

## **Section IV: Methods**

### **Chapter 5: Methodology**

#### **5.1 Introduction**

This chapter describes the approaches and methods employed to investigate collective action processes and outcomes of Nepalese CF. The research integrates process analysis for investigating the processes and an actor-oriented approach to assess the perceptions of various actors at different levels. A combination of quantitative and qualitative research methods is employed to collect and analyse information. This integrated approach and method is useful to understand how CF is being driven, who is driving it and why CF is moving in certain directions.

The focus of the study is on local level processes and forest users and state forestry officials. Three FUGs from three districts are studied. At the local level, the FUG is a key unit for analysis. The problems associated with the FUG as a unit of analysis are recognised. The study is then scaled down to the household level and up to the district, national and international levels. The state forestry staff operating at multiple levels are studied. Local level processes largely determine the implementation of the policy and forest users and forestry staff are more directly relevant for this study than other actors.

This chapter comprises five sections. Firstly, I briefly discuss the epistemology and methodology and quantitative and qualitative research methods. Secondly, the political ecological approach is highlighted as useful for methodological integration. Thirdly, following a discussion of personal and research context, a research design is presented which describes where, how and when the field work was done and how the data were collected and analysed. At the end of this section, there is a brief account of research rigour and research limitation. I conclude the chapter by summarising key points.

#### **5.2 Epistemology and methodology**

The philosophy of science divides into two broad epistemologies; the objectivist and the constructivist. Epistemology refers to the study of how we know things (Bernard 1994) and where does our knowledge come from and how reliable is it (Williams & May 1996). The objectivist paradigm sees the world as objective, there are facts, truths and realities and the researcher can extract them independently. The constructivist paradigm, on the other hand, emphasises contextual construction of meaning and the validity of multiple perspectives. According to this paradigm, knowledge is constructed by values and every day social relations of people, and therefore, truths

and reality are multi-perspectival (Wilson et al. 1995). While the objectivist paradigm suffers from the contextual limitations, the constructivism is criticised as being too holistic and less practical (Blaikie 2000). Natural science is more likely to use “an objectivist and positivist approach to study the physical environment and the social science a more social constructivist approach” (Blaikie 1994, p.4).

Before I started this research, I was a positivist with a scientific leaning with a background in forest science and environmental management. However, I had to adjust my thinking before I could accept a different and challenging methodology to conduct research integrating both natural and social science. I began to understand how the role of theory in social science would help position the research in CF. I strengthened my conceptions of the research problem by considering epistemology.

### **5.3 Political ecological approach**

CF research essentially involves both natural and social phenomena. Research approaches for CF have to bring social and natural sciences together. The challenge is about how these sciences can be integrated to benefit both people and resources. This research takes up this challenge and employs a combination of quantitative and qualitative research methods to complement each another.

Political ecology is an emerging approach that offers insights for integrating both sciences for CF research. While political ecology is broadly defined as an inquiry into ecology and broadly defined political economy (Blaikie & Brookfield 1987), it is also interpreted as a research framework (Carney 1993), and “more a method of analysis than a theory” (Peluso 1992, p.51). This approach provides sub-approaches, mainly based on the concept, geographical location, specific environmental problems, socio-economic characteristics and actors (Bryant & Bailey 1997). These approaches are not mutually exclusive. There is the possibility to combine one or more approaches, depending on the priority and the research questions to be addressed.

One useful approach for this study is the actor-oriented approach. This aims to understand cooperation (or conflicts) by focusing on the interests, characteristics and actions of different types of actors in a given context. The underlying assumption is that development is socially constructed within the daily life of various actors and reality can only be understood by visiting and interacting with their life worlds (Long & Long 1992a). This approach is suitable for understanding the actions of different actors operating at different scales and socio-economic structures and is particularly valuable to understand the co-operation and conflicts related to environmental change (Bryant & Bailey 1997).

Other important aspect for this study, which is implicit in the actor-oriented approach, is the process approach that focuses on the processes of CF. I focus on how different people, within communities and beyond, affect the actions and decision making process at the local level, and how and why outcomes are produced. This research also attends to the role of the state that determines and implements policies, favouring the interests of certain actors (Stonich 1993). The study addresses issues about why certain problems are initiated and for whom and how these evolved over time in the context of CF. This research combines the process analysis and actor-oriented approaches to carry out the research. Data are collected from the field by employing quantitative and qualitative methods. The use of an integrated approach and methods allows greater rigour and more opportunities for cross-checking results (Baxter & Eyles 1997).

## **5.4 Research design for data collection and analysis**

A research plan was prepared by specifying the methods and procedures for collecting and analysing the needed information. Before describing how I conducted field work and employed different methods to collect data from different sources, it is useful to contextualise my personal background.

### **5.4.1 Personal context of the study**

My background has both advantages and disadvantages in this research. I am a middle class Nepali male who was born into a Newar caste, Hindu family. I grew up in a rural hill village, where the forest was an important part of everyday living. As I grew, I became more familiar with, and interested in, forestry issues. I realised why and how villagers maintained trees on their private and common lands to support their livelihoods. I witnessed the forest being degraded. I saw forest rangers alienating villagers from using the forest. The persistent hostility between villagers and government staff and the continual deforestation transformed my interest to pursue a forestry degree. During my studies, my family became a member of a FUG. I started to work with the DoF, implementing CF in rural villages. The turning point of my professional journey occurred when I was upset with the way foresters were implementing CF through standard forestry procedures, overlooking social processes and cultural practices. I enrolled in a sociology postgraduate degree to obtain insights for CF. I became attentive to why and how social and political processes condition CF processes and outcomes. This is what I brought to this research.

My background enabled me to gain insights into Nepali society, culture, traditional way of life and their relationship with forest resources. At the same time, I was aware of the Nepalese bureaucratic style. As I studied forestry science and worked as a staff member of the DoF, I had strong positivist leanings in the problems I encountered and strategies I adopted. I struggled to reorient

myself from this objectivist mindset to the mindset for greater appreciation of social and political processes. The sociology degree helped, but did not change my attitude completely. While I was trying to understand what people thought about CF, I was also introducing questions that I developed for this research. However, my attitude of working with (not for) the community and my understanding of Nepal, Nepalese societies and people and CF offered more advantages than disadvantages.

## **5.4.2 Field work and selection of case study sites**

### **Case study as a research strategy**

This thesis employs the case study as a research strategy. Case study research, which is an in-depth inquiry of a single instance (or number of instances), or events (i.e. case), has been a common qualitative method involving systematic examination of events, collecting data, analysing information and reporting results. This strategy offers a method of learning about a complex instance through extensive description and contextual analysis by articulating why the instance occurred as it did, what might usefully explore in similar situations, and what might become important to look at more extensively in future research (Yin 2002). It is a valuable method for identifying, linking and comparing issues of resource management (Howitt 2001). Howitt (2001, pp. 190-191) emphasizes the case studies which illustrate a specific case of something more general, and outlines four reasons for using a case study approach to resource related-research; a) to provide knowledge as a basis for understanding specific circumstances, b) to provide an empirical basis for developing generalized models, c) to identify common ground in reaching policy directions across a range of situations and d) to provide basis for making decisions. However, contemporary case study approach has often been criticized as being “driven by the goal of acquiring new information, new facts and new content” (Howitt 2001, p.190). Critics of the case study method believe that all case studies are partial and no studies can provide the full representation of all the elements of context (e.g. Howitt 2001). When everything is considered to be related to everything else, it is easy to lose focus (ibid). Others argue that the study of a small number of cases can offer limited grounds for establishing reliability or generality of findings (e.g. Feagin et al. 1991). It is also possible for the intense exposure to study of the case resulting into bias findings.

This research acknowledges these limitations and has used strategies to minimise or eliminate them. The research was guided by the general aim of exploring, identifying, linking, comparing and analysing CF issues that have been experienced by local forest users within their specific situations by using participatory strategies such as participant observation and discussions. The research used triangulations of sources of data, methods and analysis to minimize biases and

maximize the representation of diverse sets of contextual factors, their historical and geographical development. The information were collected and organised purposefully at the local level to maintain the focus of the study, while linking them with wider socio-political, economic and informative context to illustrate, substantiate and explore implications of the findings. Three cases and unit of analysis within the cases were purposefully selected so as to maximize what can be learned on the major issues that are fundamental to understanding of CF in the period of time and resources available for the study. This research employed comparative approach to understand and compare the issues and workings of CF that are at different stages by examining different practices in different socio-cultural, economic and political situations. Comparison and explanations have been done with a sense of context of situation, thereby offering specific grounds for generality and reliability of findings.

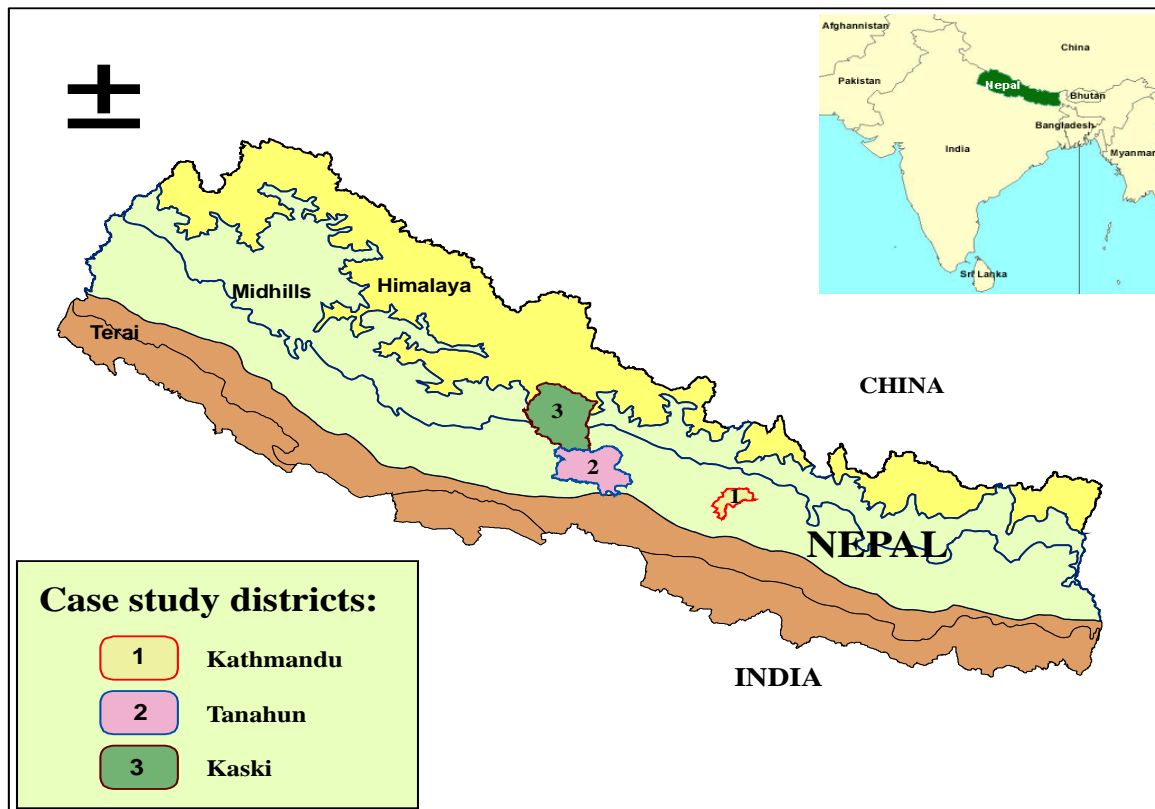
### **Field work**

Before the actual field-work, I contacted key DoF staff members, project staff and users' federation representatives in Nepal to discuss potential case study sites. My field work started in August 2001 and was completed in February 2002. At the start of the fieldwork, I contacted the DoF staff and potential FUGs to discuss issues and their availability and willingness to assist in the research activities. This preliminary exercise proved to be very useful during the later part of the study. Fieldwork was influenced by key concepts developed within Participatory Rural Appraisal (PRA) (Chambers 1994), which essentially draws on the knowledge and skills of rural people in the analysis of their local resources and livelihoods. This approach was extended by the reflection of the process-actor approach of political ecology. The application of PRA philosophy was carefully done to avoid or minimise the six biases<sup>1</sup> that impede outsiders' contact with the rural poor (ibid; p.13-27).

To understand how and why collective action emerges, evolves and results into equitable (or inequitable) outcomes, I selected three FUGs; Laglage Pakha FUG, Bagbhanjyang FUG and Pragatisil FUG from Kathmandu, Tanahun and Kaski district respectively (Map 5.1). All districts are in the mid-hill region where CF has mainly been implemented.

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<sup>1</sup> Six biases include: 1) spatial biases; visiting nearby towns, along or near sealed road, 2) project bias – visiting development projects, 3) person bias – meeting the elite those who adopt introduced principles, and those who are more visible, 4) dry season bias, 5) diplomatic biases of politeness and timidity and 6) professional biases to meet 'progressive' farmers or those formally educated (Chambers 1994).



Map 5.1 Map of Nepal showing three case study districts (In the inset – Nepal in South Asia)

(Source: Data from ICIMOD, Kathmandu)

There are important reasons for the selection of these three districts. First and foremost, they represent the diversity of Nepalese CF in terms of the stage of CF, the number of FUGs formed and issues involved with collective action processes and outcomes. According to the Department of Forests (DoF), the DFO of Kathmandu district has handed over 111 FUGs, which represents one of the districts having the lowest number of FUGs. Tanahun district with 255 FUGs represents a typical district in terms of number of FUGs, whereas Kaski with 381 FUGs represents the district with one of the highest number of FUGs in Nepal (CPFD 2001). These districts also represent some of the most complex, dynamic and diverse societies in terms of economy, ethnicity, culture, religion and political affiliations. This means that these districts permitted an exploration of the varied socio-economic and political change impacting upon the management of CF as they had the diversity of issues, stages and outcomes of CF directly relevant for this study.

The selection of a FUG within each district is more important than the selection of districts in terms of the nature of this study. Three FUGs were selected on the basis of how collective action emerged, evolved and what are the issues of collective action processes and outcomes. The selection was also based on relative poverty, FUG members' dependence on forests and other socio-economic characteristics.

### **Case Study site 1: Laglage Pakha FUG, Kathmandu**

Laglage Pakha FUG is in Thankot Village Development Committee (VDC) of Kathmandu district and comprises of 61 households. It manages 13.5 hectare (ha) of forests (see Map 6.1) Collective action in Laglage Pakha FUG was introduced by the DFO Kathmandu. Based on the discussion with the DFO staff and FUG members, the evolution of collective action appeared to be participatory and forest management conflicts were minimal. It is a relatively homogenous FUG dominated by the *Magar* ethnic group. The FUG members follow the ethnic head and are politically less sensitive as there are offices belonging to political parties. Although the forest was previously destroyed, it improved after the introduction of CF. The District Forest Office (DFO) of Kathmandu awarded first prize to this FUG for its success in managing the forest. Despite its proximity to the capital, poverty is high. There is limited availability of agriculture land, low alternative income generating sources, a few regularly paid workers and low levels of literacy. Thus, the FUG members are heavily dependent on forests.

### **Case Study site 2: Bagbhanjyang FUG, Tanahun**

Bagbhanjyang FUG is in Vyas Municipality (district's headquarter) of Tanahun District and comprises 30.42 ha of forest that supports 170 households (see Map 6.2). A local system of forest protection existed in Bagbhanjyang FUG before CF. The DFO Tanahun recognised the local system. The DFO staff and FUG members consider that the management of forests in Bagbhanjyang is effective as DFO has awarded a prize to the FUG. There are few conflicts in forest protection and management. The FUG is very heterogenous. The location is highly developed, the majority of users are wealthy, poverty is low and the FUG is politically sensitive. The FUG members are less dependent on the forest because most of them are involved in some form of businesses or paid jobs. Participation of users in forest protection and management is low and therefore, the protection is carried out by paid forest watchers.

### **Case Study site 3: Pragatisil FUG, Kaski**

Pragatisil FUG comprises 290 households and is in Lekhnath Municipality of Kaski district. It manages 57.74 ha of forests scattered in five patches, including a temple being protected for its religious significance. The forest is at the north-eastern edge of Prithivi Highway that links the capital to Pokhara, the second biggest city of Nepal (see Map 6.3). Collective action in Pragatisil FUG was imposed by the DFO Kaski by undermining the existing forest protection system. While the forest condition has improved, discussion with the users and DFO indicated that the evolution of collective action has become problematic because there are serious conflicts in forest use and management. It is a heterogenous community dominated by the higher caste and traditional landlords. District Forest Office (DFO) of Kaski has also awarded a prize to this FUG for its

success in managing the forest. While the majority of the people are involved in agriculture and livestock, a significant number of people are involved in business activities. Being accessible, but not as developed as the case number two, this is a case that has significant collective action problems with moderate levels of poverty and heterogeneity.

The three FUGs represent three different types of CF with different contexts. This allowed an investigation of different factors shaping collective action processes and outcomes in different situations.

### 5.4.3 Data collection

Data collection was carried out at different levels using triangulation techniques. This involved collecting data from various sources employing different methods and multiple investigators (Denzin 1989). Figure 5.1 shows the various methods used for data collection at different levels with multiple actors. The use of multiple methods to gather the data aimed at increasing the rigour and validity of the research.

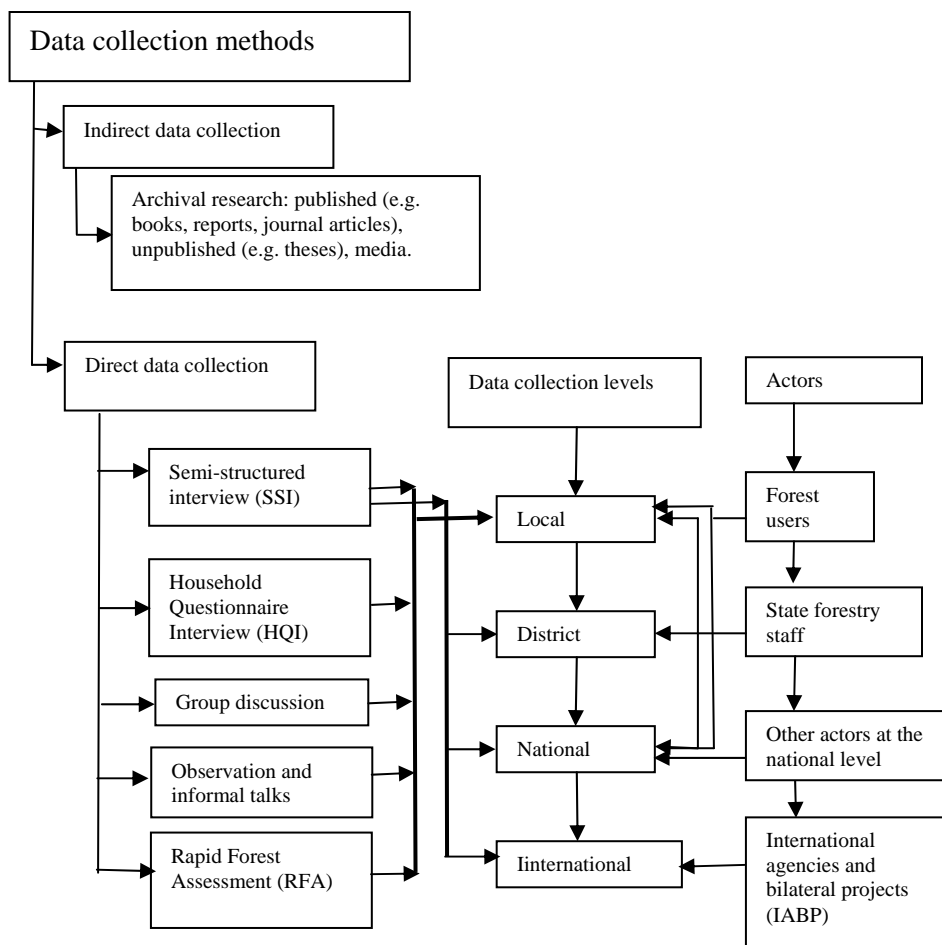


Figure 5.1 Data collection methods, levels and key actors involved in Nepalese CF



The indirect method of data collective was used to gather information on CF from the records maintained by the households, FUGC, from the publications of government and non-government organisations, from previous research published in local, national and international journals, books, newspaper and other publications. However, despite secondary information being collected from multiple sources, critically reviewed and crosschecked for accuracy, the direct data collection is the backbone of this research.

The direct collection of data was carried out using both qualitative and quantitative methods involving multiple instruments, multiple levels and various actors. The research instruments were Semi-structured Interview (SSI), Household Questionnaire Interview (HQI), group discussion, observation and informal discussion and Rapid Forest Assessment (RFA). Two research assistants (one female sociologist for all three sites and one local male villager in each case study site) were employed to help collecting the information. These methods were used in such a way that one complemented the other.

#### **a) Semi-structured interview (SSI)**

Semi-Structured Interview (SSI) is a guided and focused interview with flexible listening, questioning and interacting with people without threatening and intimidating them (Messerschmidt 1991). SSI is one of the key instruments used in this research to collect information from various actors operating at different levels. Of necessity, I generally followed a snowballing methodology. SSI was conducted with 37 key individuals belonging to four main groups from four different levels (Table 5.1). As Table 5.1 indicates, the study is focussed on the local level and is more concerned with the forest users and forestry staff. The forest users are further categorised into six groups, five from the local level and the users' federation from the national level. While users' federations, particularly FECOFUN exist at local, district, regional and national levels, SSI was formally focused on the national level as some users' representatives selected at the local level also represent FECOFUN at local, district and regional level. At least five key individuals from each FUG were selected for SSI representing different sections of the community. Rangers and DFOs were selected from the case study districts, while the national forestry officials were selected based on their responsibilities in CF. Influential CF projects and their key individuals were selected in the category of International Agencies and Bilateral Projects (IABP). Since the university, businesses and NGOs are yet to become directly active in policy-making and implementation processes, they are collectively represented as 'other key stakeholders'.

Table 5.1 Composition of stakeholders in Semi-Structured Interview (SSI)

Number of respondents included in the SSI, their group and level (N=37)						
Stakeholders	Codes	Levels				Total
		Local	District	National	Global	
1. Forest users (N=18, 48.7%)						
Disadvantaged section	DISV	3				3
Forest Users Group Committee	FUGC	5				5
Local government	LG	3				3
Forest-dependent local business	LOBUS	2				2
Local NGO/NGO worker	LONGO	3				3
Forest User Groups' Federation (FECOFUN and a new federation)	USFED			2		2
2. State forestry officials (N=9, 24.3%)						
Ranger	RAN	2				2
District Forest Officer	DFOf		3			3
National Forest Official	NFOf			4		4
3. Other key stakeholders at the national level (N=5, 13.5%)						
University	UNI			2		2
Forest-related business	NABUS			2		2
NGO mainly active in CF	NANGO			1		1
4. International agencies and bilateral projects (N=5, 13.5%)	IABP				5	5
Total		18	3	11	5	37
Percent (%)		48.7	8.1	29.7	13.5	100

Besides representing key stakeholders from different levels, the selection of individual respondents within each group and subgroup was made in such a way that respondents bring diverse interests, experience and socio-economic and political attributes in terms of gender, kinship, social stratification, institutional affiliation, political membership and relationship with other individuals. These factors condition individuals' understanding and interpreting regarding the CF problems and solutions. The details of each respondent's code and attributes are outlined in Appendix F-1 (see Appendix F-4 for general themes discussed in SSI).

In doing the SSI, locations, timing and date were discussed and agreed between the interviewees and the researcher. SSI was conducted in the FUGC office or locations preferred by individual interviewees at the local level, while the district, national and international level interviews were conducted in offices. Female respondents were interviewed by the female research assistant. All respondents were interviewed using the same format of SSI for comparative analysis. All interviews were tape-recorded with prior permission from the interviewees.

SSI was useful for generating information as the interviews were focussed, systematic and comprehensive. However, information was sometimes distorted as informants made political and organisational viewpoints. I suspected interviewees might have highlighted the recent or most intense experience or the situation they encountered most frequently, while painful or embarrassing experiences might have been forgotten or consciously avoided (Young & Schmid 1998). Nevertheless, by combining other techniques and crosschecking the information, the personal and institutional biases were minimised.

#### **b) Household Questionnaire Interview (HQI)**

The questionnaire is a self-administrated tool for data collection. It is suitable when the respondents are relatively educated, choose to remain anonymous and are scattered over a wide geographical area. Unlike interviews, there is no one to explain the questions to respondents and the responses may become unproductive. Respondents can consult others to fill questionnaires. In the context of the majority of forest users likely to be uneducated or unfamiliar with the questionnaire survey, this research used a combination of questionnaire and interview techniques (therefore, questionnaire interview) to increase the effectiveness of the research and the quality of information. In the process, the researcher explained the question and assisted the household head (aided by the discussion of other household members) to fill out the questionnaire.

HQI was employed in three case study sites to investigate the perceptions of households in regards to forest use and management. Before selecting the sample households, I collected socio-economic information about the village held by the Central Bureau of Statistics (CBS), Department of Forests (DoF) and District Forest Office (DFO). Then, I entered the village and collected similar information from the office of VDC (Village Development Committee) and FUGC. With a list of member households, I visited the village and talked with local people.

The selection of individual households was based on the wealth rank, ethnicity and gender of the household's head. For each FUG, the key members of the FUG, such as FUGC members, ward chairmen, teachers and social workers, were first given a list of member households and asked to categorise the households using their own criteria. They generally grouped the households in three wealth categories; Poor, Medium and Rich, based on three key socio-economic attributes: food security, land and livestock ownership and occupation (see Appendix B-2). The key FUG members also grouped the FUG member households in terms of ethnicity/caste in three to nine categories, but agreed in three general ethnicity/caste categories; Lower Caste, Middle Caste and Higher Caste, based on the traditional system of the Hindu caste hierarchy. Similarly, they grouped the households into male-headed households and female-headed households. The final list was then cross-checked with other villagers and key informants for accuracy.

72 households were interviewed in the three FUGs representing about 14 percent of the 521 households (see further details in Appendix B-3). Within each category, individual households were randomly selected for detailed interviews. The composition of sample households can be seen in Table 5.2.

Table 5.2 Composition of sample households selected for HQI in three FUGs

<b>FUGs' composition</b>	<b>Laglage Pakha FUG</b>	<b>Bagbhanjyang FUG</b>	<b>Pragatisil FUG</b>
Total HHs (N)	61	170	290
Sample households for HQI (n)	20	23	29
<b>Wealth ranks</b>			
Poor	13	4	20
Medium	6	4	5
Rich	1	15	4
<b>Gender</b>			
Female-headed	6	5	12
Male-headed	14	18	17
<b>Ethnicity</b>			
Lower Caste	1	1	4
Middle Caste	17	16	15
Higher Caste	2	6	10

Only a single household was interviewed in Laglage Pakha FUG that belonged both to the rich and lower caste category because there was no other household that villagers considered as rich. There were a few other lower caste households, but they were not available for interviews. In Bagbhanjyang FUG, the number of lower caste households was marginal and further, they were unavailable for interviews. Therefore, only one household was interviewed. It is therefore important to recognise that the results largely represent the opinions of other household categories. HQIs were conducted by the researcher giving questionnaire to the household heads and explaining the questions to the household members with inputs from all the members of a household present at the time. Questionnaires were mostly filled by the household head at the time of the interview in the questionnaire sheet (see HQI sheet in Appendix F-3).

### c) Group discussion

Group discussion is a useful way of understanding CF issues, which can elucidate the issues raised during the HQI. At the local level, for each FUG, three group discussions were conducted. One discussion was with the members of the FUGC prior to the HQI to understand the general composition of the FUGC, to review the records maintained by the FUGC and to become familiar with how the forest was being managed. Most members participated in the two hour discussion session.

Two group discussions in each FUG were conducted with the five members of the FUG randomly selected from the categories made during the HQI. The composition of the discussion members was diverse including FUGC member, female, forest dependent farmer or businessmen, lower caste and other (see Appendix F-2). First discussion was organised after the HQI and the second after the SSI. The same members participated in both discussions in the location, date and time agreed between the discussion members and researcher. A role-play was performed to prepare for the group. Initially, each discussion was planned for two sessions each of one hour duration. Upon discussion with the members, the session was reduced to one session, but the duration was kept for two hours.

One group discussion session was conducted at the national level as the members of the central committee of FECOFUN preferred to discuss the issues of CF in a group, rather than be interviewed separately.

#### **d) Observation and informal discussion**

Observation is a way of collecting the primary data by watching, listening and systematically viewing the phenomena (Young & Schmid 1998; Kumar 1996). In many situations, observation can be useful when full and accurate information cannot be elicited by questioning. Based on whether the researcher actively participates in the activities of the group in the same manner as its member, it can be divided into non-participant and participant observation. While direct (non-participant) observation was used for all levels of study, participant observation was mainly used at the local level.

In the data collection process, I observed forests, government and non-government offices and official, forest users and FUGs. While a wide variety of behaviours were directly observable, I could not easily gain in-depth insights of the attitudes, expectation and motivation of people at the local level. Thus, I used participant observation, in which I shared the life of the observed group by staying in each village for four weeks. I talked and ate with people of different ages, caste, status and professions, talked with people at their households, at teashops, at schools and at their farm. I observed their behaviour, in their own settings. When I returned to the field residence, I recorded a narrative description of the interaction. I was careful not to involve in ethical, cultural and political issues of the village. My Nepali background helped me to adjust to living in the community.

However, not all phenomena were open to observation and not all behaviours were natural. I could not record the description of narratives at the time it happened because I wished to create an environment in which people didn't feel threatened. By the time I recorded the description, some accuracy and detail may have been lost. While the observation was useful, it was not sufficient for

understanding many social processes and cross-section of social life. This necessitated using other research techniques.

#### **e) Rapid Forest Assessment (RFA)**

Rapid Forest Assessment (RFA) was carried out to assess the condition of forests and potential availability of forest products from community forests studied in this study. The RFA is a derivative of Rapid Vegetation Assessment, which is the hybrid of formal forest inventory techniques and participatory appraisal techniques. RFA provided a participatory, efficient and inexpensive way of collecting data with an acceptable degree of accuracy (see Nurse et al 1992). It allowed me to spend more time and resources on investigating the time consuming socio-economic issues involved in CF.

RFA was carried out by using stratified random sampling of the forest in three case study sites. Three rectangular plots were established in each community forest. The size of each plot was 100 square meters (10m x 10m). The selection of site for individual plots was discussed with the FUG and DFO field staff. Based on their advice and my observation, the forest was stratified on the basis of types of regeneration, level of canopy and extent of harvesting. The distribution of plots within the forests was chosen in such a way to capture plantation, recently harvested site and dense forest with mature trees. This was to represent the diversity of forests within the sample plots. Plots were established, in which the number of seedlings (DBH<sup>2</sup> less than 4cm) was counted and recorded. Saplings (DBH between 4 and 10cm), poles (DBH between 10 and 30cm) and trees (BDH more than 30cm) were measured and recorded in the field book (see RFA data sheet in Appendix F-5). Experienced villagers and DFO staff helped to identify the name of the species and to estimate the approximate height of saplings, poles and trees.

#### **5.4.4 Data analysis and interpretation**

My strategy to analyse the data was largely based on the framework of Miles and Huberman (1994). Their framework for data analysis includes three components: data reduction, data display, and drawing and verifying conclusions. Data reduction is “the process of selecting, focusing, simplifying, abstracting and transforming the data that appeared in *written-up* field notes and transcripts” (Miles & Huberman 1994, p.10). Data display is an activity that organises, compresses and assembles information, which are already reduced to permit drawing conclusions. The drawing and verifying of the conclusion involves assessing preliminary conclusions, patterns, regularities, explanations and flows and interpreting them as final conclusions. They primarily devised the framework for qualitative analysis. Since the majority of my research data was qualitative in

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<sup>2</sup> DBH stands for Diameter at Breast Height, which is generally measured in Nepal at 1.3 meter from the ground.

nature, I found their framework useful because it was directed at tracing out relationships among social phenomena, based on the regularities and sequences that link these phenomena (Punch 1998).

In this research, I reduced data systematically and simultaneously before, during and after the fieldwork by reading, examining and editing. The field-notes, interview transcripts and RFA field notes were carefully assembled, transcribed and edited to identify and minimise errors and gaps. I created a computer database (HTML web-site database) by entering all data into the database and establishing the link between them. The database facilitated re-reading and re-examining the data easily and efficiently to perceive the complexity of data and their relationships, patterns, and similarities and differences. This helped me to prepare an outline of the key findings with a close view of research questions I wished to be answered. I displayed key findings on charts and figures so I could observe emerging patterns and relationships. I also compared the data to establish preliminary cause-and-effect relationships.

Interpretation of qualitative data was based on Harris's (1968) etic and emic methods, in which I described the problem in my own language (i.e. 'etic'), whereas the emic method was about the interpretations as presented by respondents. On the other hand, interpretation of quantitative data from RFA and HQI were carried out by simple statistical techniques and presented in the figures and tables.

#### **5.4.5 Research rigour and limitations**

Research rigour is the extent of strictness or discipline applied to the research study. The rigour reflects the quality and worth of the study and has usually been used as the criterion to evaluate the research. There are apparent tensions between the creativity, pluralism and richness involved in the research process and the requirement for standardised process for establishing research rigour (Baxter & Eyles 1997). The challenge is to incorporate both rigour and subjectivity as well as creativity into the research process (Johnson 1999). In so doing, I considered a set of criteria developed by Lincoln and Guba (1985) which are internal validity, external validity, reliability and objectivity. These criteria were later changed to credibility, transferability, dependability and confirmability respectively (Lincoln & Guba 1989). These are widely used (see Baxter & Eyles 1997; Punch 1998; Bailey et al. 1999).

Credibility is the degree to which a description of human experience is such that those having the experience would recognise it immediately, and those outside the experience can understand it (Denzin 1989). In order to enhance credibility, I used stratified random sampling for HQI and RFA and the purposeful selection of the members for SSI and group discussion to represent as diverse

range of villagers as possible. I recruited two research assistants; one female sociologist for all three sites and one male villager from each case study site. They were introduced to the purpose of the study and later trained in the essential observation and interview skills through practice sessions. We had peer debriefing every evening at our residence in the village. DFO, ranger and FUGC members provided continual feedback. The woman team member separately interviewed women members. The time, day and location were selected for convenience of women and other disadvantaged members. Questionnaires were simple, clear and in Nepali language. Data were recorded in the field notes and audio recorder at sites. Before carrying out the HQIs and SSI, informal conversation, rapport building, door-to-door visit and group meetings were carried out. I developed trust between myself and research participants by living with them over weeks.

Transferability is the “degree to which findings fit within contexts outside the study” (Lincoln & Guba 1989, p.515). For this, I focussed on the detailed description of the context. I also purposefully sampled the districts and case study sites. My multi-site study gave implication for transferability (see Baxter & Eyles 1997). The rich description produced from this study is useful to analyse other FUGs in Nepal. Since qualitative research is rarely concerned with transferability (Punch 1998, p.515), I was concerned more with detailed description of the cases to enhance credibility and less on the transferability.

Dependability is the consistency with which the same constructs may be matched with the same phenomena over space and time (Lincoln & Guba 1985). Throughout this research, I was aided by one female research assistant. I contacted the same position holders in FUGC and offices in all case study sites. I used the same and simple questionnaires, the same language as that of respondents and employed field notes and recorded interviews at site for accurate collection and analysis of data. The collected data was analysed and the interpretations checked with multiple researchers.

Confirmability is defined as “the degree to which findings are determined by the respondents and conditions of the inquiry and not by the biases, motivations, interests or perspectives of the inquirer” (Punch 1998, p.290). In this research, I focused on thick description and triangulation so that the source of the data and logic used for interpretations were made explicit. My research assistants were trained through practice sessions to reduce biases. I was always mindful of my own ethnocentricity and socio-economic characteristics in relation to those of respondents.

#### **5.4.6 Issues related to the politically volatile context**

At the time of fieldwork, Nepal was politically volatile due to the Royal Massacre on June 2001, the subsequent change of government on July 2001 and the continuing Maoist insurgency since



1996. Due to the Maoist insurgency in the mid and far western Nepal, I had changed one of my case study sites from the mid-western district of Surkhet to a sociologically similar district of Kaski in the western region. I had to be careful to talk about politics involved in forest management with the government and non-government staff due to the sensitive nature of Maoist politics. On one occasion, Maoists requested a detailed explanation of the research and they asked me to limit the forest plots in which I intended to conduct the forest assessment. Accordingly, I changed the location of plots to a biophysically similar location. After the state of emergency was declared on November 2001, I had difficulty getting appointments with government staff to carry out SSI as most senior staff were either largely absent or busy with 'special' government duties. I had problems collecting documents from offices.

Beyond these specific problems associated with the study, I faced two general problems living in Nepal. One was the inherent danger from the Maoists and their call for frequent strikes, which made transport and general shopping inaccessible during the strikes. At the same time, the increased security checking by the state army made life insecure and cumbersome. Travelling entailed frequent security checking in coaches and taxis. Carrying a bag with documents was a risk because security people were required to go through all documents. Despite these difficulties, I managed to complete the fieldwork without major problems.

## **5.5 Conclusion**

This chapter has explained the methods employed in this research. It discussed the epistemology and methodology and employed process-actor approach to collect data by a combination of qualitative and quantitative methods. Following detail discussion of data collection involving multiple actors and multiple levels, research rigour was explained in the context of tensions between subjectivity versus objectivity, rigour versus creativity and the requirement for superficial versus detailed approaches. The chapter ended with describing the danger associated with the fieldwork in Nepal. The forthcoming chapters will present results, analysis, discussion and conclusions.