadur Lama, Labor  
Shree Maya Lama, Labor  
Phulden Lama, Labor  
Chisang Lama, Labor  
Tomu Gurung, Labor  
Lal Babu Khadka, Labor  
Ram Bahadur Khadka, Labor  
Ram Mani Karki, Labor  
Durga Chettri, Labor  
Bimshen Shrestha, Labor  
Laldhoj Lama, Labor  
Sangram Jeet Lama, Labor

Padam Ale, Labor  
Shiva Magar, Labor

### **Respondent from Rafting, NARA and Resort**

Mausum Khanal, NRCT (Executive Director)  
Megh Bahadur Ale, Adventure tourism expert, Owner of Boarderland resort  
Mahendra Singh Thapa, Managing director of Sukute Beach, Past president of NARA  
Shyam Shrestha, Owner of Rivers Bay Resort  
Ujjawal Shrestha, Manager Rafting Star Resort  
Sunil Khadka, Manager Sunkoshi Rock Riverside Resort  
Nani Kaji Thapa, NARA (Immediate past president)  
Chandra Prasad Dhahal, NARA (President)  
Keshav Kafle, NARA (Treasurer)  
Shiva Adhikari, NARA (Secretary)  
Sanjeev Lama, NARA (Member)  
Tej Bahadur Jagra, NARA (Member)  
Sudip Raj Gautam, NARA (Advisor)  
Endra Bahadur Rai, NARA (Member)  
Kumar Gurung, NARA (Member)  
Rita Adhikari, NARA (Member)

### **Respondent of Rafting and Resorts (Local Employer)**

Dhruba Karki, Sunkoshi Beach Camp (Cook)  
Sabin Bista, Sunkoshi Beach Camp (Helper)  
Nabin Adhikari Sunkoshi Beach Camp (Guide)  
Bhuvan Shrestha, Sunkoshi Beach Camp (Kayaker)  
Nabina Shrestha, Sunkoshi Beach Camp (House keeper)  
Shyam Shrestha, Sukute Beach (Guide)  
Ramesh Adhikari, Sukute Beach (Kayaker)  
Ram babu Panta, Sukute Beach (Cook)  
Padam Shrestha, Sukute Beach (Kayaker)  
Bal Bahadur Gurung, Sukute Beach (Driver)  
Hari Sharan Thapa, Sukute Beach (Helper)  
Anil Shrestha, Sukute Beach (Kayaker)  
Shyam Shrestha, Rivers Bay (Kayaker, Guide)  
Nima lama, Rivers Bay (Senior Kayaker)  
Sisir Karki, Rivers Bay (Cook)  
Bina Lama, Rivers Bay (Housekeeper)  
Sarita Kumari Shrestha, Rivers Bay (Gardener)  
Mina Khadka, Sunkoshi River Side (Gardener)  
Suntali Khadka, Sunkoshi River Side (Housekeeper)  
Kumari Adhikari, Sunkoshi River Side (Helper)  
Dinesha Shrestha, Sunkoshi River Side (Guide)  
Shyam Khadka, Rock River Side (Driver)  
Ram Shrestha, Rock River Side (Kayaker)  
Suman Shrestha, Rock River Side (Guide)

## **Local Respondent**

Man Kumari Khadka  
Surendra Khadka  
Dhipendra Rayamajhi  
Khila Nath Pagthak  
Suresh Khadka  
Dipen Lama  
Krishna Lama  
Nitesh Lama  
Radhika Karki  
Gambhir Man Shrestha  
Sunil Pathak (Local Leader)