

Joint Forest Management in Himachal Pradesh, India: Gender contributions, learning and action outcomes

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A Thesis submitted to the Faculty of Graduate Studies of

The University of Manitoba

in partial fulfillment of the requirements of the degree of

MASTER OF NATURAL RESOURCES MANAGEMENT

Clayton H. Riddell Faculty of Environment, Earth, and Resources

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Winnipeg

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Abstract

In the early 90's the Indian state of Himachal Pradesh (HP) initiated Joint Forest Management (JFM) in order to share responsibilities for managing, protecting and making decisions about government owned forests with local users. The purpose of this study was to consider how the JFM approach is currently being practiced, particularly the role of women in decision-making and the learning outcomes for all participants as a result of their involvement. The research used a qualitative, case study approach involving two mountain communities, Solang and Khakhnal.

Data were collected through participant observation, semi-structured interviews and transect walks. The study revealed that a number of factors, including ownership rights, sharing management responsibilities and underrepresentation of women within village forest committees, greatly influence collaboration among the forest-dependent communities, NGO's and the forest department. Further, the data indicate that individual and social learning did occur through participation in JFM activities.

Acknowledgements

There are many people to thank for this experience and academic adventure. I'd like to thank all of the research participants and people in India that were associated with this research and supported me through this process. I would like to especially thank the local forest users and members of VFCs and Mahila Mandal in Khakhnal and Solang for being so open and generous, and for showing me the importance of informal knowledge. This research would not have been possible without the unwavering help and support of my translator and guide, Mehru-gee. Thank you to Siya, Shivam, Nisha, Bruno and the whole Thakur family for opening their homes and hearts to me in Goshal and for making my stay in Himachal very enriching and memorable.



Also thank you to my housemates in Goshal, Jha, Dheera and Dhruv for showing me some spectacular sites in Himachal and for making my stay in Goshal a lot less lonely.

Thank you Dr. John Sinclair for your teachings, support, encouragement, patience, guidance and involvement in this study. Thank you for enabling me to do work on community FM and gender

relations in India. I would also like to acknowledge and thank you for your financial support through the Social Science and Humanities Research Council of Canada. This project would not have been possible without the critical insight, suggestions and thorough read-throughs from my research committee, Dr. Maureen Reed, Dr. David Punter and Dr. James Gardner- thank you all very much. Thank you all for teaching me about conducting qualitative research and helping me to think critically about FM structures in northern India. A sincerest and heartfelt thank you to Mr. Gary Schneider who diligently edited my very long thesis (from all my misplaced commas and colons to inconsistent acronyms), provided thoughtful commentary and made me realize all of my grammatical and syntactical hiccoughs which I have carried for far too long. I truly appreciate all of the time and effort you spent on helping me to understand ways to improve my academic writing. This research would not have been possible without the financial support from the University of Manitoba Graduate Fellowship, the SSHRC GETS funding, the Clayton H Riddell Graduate Entrance Scholarship and the Faculty of Graduate Studies Travel Grants- thank you very much.

Thank you to the ever-helpful and supportive administrative staff at the Natural Resources Institute. Without their knowledge and unrelenting hard work for the faculty and students I am fairly certain the department would grind to a halt. Their constant willingness to help and answer questions has made my masters experience so much smoother. Thank you to all of my NRI peers and everyone in “John’s Learning Group” for making this experience truly fulfilling and enriching.

Thank you to the Academic Learning Center, namely Kathy Block, Miriam Unruh and all of the writing tutors for being a wonderful, encouraging, inspiring and supportive network of

individuals not just within the process of writing but through navigating the sometimes worry-filled and uncharted waters of university.

Mom and Dad, thank you for always loving me, supporting me, and emphasizing the importance of getting an education and encouraging me to pursue what I love- learning. Also, thank you for supporting my wild adventures around the globe even though I know it caused some worry-filled days and nights. Thank you to my sister Caryn for being a great friend who listened to all of my worries, took me out on fun sister outings to get my mind off school and believed me when I said, “soon I’ll defend”. Thank you to my long time roomie and bestest bud, Val. Your friendship and constant support has been truly wonderful because you are CFA- Certifiably Forever Awesome! Thank you to my Grandma and Grandpa for our weekly dinners and visits (which served as a great break), frequent cribbage games, discussions on politics and world news, and for always listening to my stories and tales with an open ear and an encouraging heart. Lastly, I’d like to thank my partner and best friend Eliya. Thank you so much for your constant encouragement, love and support throughout all of these years. If it were not for your constant comedy, incredible patience and unwavering support throughout this entire time I’m not sure this incredibly long paper would ever have been completed -now onto the next adventures together (which are free of thesis filled weekends)!

Thank you all very much, I am very appreciative of all the support and encouragement I have received throughout this process

*“Learn as if you were to live forever”
Mahatma Gandhi*

*In dedication to my Grandma, Nana and Mum, three of the strongest women I know, who
instilled a zest for learning, sharing stories and pursuing what makes you happy*

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The photos of participants are “blacked out” if their face is shown to be a head on shot in order to protect their privacy and confidentiality. Photos of participants where their faces are turned away from the camera are either blurred or out of focus.

All photos were taken by Ms. Allison Birch during the research field season from September-December 2014 in HP, India. All photos in the thesis have verbal consent to be used in this publication from the participants who have been photographed.

Glossary of Terms of Acronyms

BO	Block Officer
CBFM	Community-based FM
CIFOR	Center for International Forestry Research
DFO	District Forest Officer
DNGR	Decentralized governance of natural resources
DRO	Deputy Range Officer
ENGO	Environmental Non-Governmental Organization
FAO	Food and Agriculture Organization
FD	Forest Department
FG	Forest Guard
FM	Forest Management
FPC	Forest Protection Committee
FRC	Forest Rights Committee
FU	Forest User
GAD	Gender and Development
HP	Himachal Pradesh
ITTO	International Tropical Timber Organization
JFM	Joint FM
JFMC	Joint FM Committee
MM	Mahila Mandal
MoEF	The Ministry of Environment and Forests
NFP	National Forest Policy
NTFP	Non -timber Forest Product
Nvivo™	Computer Assisted Qualitative Data Analysis Software (CAQDAS Program)
PF	Protected Forests
RF	Reserved Forests
RO/RFO	Range Forest Officer or Range Officer
SFM	Sustainable FM
TD Entitlement	Tree Distribution Entitlement (also referred to as TD wood)
TD Rights	Tree Distribution rights (the right to obtain TD wood-see above)
VFC	Village Forest Committees
YM	Yuvak Mandal

Please note the acronyms for the Forest Users, and Mahila Mandal members are only abbreviated in the tables and figures. Otherwise, the full word is used throughout the remainder of the thesis.

Binomial Nomenclature for Tree Species

Binominal nomenclature	English Name	Hindi Name
<i>Abies pindrow</i> (Royle ex D. Don) Royle	Silver fir	Talispatra
<i>Bambusa vulgaris</i> Shrad.	Bamboo	Baraa bans or Bans
<i>Buxus</i> sp	Box	Not available
<i>Cedrus deodara</i> (Roxb. Ex D. Don) G. Don	Deodar	Naariyal kaa per
<i>Eulaliopsis binate</i> (Retz.) C.E. Hubb.	Bhab (b)ar grass	Bhab (b) har
<i>Fraxinus</i> sp.	Ash	Kuppikhokhali
<i>Juglans regia</i> L	Walnut	Kaajuu / Kaajoo
<i>Pinus roxburghii</i> Sarg	Roxburgh	Chilcheel
<i>Picea smithiana</i> (Wall.) Boiss.	Spruce	Not available
<i>Pinus wallchiana</i> A.B. Jacks.	Blue pine	Kail
<i>Quercus dilatata</i> A. Kern.	Green oak	Moru
<i>Quercus incana</i> Bartram	White oak	Ban
<i>Quercus. semicarpifolio</i> Sm.	Brown oak	Karsu

Definition of Key Terms

Term	Definition
<i>Community FM</i>	An evolving branch of forestry whereby the local community plays a significant role in FM and land use decision making by themselves with the facilitating support of government as well as other change agents.
<i>Double Loop Learning</i>	A categorization of social learning that is concerned with participants/stakeholders questioning the values and norms that form the basis of their collective decisions.
<i>Forest Department (FD)</i>	The state body that owns, manages and protects the forests. The FD in Himachal is responsible (according to government reports, personal communication and the FD website) for FM & protection, eco-tourism, wildlife management and fire protection in the state.
<i>Individual Learning</i>	Learning by individuals, in this case as a result of their personal involvement in informal FM activities and committees (i.e., NTFP collection, gathering and discussing village related issues in the Mahila Mandal, Forest Rights Committee, Forest Protection Committee or Joint FM Committee).
<i>Joint FM</i>	Often abbreviated as JFM, it is the "sharing of products, responsibilities, control and decision making authority over forest lands between the FD and local user groups, based on a formal agreement. The primary purpose of JFM is to give users a stake in the forest benefits and a role in planning and management for sustainable improvement of the forest condition and productivity. A second goal is to support an equitable distribution of forest products.
<i>Mahila Mandal</i>	An organization of rural village women that aims to “draw rural women into the mainstream of development and to enable them to function as instruments of social change by providing them with programs in which they will have a stake or a sustained interest, such as improving their income or productivity and employability or employment” (Jain and Reddy, 1979, 3).
<i>Single Loop Learning</i>	A categorization of social learning that focuses on participants/stakeholders finding solutions to problems/challenges they face and finding alternative means to improving outcomes, in this case in regard to managing forest resources.
<i>Social Learning</i>	Defined by many authors, as described in Chapter 2, as an ongoing iterative process that involves deliberation, interaction, reflection, shared understanding, and collective decision making among stakeholders, in this case the forest users in Khakhnal and Solang.
<i>Sustainable FM</i>	A management approach that generally seeks ecological integrity, social equity and economic stability, which is considered the normative goal of all FM approaches. Based on the components of JFM, it is proposed by several researchers that JFM can lead to more sustainable FM practices. Chapter 2 discusses SFM more in depth.

<i>TD Entitlements</i>	Timber that is granted to right holders, who are documented in the Forest Settlement Reports, in order to construct and repair residential houses, cow sheds and be used for specified domestic purposes. All TD entitlements are granted by FD officials.
<i>Triple Loop Learning</i>	A categorization of social learning that involves stakeholders learning how to learn while managing resources.
<i>Village Forest Committees (VFC)</i>	These committees are designed as a way to meet several of the objectives of JFM within HP. The purpose of the VFCs is to have local forest users form an organized body with a FD official acting as the secretary. This enables clear communication, regular meetings between forest users and the FD, and shared responsibility in managing the forest areas. In Khakhnal and Solang, the VFCs function differently, with some having strong ties with the FD and others having little to no affiliation or communication with the FD.

Please note that detailed definitions are provided in Chapter 2 pertaining to the aforementioned terms.

Glossary of Terms from English to Local Words

English Words	Local Equivalent (Local Understanding of the word)
Bribes	Baksheesh
Elected Head of Village Level Organizations (Particularly Gram Panchayat)	Sarpanch
Forest	Jungle
Local Government	Panchayat
Landslide	Avalanche
Lopping/Felling Trees	Taking trees, cutting trees, illegally cutting trees <i>Note that lopping and felling is referred to both the legal and illegal method of taking trees (i.e., with TD entitlement or not etc.). When the participants discuss the illegal felling of trees, it is made clear in their responses which actions are committed illegally or legally in the forests</i>
Organization	Mandal
Pharmacy/Drug Store	Chemist
President- of the local government	Pradan
Sustainable	Healthy, living for our kids and grandchildren, big and full, not taking too much, green trees
Tree Planting	Plantation work
Larger village level	Gram (this is in reference to gram panchayats which is clusters of villages in the same region meeting together)
Women	Mahila (this is referred to as another local organization for females in the village- Mahila Mandal)
Youth	Yuvak (this is referred to as another local organization for male youth in the village- Yuvak Mandal)

Please note that these terms are also readdressed within the thesis and there are several footnotes included within the thesis to aid in further understanding if certain words have another meaning according to the local context (i.e., Hindi or another local dialect

Chapter 1: Introduction

1.1 Background

Forest resources are vital for the global conservation of biological diversity, water and soil resources (Gibson et al., 2005; Siry et al., 2005). Moreover, forest resources are widely used in order to meet our domestic and commercial needs for wood and non-wood forest products, while also providing important livelihood outcomes (Behera, 2009). During the 1992 United Nations Conference on Environment and Development (UNED), world leaders developed a non-binding Statement of Forest Principles that was composed of 17 points outlining strategies for protecting the world's forest (Siry et al., 2005). Since then, countries around the world have developed regional and international criteria as well as indicators that can be used to measure and monitor the success of achieving sustainable forest management (SFM) (Siry et al., 2005). Although virtually all stakeholders in forest management (FM) recognize that SFM is a goal that is beneficial and worth pursuing, there is a lack of empirical evidence that forests are actually well managed and protected, particularly in developing nations (Siry et al., 2005; Nesheim et al, 2014).

SFM is a concept specifically designed to ensure more sustainable use of forest resources, in part through trying to incorporate the different interests related to forests in decision making and management (Reed 2010; Agrawal, 2001). In their Global Forest Resources Assessment, the Food and Agriculture Organization of the United Nations (FAO, 2001) suggested that enhanced SFM on a global scale will require the following: better reporting and verification, enhanced implementation of SFM criteria, better information for monitoring and analyzing forest trends on a global level, and more effective public policies to best support SFM locally and globally. There are also several challenges to practising SFM at the community level, such as defining the nature

of the group that manages that resources (size, gender and wealth differentiation), establishing institutional arrangements under which the resources are managed (property rights, access rules) and managing resource characteristics that are influenced by the external environment (high variability, productivity) (Mwangi et al., 2011; Agrawal, 2001).

SFM uses very broad social, economic and environmental goals (FAO, 2005). A key aim, or goal, of SFM is to facilitate fair and effective decision making amongst stakeholders (Gibson et al., 2005). Although learning is not explicitly stated as a direct goal of SFM, it could be implied that when there is a space where ideas, decisions and concerns can be discussed amongst stakeholders, in a fair and equitable manner, that learning amongst and with the various stakeholders can be encouraged (Gibson et al., 2005). Despite the goals of SFM, the interests and motivations of various stakeholders are currently rarely fully incorporated into FM decisions (Reed 2010b; Agrawal, 2001). In particular, there is an apparent absence of women in several forest-related, multi-stakeholder participatory processes, despite forest use and management having strong gender dimensions. This indicates a failure to meet social sustainability goals within SFM (Agrawal, 2001, 2009; Varghese and Reed, 2011). Women are often excluded, for example, from forest-related decision-making processes in developing countries (Mwangi et al., 2009; Locke, 1999a). Studies in India and Nepal show that women in those countries are often excluded from FM because of social barriers, logistical barriers, the rules governing community forestry, and male bias in the attitudes of those promoting community forest initiatives (Vasan, 2006a; Krishna, 2004). However, it has been shown that involving women in forest-related decision making at the community level can have significant positive effects on a range of FM issues, including the capacity of community groups to manage conflict (Agrawal, 2009; Vasan, 2006a). Therefore, understanding the role of women in FM and local governance institutions as

well as their learning throughout the process are key to achieving the sustainable and equitable management of forests.

India is one nation where these SFM challenges coalesce. Forests in India are vital for economic, social, environmental and ecological reasons (Tucker, 2010; Singh & Pandey, 2010). They play an integral role in ecosystem processes (such as the biogeochemical and hydrological cycles), they provide habitat for wildlife and serve as sources of biodiversity, and they offer protection against soil erosion (Tucker, 2010; Singh & Pandey, 2010). However, in spite of their obvious value, anthropogenic activity is causing unprecedented threats to these forest ecosystems. According to Singh & Pandey (2010), there is an increasingly urgent need to establish credible monitoring, rule-making and enforcement at the local level in communities in India in order to facilitate local learning and adaptation, and ultimately for management that is oriented towards sustainability.

1.2 Purpose and Objectives

The purpose of this research was to examine local forest governance institutions in the state of Himachal Pradesh (HP). More specifically, this research considered the impact that the local forest governance institutions are having on the social dimensions of SFM, particularly the role of women in decision-making and the learning outcomes for all participants as a result of their involvement.

The study had the four following objectives:

1. To establish how community-based forest management is currently being practiced;
2. To determine the contributions of women and men to community forest management institutions;

3. To describe the learning outcomes of people involved in community forestry and discuss how such learning facilitates sustainable forest management; and
4. To understand if perceptions of, and actions related to, forest sustainability and local governance systems have changed based on involvement in community-based forest management activities/programs.

1.3 Research Design

The research was community based and followed a qualitative, constructivist approach. The thesis research was conducted using a case study strategy of inquiry that included semi-structured interviews, forest transect walks and participant observation (Creswell, 2009). In terms of selecting a case study region, several areas within India are known to practise local forest governance through approaches such as JFM. I decided to focus on the northern state of HP (Figure 1) for my detailed case analysis due to the amount of forest cover and number of people that rely on the forest to maintain their livelihood (Vasan, 2001). The Kullu Valley, for example, has implemented several different FM strategies that are practised in most of the villages (Sundar, 2000; Vasan, 2006a). Moreover, this region continues to rely on forest resources as a means to sustain individuals at the household and district level (Sundar, 2000; Vasan, 2006a). Moreover, because Kullu¹ is one of eight designated forests circles within HP, there was ample opportunity to meet my objectives and interview individuals participating in varying levels of FM (Vasan, 2006a).

¹ Kullu: Please note that on Figure 1 Kullu is spelled “Kulu” as both spellings are acceptable and this was the more commonly written form of the area during Vasan’s (2006) publication. However, throughout the remainder of the thesis I will use the term Kullu as this is now the more commonly written form for the area in current literature (this was also confirmed through interacting with locals).

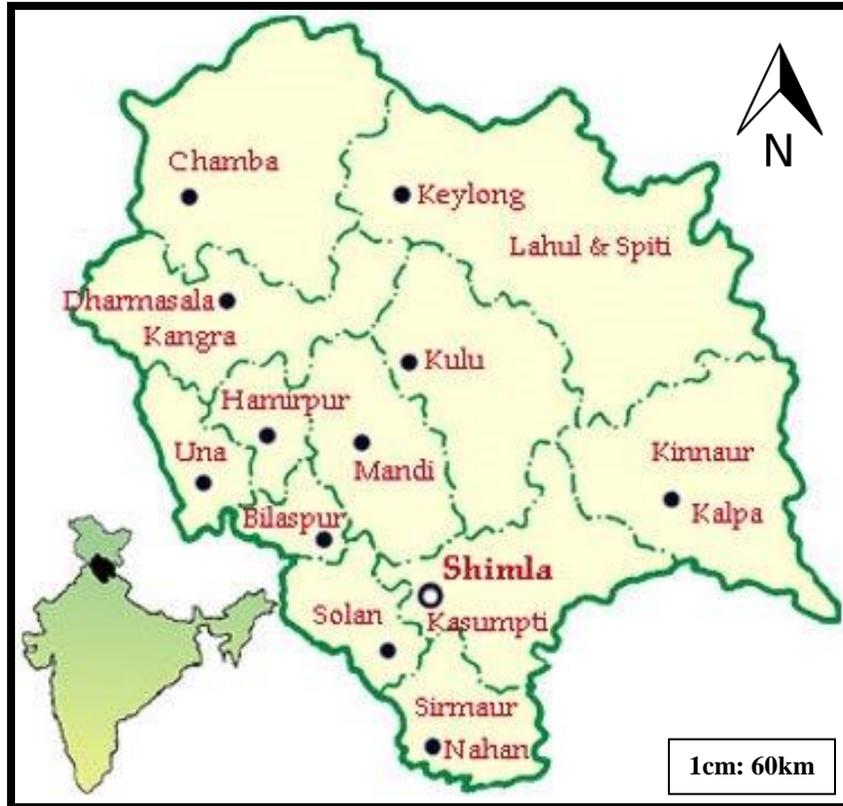


Figure 1: The State of HP (Northern India) and Districts Map.
 Source: Vasan, 2006a

I used the following data collection procedures: participant observation, semi-structured interviews and forest transect walks. In order to fulfill my four objectives, I worked with adult men and women involved in FM activities, as well as government officials and academics working within the field of SFM. I, as the primary researcher, and an interpreter who spoke the language within the study sites, facilitated all transect walks and interviews. Participant observation was ongoing throughout the field season (August to beginning of December, 2014) in order to obtain insights into the different ways people use the forest, FM activities and what contributions and responsibilities men and women have in the forest. For the interviewing process, purposeful sampling (Berg, 2004) was used to select participants. The interview

schedule covered a variety of topics in order to best understand how FM is practised at the community level and what the participants are learning about forests and sustainability.

By using qualitative data collection methods, I was able to identify location-specific barriers and motivations to participating in FM activities. I was also able to identify where people learned about the forest and its importance to the villages as well as the outcomes of the learning at the individual and community levels. More specifically, by examining the types of work that people do in the forest, ways that people make decisions about FM, and learning about how the various user groups (i.e., forest users, the government, NGO's and forest committees) all play a role in forest protection and management, I gained a better understanding of how two villages in the Kullu District are currently engaged in FM. The methods are detailed in Chapter 3.

1.4 Significance of the Study

Several scholars have highlighted the need to investigate the contribution of local forest governance to more sustainable FM (e.g., Vasan, 2006a). The social dimensions of SFM, such as considering local, gendered approaches to governance and the learning outcomes of such approaches, in particular, requires significant attention (Reed, 2010) to better inform future management strategies. This research will add to the growing body of literature pertaining to our understanding of how groups learn through natural resource management. Additionally, this research examines the motivations, barriers and opportunities that exist for local forest dwellers to participate in FM activities. Understanding the localized barriers and motivations that exist to participate in FM activities allows us to provide effective policy insights and recommendations that can facilitate more local participation (Bahuguna, 1992; Gibson, McKean and Ostrom, 2000). This type of research is becoming increasingly important and there is a growing need to

further investigate and understand participants' learning in order to make more effective resource management decisions (Locke, 1999a; Krishna, 2004; Diduck et al., 2012). Although there is a longstanding literature on gender and the environment, particularly examining gender relations in forest management in India and Nepal, this research helps to bring together the concepts of SFM, social learning, and gender contributions in a way that highlights local perspectives coupled with relevant literature. As such, this research will contribute to the understanding and development of the theory and practice of social learning in FM and natural resource governance.

1.5 Organization of the Thesis

This thesis is comprised of seven chapters. Following the introduction, Chapter 2 consists of the literature related to various topics pertaining to the study, including SFM and how it relates to mountainous regions in India, the use of local perspectives as a qualitative measure, local governance structures in Joint Forest Management (JFM), and learning outcomes associated with FM. Chapter 3 outlines the research design and methods, including case study strategy, data collection procedures and the process of data analysis. Chapter 4 provides a detailed description of the two study sites in relation to how JFM is practised and what roles people play in managing the forests. Furthermore, Chapter 4 also introduces key concepts relating to JFM and community-based FM, including forest rights, Village Forest Committees (VFCs) and the state Forest Department (FD). Lastly, Chapter 4 discusses the motivations and barriers to participating in JFM for various forest user groups. Chapter 5 presents the detailed findings regarding the use of local perspectives as an indicator for understanding female involvement in FM. As well, it discusses the role of the Mahila Mandals in FM. Lastly, Chapter 5 also examines the various roles and responsibilities that each user group (i.e., Mahila Mandal member, VFC member, NGO member, forest user, and FD official) has in FM and protection at the village level. Chapter 6

discusses the origins of participants learning (i.e., where participants first learned about FM, protection and sustainability concepts), the learning outcomes related to involvement within JFM activities (in the Kullu Region) and the observable action-related outcomes that have resulted from the participants' learning. Chapter 7 provides a summary of the research findings, conclusions and insights for policy change primarily based on personal observation and participant interview responses.

Chapter 2: Sustainable Forest Management, Women, Local Governance and Social Learning

2.1 Sustainable Forest Management as a Concept

The issues of sustainability and sustainable development have been heavily discussed and researched over the past two decades. Moreover, policies and public debates have recently been dominated by issues around achieving sustainability or moving towards more sustainable practices in a variety of sectors. The Brundtland report, ‘Our Common Future’, which emphasized the need for current generations to meet their own needs, while ensuring that future generations’ ability to meet their own needs are not jeopardized (WCED, 1987) catalyzed the ongoing discussions and deliberations about sustainability. Due to the push for ensuring that more sustainable practices are reached (by communities, industry, etc.) there has been a strong emphasis in all sorts of literature on the importance of ensuring social, economic, and environmental balance, if there is to be any chance of achieving sustainability (FAO, 2001). Sustainability, as a concept, has been applied to FM across the globe. In fact, it is believed that the term was first applied to forestry in 1713 when a German forestry plan discussed long term productive use (Sutton, 2005; Siry et al., 2005).

FM incorporates administrative, economic, legal, social and technical measures, in order to ensure that the conservation and use of natural forests and forest plantations is done sustainably (FAO, 2001; Siry et al., 2005). It is important to note that FM may be characterized as including interactions between populations, in both ecological units and populations of their users (Legry, 1985; Singhal and Rishi, 2012). Moreover, FM has traditionally aimed to attain one or a combination of the following goals: stability of the physical/ecological environment, productivity of the physical/ecological environment and equity within the social environment

(Lal, 1997; Singhal and Rishi, 2012). In recent years there have been a number of changes in regard to the management of forests (Bhattacharya et al., 2010). Most notably, there is a major shift towards more decentralization and increasing community-oriented approaches to FM (Dedeurwaerdere, 2009). Several governments are introducing a number of opportunities that support SFM and biodiversity conservation by decentralizing the authority and responsibility for resource management (Dedeurwaerdere, 2009; Singhal and Rishi, 2012). Although sustained-yield forestry continues to be practised on a wide scale, there is an increasing trend towards managing forests as ecological systems, considering a potential multitude of economic benefits and environmental values, and making use of extensive public participation in the decision-making process (FAO 2001; Tucker, 2010). The United Nations General Assembly defines SFM as a “dynamic and evolving concept, which aims to maintain and enhance the social, economic and ecological values of all types of forests, for the benefits of present and future generations” (2012, pg. 1).

It is widely recognized that local communities need to be involved in creating SFM systems (Saigal et al., 1996; Vasan, 2001). There are several different FM strategies (Joint FM, Social Forestry, Community-based FM and Participatory FM) practised around the world that aim to encourage forests management in a sustainable manner and that highlight the main values of forests (Siry et al., 2005). For example, several countries in the Asia-Pacific region have focused their attention towards community-based FM programs and the devolution of management responsibilities on some forestry activities to local government units (FAO, 2001). Moreover, China, Laos and Vietnam use a technique of FM whereby the rights to use the forests are transferred to the direct forest user groups themselves (Bird, 1996). Furthermore, New Zealand has implemented the privatization of forest plantations as a means to achieve some SFM

goals (FAO, 2001). All of the various initiatives shown above have led to greater access and control of forests by local people, in turn resulting in improvement in forest protection and management and reducing pressures on resources (Bird 1996; FAO, 2001).

2.1.1 Sustainability Indicators in SFM

Previously the primary focus of FM sustainability was on sustaining the production of wood and timber in the area; however, since the United Nations Conference of Environment and Development there has been a noticeable shift in how FM sustainability is understood and practiced around the world (Wijewardana, Caswell and Palmberg-Lerche, 1997; Castañeda, 2000). As a result, the concept of SFM was broadened to include social, economic, environmental and cultural dimensions that fall in line with the forest principles- set out from the UNCED conference in 1992 (Castañeda, 2000). This understanding of SFM closely parallels Moore's (2005, pg. 78) holistic understanding of sustainability and sustainable management of resources. As such, for the purposes of this paper, Moore's definition of sustainability will be used in relation to SFM because it encompasses several dimensions of sustainability (i.e., cultural, social, environmental, ecological and economic).

sustainability is a concept, a goal, and a strategy. The concept speaks to the reconciliation of social justice, ecological integrity, and the well-being of all living systems on the planet. The goal is to create an ecologically and socially just world within the means of nature without compromising future generations. Sustainability also refers to the process or strategy of moving toward a sustainable future

In order to ensure the continued availability of goods and services that forests and forest ecosystems provide, based on the implementation of the principles agreed upon at UNCED, several countries have acknowledged the need to agree upon a common definition of SFM and to develop and implement tools by which the sustainability of FM, in the broad sense, could be

measured, monitored and reported (Castañeda, 2000; Bizikova et al, 2012). In order to arrive at commonly shared criteria and indicators for SFM, several streamlining actions took place at the global level including the; FAO/ International Tropical Timber Organization (ITTO) Expert Meeting on the Harmonization of Criteria and Indicators for SFM and the Intergovernmental Seminar on Criteria and Indicators for Sustainability (Castañeda, 2000). The result of the meetings was seven globally agreed upon criteria for SFM (Castañeda, 2000), which include:

- Extent of forest resources
- Biological diversity
- Forest health and vitality
- Productive functions of forests
- Protective functions of forests
- Socio-economic benefits and needs
- Legal, policy and institutional framework

In addition to the globally recognized criteria and indicators (see above), there are also a number of ongoing international processes on criteria and indicators for SFM that over 140 countries are currently participating in (Castañeda, 2000; Brodt, 2002). However, it is important to note that although all of countries (i.e., the 140 countries that participate in international processes for identifying sustainability indicators) participate in one or more international processes on criteria and indicators for SFM, the degree of activity in assessing, measuring and/or implementing their indicators varies considerably among countries (Castañeda, 2000; Brodt, 2002). Although challenges do exist at the national level (i.e., weak institutional structures and lack of trained personnel) the international processes and organizations act as a support and useful network to countries working to more sustainably manage and protect their forests.

India is a member of the International Tropical Timber Organization (ITTO). The ITTO is designed to assist tropical member countries to manage and conserve the resource base for tropical timber (ITTO, 2015). The ITTO embraces seven globally-recognized aspects of SFM including: reduced impact logging, benefit sharing between stakeholders, community forestry, fire management and biodiversity, and high levels of local participation in FM, protection and decision-making processes (ITTO, 2015). The ITTO has developed seven criteria and indicators, which have been harmonized with other criteria and indicators for SFM schemes. These seven constitute the basis for the assessment of SFM (ITTO, 2015), and include:

- Enabling conditions for SFM
- Extent and condition of the forest use areas and remaining forest areas
- Forest ecosystem health
- Forest production
- Biodiversity
- Soil and water protection
- Economic, social and cultural aspects

For the purposes of this research, the various national and globally recognized indicators and criteria for SFM that directly support the four outlined objectives in Chapter 1 will be discussed. The criteria and indicators for SFM that are discussed in this paper include enabling conditions for SFM, productive functions of the forests, protective functions of forests, socio-economic benefits and needs, economic/social and cultural aspects as well as the legal, policy and institutional framework.

2.1.2 Public Participation and Decision Making in SFM

In several forest-rich countries and/or ones that actively practise forms of community-based FM (i.e., Canada, India, Philippines, and Uganda) much effort is devoted to producing science-based information and identifying social values of the forest in the on-going development and improvement of SFM strategies and practices (Hunt and Haider, 2001; Schusler et al, 2003). Forest practices that are not perceived to reflect social values cannot be considered as effective means to achieve SFM (Bahunguna, 1992; Hunt and Haider, 2001). Increasingly, therefore, the various institutions responsible for FM and forest resource allocation have encouraged public involvement in their decision-making processes through a variety of approaches.

One important aspect and goal of SFM is to support fair and effective decision making. As such, involving the public in decision-making processes has been identified by several researchers as a way to achieve some SFM goals (Hunt and Haider, 2001; Matta et al, 2005). Creating a fair and effective decision-making process in FM planning is more than just a lofty and idealistic public policy goal; it is increasingly becoming a legal requirement in several areas (Hunt and Haider, 2001). While there are various definitions and understandings of *fair and effective* in relation to decision making, for the purposes of this paper the term is defined below:

A fair and effective process must ensure that all individuals equally control and can vocalize their opinions or concerns about the process, are recognized and acknowledged in the decision making process, and have a third-party decision maker that is impartial (Cohen, 1985). Moreover, a fair process is more than just inclusiveness (CCFM, 1997) or having the opportunity to attend a process (Lauber and Knuth, 1997). A fair and effective decision making process must capture the importance of adequately allocating resources and defining obligations amongst participants (Leung and Li, 1990).

Based on the above definition, involving the public leads to the incorporation of the full range of social values into decisions and results in quicker responses to changes in these values over time.

Moreover, involving the public in decision-making processes in a fair and effective manner can help to facilitate equity in resource allocations (Brundtland Report, 1987). Although the importance of public participation is widely recognized within the field of resource and environmental management, certain factors such as cultural and social differences, conflicting economic interests, and differences in risk tolerance can complicate decision making and affect the stakeholders' perception of its effectiveness. The barriers to achieving meaningful public participation and fair and effective decision making often hinge on certain cultural, religious, economic, social and/or geographical factors. These complexities will be understood through the two case studies used in this research.

2.2 Joint Forest Management: a strategy to achieve SFM

JFM is a type of FM strategy and has elements that can support SFM (Bhattacharya et al., 2010; Singhal and Rishi, 2012). According to Locke (1999a: 266), JFM is “a specific variant of community forestry whereby responsibility and benefits are shared by local user groups and with government forestry departments”. Unlike some forms of Community-Based FM (CBFM), the communities involved in JFM activities do not have full ownership and management responsibility for an area of a forest within their jurisdiction (Blomley and Ramadhani, 2004). Therefore, JFM is a collaborative management approach or a participatory approach to FM that divides FM responsibility and returns between the adjacent forest communities and either the central or local government (depending on the area) (Blomley and Ramadhani, 2004). Often, JFM activities take place either on “reserved lands” such as the National Forest Reserves (NFRs) or on Local Government Forest Reserves (LGFRs) (Blomley and Ramadhani, 2004; Singhal and Rishi, 2012).

Although India is noted for practising JFM, other nearby countries such as Nepal, Pakistan, Indonesia, Philippines, Cambodia and Vietnam, practise similar forms of community and participatory forestry (Bhattacharya et al., 2010). Moreover, participatory FM practices that parallel JFM policies and practices have been undertaken in Kenya, Uganda, Congo, Gambia, Ghana, Niger, South Africa, Mali and Mozambique (Potters et al., 2002). While certain practices of participatory forestry management may be understood differently depending on the region where it has been implemented, the common thread between the different forms of FM structures practised globally (as shown above) is that community forestry and JFM are considered as non-market community-based institutions, meaning that they are not just involved in decisions but have a share in benefits as well (Bhattacharya et al., 2010).

2.2.1 JFM in India

FM practices in India (i.e., forests under state ownership and control) were first formalized in 1865 through the Government Forest Act. This Act was quickly replaced by the Indian Forest Act in 1878 (Arora, 1994). From 1878 to 1987 the priorities and guiding principles of the FD were primarily focused on meeting commercial and industrial forest products needs and maximizing profits (Arora, 1994). However, a large shift in priorities in regard to FM occurred in 1988 when the National Forest Policy (NFP) was adopted (Arora, 1994). The NFP placed a higher emphasis on environmental conservation and protection, while also ensuring that rural and tribal populations had their needs met in terms of forest products, such as fuel wood, fodder and minor forest products (Vasan, 2006a; Bhattacharya et al., 2010).

JFM in India is a policy instrument that was designed to implement many of the progressive notions that the 1988 NFP outlined, in order to achieve more sustainable management and rehabilitation of forest areas (Jeffrey and Sundar, 2000; Bhattacharya et al.,

2010). Two years after the NFP was released, the Minister of Environment and Forests published a circular, which provided guidelines for involvement of village communities and voluntary agencies in regeneration of degraded forest areas (Locke, 1999a; Locke 1999b). The National Forest Policy of 1988, and the JFM resolution of 1990, combined with state-level resolutions, acknowledged the need to give greater rights and authority to community groups for managing forest resources (Ravindranath and Singh, 2004).

The National Forest Policy imagined a process of joint management of forests by the state government and the local people, who would share the responsibility for managing the resource and the benefits accruing from FM activities (i.e., harvesting, planning, etc) (Ravindranath and Singh, 2004; Vasan, 2006a). According to Locke (1999a), JFM is “a specific variant of community forestry, whereby responsibility and benefits are shared by local user groups and with government forestry departments” (266). Further impetus was given to the concept of SFM in India after Agenda 21 was released at the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro (Ravindranath and Singh, 2004; Vasan, 2006a). Both Agenda 21 and the forest principles that were adopted at UNCED (informally known as the Earth Summit) identified forest products other than wood as an important area that requires increased attention for protection in order to achieve sustainable management and continued growth of the forest areas (Ravindranath and Singh, 2004). Over the past two decades, an increasing number and variety of organizations, such as government, non-government institutions and the private sector have become involved with the promotion and utilization of non- timber forest products (NTFPs) and its effects on the sustainability of products as well as the forest (FAO, 2001). It is now widely recognized that NTFP plays an important role for local communities in and around forests (FAO, 2001). The general principle of JFM is that

village communities are entrusted with the protection and management of nearby forests (Shah, 1996; Singhal and Rishi; 2012). Therefore, the communities are required to organize forest protection committees, village forest committees, and village forest conservation or development societies (Singh and Pandey, 2010; Singhal and Rishi; 2012).

According to Sundar (2000), India's JFM program is an attempt to develop partnerships between the FD and the rural users of the forest resources, in order to regenerate and sustain degraded forested land. Joint FM has emerged as an important intervention in the management of forest resources throughout India, both as a specific paradigm for forest governance and as India's largest community forestry program (Bhattacharya et al., 2010). Currently, there are over 106,482 Joint FM Committees (JFMC) that are responsible for protecting over 22.1 million hectares of forests. These forests are spread across 28 states and the union territories of Andaman and Nicobar Islands (Bhattacharya et al., 2010). The contribution of forestry to the gross domestic product (GDP) in India averages 1.5% annually; however, forestry has accounted for over 5.25% of the GDP in HP (the state where research will be conducted) within the past five years (Verma, 2000). Although JFM has been administered on a national scale, decisions on implementation and related details have been left to the individual states, resulting in differing strategies (Bhattacharya et al., 2010). For example, in Andhra Pradesh, 100% of the benefits from JFM forests accrue to local communities, while in numerous other states conflicts have arisen between communities and the state over economic benefits from harvested resources (Agarwal, 2009; Singh and Pandey, 2010). Based on the above example, many scholars have criticized the JFM policy, saying that the state's primary goal is not to enhance local participation as it stated, but rather to increase the management capacities of state FD in the

context of multiple and conflicting user demands in accessing forest resources (Vasan, 2006a; Agarwal, 2010).

2.2.2 JFM in HP

As in many Himalayan regions, livelihood sustainability and human ecology in the HP area have been inextricably linked to forests (Vasan, 2001; Vasan, 2006a). Due to the wide range of altitudes and climatic conditions within the state, HP can sustain a wide array of forest types, including moist tropical, dry tropical, montane subtropical, montane temperate, sub-alpine and alpine scrub (Vasan, 2003). Forests within HP have been reserved or set aside for a variety of purposes by different authorities, under various legal provisions and under a wide array of institutional arrangements (Vasan, 2006a).

Forests have contributed to the economic sustainability of the political unit of HP because they have played a critical role in sustaining the household and community livelihoods in the region (Vasan, 2006a). Moreover, the forests in HP play a critical role in the unique Western Himalayan ecosystem, helping to conserve the integrity of the upper watersheds of five major Indian rivers (Chenab, Ravi, Beas, Sutlej and Yamuna) (Vasan, 2006a), sustaining the agro-pastoral livelihoods for local residents (Davidson-Hunt, 1995a; Davidson-Hunt, 1995b; Bingeman et al., 2000) and creating balance in the economy for the small hill state (Davidson-Hunt, 1995b; Vasan, 2003). The primary purpose for reserving forests in the initial colonial forest legislation was to ensure that communities would have sustained use of the forests, as well as associated products for present and future generations (Vasan, 2006a; Sundar, 2000).

In the early stages of Himachal Pradesh's development, forests were recognized as an important source of revenue that could sustain the household and state's economy (Jeffrey and Sundar, 2000; Vasan, 2006a). During the period of time when forest use was a primary source of

revenue for the state, HP was a source of some of the most commercially valuable and highly prized deodar (*Cedrus deodara*) timber (Jeffrey and Sundar, 2000; Vasan, 2006a). Local communities also used forests intensely for daily and commercial uses, including food, shelter, heat, cooking, etc. (Sundar, 2000). However, forests are no longer viewed as a direct source of revenue by the state, but rather as a means to further support other primary development activities and economic sectors within HP (Jeffrey and Sundar, 2000; Vasan, 2006a). Some areas of the economy that continue to depend on and are influenced by forests include road construction, hydroelectric power development, tourism and horticulture (Jeffrey and Sundar, 2000; Vasan, 2006a). Although the exact nature and degree of dependence on forests and the level of integration of forests in everyday life varies within each valley and cultural region of the state, the integration of livelihoods with forests over time in this region has ensured that forestry institutions are well developed (Vasan, n.d; Verma, 2000).

The Constitution of India guides forestry in HP, as it does in the rest of the country (Vasan, 2006a). During the time of the enactment of the Constitution in 1950, forests were declared as a state subject (Vasan, 2001). Over time, there were several reviews of the Constitution, with the most notable result of the reviews being the creation of the 42nd Amendment, which mandated that the state and central governments needed to share responsibility for managing the forests (Vasan, 2001; Vasan, 2006a). The Indian Forest Act (IFA) of 1927 provided the legal framework for FM in India (Veema, 2000). Although states in India are allowed to enact their own Forest Acts, HP continues to follow the IFA with only two amendments made in 1968 and 1991 (Vasan, n.d; Veema, 2000). This law, passed by the British colonial government, primarily emphasized the importance of creating and safeguarding the rights of the state in forest ownership and management (Vasan 20001).

The primary institution responsible for implementing all applicable forest laws in HP is the state FD (Vasan, 2006a). The FD actively works and manages forests over an area of 3,701,626 hectares, comprising 66.43% of the total geographical area of the state (Vasan, 2006a). Though this area is legally defined as forest-land, only about one third of it (22.49% of the total geographical area) is actually under tree cover (IIED, 2000; Vasan, 2003). The majority of the remaining land, although still termed forest-land, is actually under rock and permanent snow (Vasan, 2003). It is important to note that almost all of the forest areas (98%) in HP are legally under the management of the FD (Vasan 2001; Vasan, 2006a). Figure 2 (shown below) illustrates the variety of legal forest classifications in the state. The areas managed by the FD include unclassed forests, other forests, reserved forests, demarcated protected forests and un-demarcated protected forests (Government of HP, 2015).

The forests in India are defined based on two principal classification systems (a) land use, that is, the recorded forest area, and (b) canopy density or the forest cover as per the Forest Survey of India (FSI) classification system (WAVES, 2015). The recorded forest area, as per the land use classification, refers to all geographic areas recorded as “forests” in government records (Walia, 2005). Recorded forest areas are composed of reserved forests (RF) and protected forests (PF) and are constituted under the provisions of the Indian Forest Act of 1927 (WAVES, 2015). The land rights to forests that are declared to be reserved forests or protected forests are typically acquired (if not already owned) and owned by the Government of India.

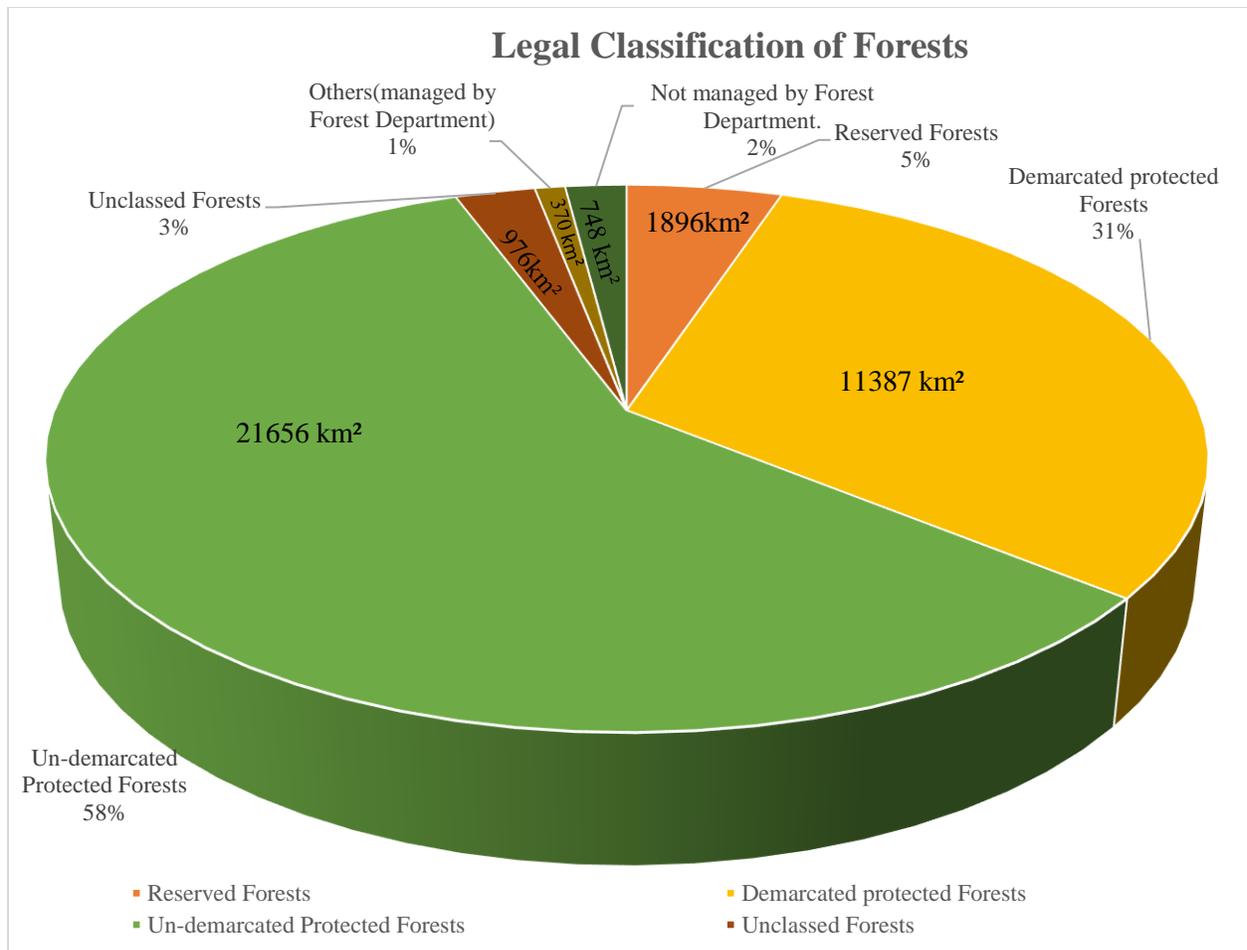


Figure 2: Legal Classification of Forests in HP
 Source: Government of HP (2015)

Similar to national parks or wildlife sanctuaries in India, reserved forests and protected forests are declared by the respective state governments. Therefore, all of the reserved and protected forests in HP are declared and recognized as such by the state government. Reserved forests and protected forests differ in one important way. Activities such as hunting and grazing in reserved forests are banned unless specific orders are issued otherwise from an authoritative body. However, in protected forests, rights to such activities are sometimes given to communities living on the fringes of the forest, who sustain their livelihood partially or wholly from forest resources or products (Vasan, 2006a; WAVES, 2015). As shown in Figure 2, protected forests are classified as demarcated protected forests or un-demarcated protected forests. The

classification is based on whether the limits of the forest have been specified by a formal notification. Typically, reserved forests are often upgraded to the status of wildlife sanctuaries, which in turn may be upgraded to the status of national parks, with each category receiving a higher degree of protection and government funding. The protection, maintenance and management of these areas is the primary responsibility of the FD.

The responsibilities of the FD extend beyond FM, as evidenced by the three FD employees' responses to the question “*what does the FD do*”.

As a forest guard my role in the village is to monitor and take care of my given beat² that I have been assigned to. I need to protect, conserve, and properly manage the wildlife areas, forests and biodiversity of the beat and make sure that the people in the village know about which areas are being protected and where future trees will be planted.

Khakhnal, FD Official, Forest Guard, 2014

My main purpose as the block officer is to ensure that the villages are not over-felling, over-hunting, over-grazing or over-collecting forest products within the block³ that I oversee. It is important that I enforce the laws and monitor the forest and wildlife activities in order to make sure that there is enough forest cover, wildlife and a healthy environment for the future generations.

Nagger, FD Official, Deputy Ranger (also referred to as a Block Officer), 2014

As the district forest officer in the Kullu District I have a lot to do every day to ensure that the entire district is being managed and protected by the range officers, block officers, forest guards, conservators and all other FD staff members. I am also the last signing authority on all of the TD entitlement applications for the whole district so I am able to monitor which trees are cut and how many trees are cut in each village.

Kullu, FD Official, District Forest Officer (DFO), 2014

² Beat: Sections of forest land that the forest guard is responsible for managing and protecting. Forest range officers are responsible for managing and protecting a forest range. A forest range may be broken up into one or more beats or sections, under Forest Guards or Forest Section/Range Officers respectively (Balooni, 2001).

³ Block: A block is a section of forest land that is larger than a beat. The size of a block ranges from village forest to village forest, however it is approximately the size of 2-3 beats (Balooni, 2001).

The basic administrative hierarchy within the FD, which is responsible for carrying out all activities connected with forestry and wildlife in the State of HP, is shown in Figure 3.

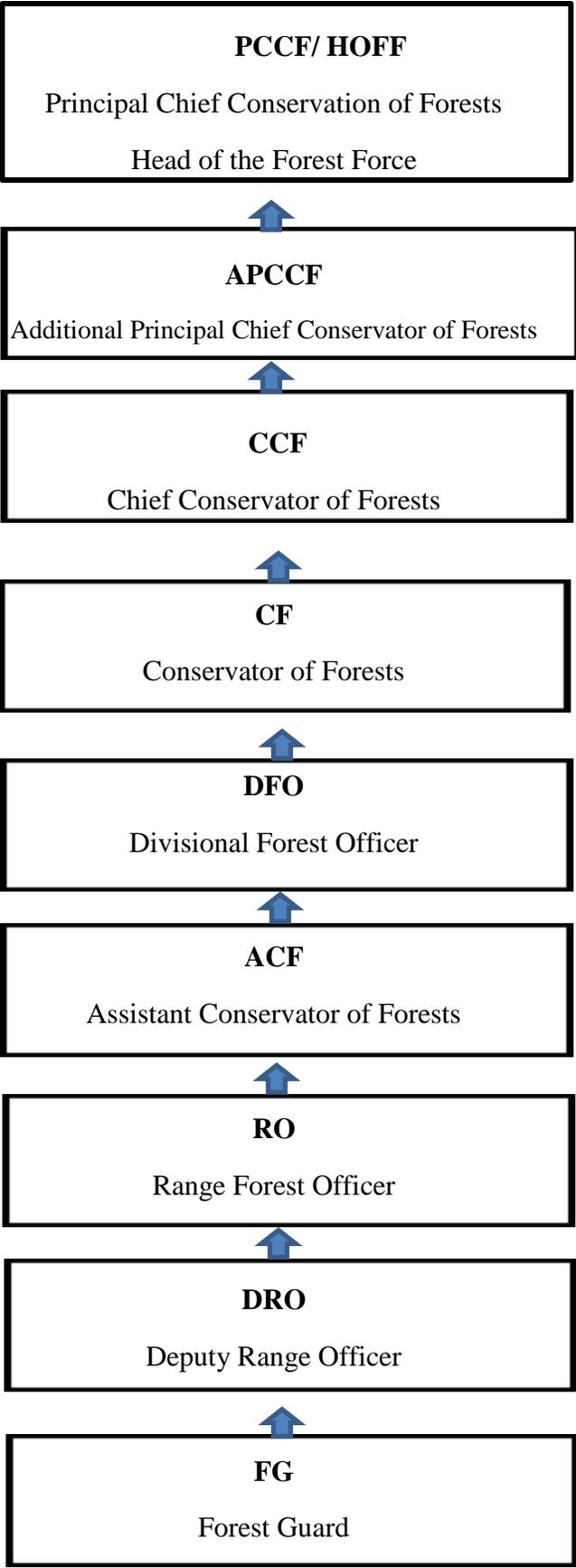


Figure 3: Organizational Structure of the Department of Forest Protection Conservation and wildlife, HP.

Source: Personal Communication with BL Negi (District Forest Officer) and Government of HP (2015).

It is evident from Figure 3 that there is a rigid hierarchical structure which guides the FD. Several scholars have criticized this aspect, as well as the preference for routine and convention and centralized planning and decision-making within the FD, because it closely resembles the past colonial traditions (Bahuguna, 1992; Chambers 1992).

The FD has *de jure* rights to the management and ownership of the forests (Bingeman et al., 2000). Moreover, it operates within the legal frameworks set out by the Indian Forest Act (1927), as well as the associated Forest Conservation Act (1980) and the Forest Conservation Rules (1981) (Bingeman et al., 2000; Vasana, 2003). Several scholars have discussed the problems that have emerged from the political environment in which the FD functions and the existing power structure that persists (Bingeman et al., 2000; Bingeman, 2001; Vasana, 2006a; Bhattacharya et al., 2010).

However, despite these issues HP also has a remarkable historical legacy of community forestry initiatives that have successfully resolved some of these problems (Vasana, 2003). For example, institutions and past practices such as forest settlements, *rakha*⁴ system, *devban*⁵ and the forest cooperatives, are all noteworthy precursors that have helped the state build strong community forestry programs (Verma, 2000). These programs and JFM (a policy which

⁴ Rakha: The rakha is represented by a forest guard with dual accountability to both the local community and the state (Vasana, 2003). The existence of *rakhas* has been documented starting from 1853-1854 in the old Kangra regions of the present Kangra, Hamirpur and Una districts (Singh and Pandey, 2010).

⁵ Devban: Also known as sacred groves, Devban represent a system whereby local beliefs are blended within natural resource management (Vasana, 2003).

promotes participatory FM with local people) have been shown to generate trust, capability and legitimacy in past and current interactions between the FD and the local communities (Vasan, 2003; Vasan, 2006a).

Moreover, it is important to note that unlike many other regions of India, forest settlements in HP have long recognized several local rights (Davidson-Hunt, 1995a; Verma, 2000; Vasan, n.d). For example, forest rights in HP have been quite different from other parts of India (Davidson-Hunt, 1995b). The Anderson's (1886) Forest Settlement of Kullu Valley is a common example, whereby after much debate, the bulk of the Kullu forests were classified as protected forests (under the Indian Forest Act of 1878). This decision ultimately allowed for considerable leniency in use of forests by local people (Vasan, 2003). Overall, HP has changed their practices and has placed more emphasis on local participation within their institutional framework in order to work towards cooperation with the forest-dependent communities in order to achieve sustainable management of Northern India's forests.

Like other states in India, HP follows the basic guidelines of JFM whereby local user groups and the FD share products, responsibilities, control and decision-making authority over forest-lands. However, there are some JFM guidelines which are unique to HP, including that a female Joint Secretary should be nominated by the management committee, and that the President of the Mahila Mandal and a representative of the local women's group must be ex-officio members (Ravindranath and Sudha, 2004; Vasan, 2006a). Additionally, under HP's state guidelines the JFMC and forest users have access to 100% of the NTFPs (as set out in the Anderson Settlement) and intermediate products after 20 years of the agreement in order to share benefits (Ravindranath and Sudha, 2004). The benefit-sharing agreements, which are outlined in the HP JFM resolution, are unlike agreements in other states where sharing income derived from

the harvest of JFM is critical to the agreements (Bingeman, 2003). In HP, the “green-felling” of trees is prohibited (Bingeman, 2003; Agrawal, 2010). The main benefit therefore, is the future health of the forests and a continued supply of household forest products. The primary way in which JFM operates in HP is that local user groups are responsible for the daily forest use and management rights while the FD maintains legal control over the forest areas (Ravindranath and Sudha, 2004).

2.3 The Role of Women in Natural Resource and Environmental Management

Resource management is shifting to an approach based on stakeholder participation, therefore it is critical to understand how to create diverse and inclusive stakeholder groups in order to achieve representative outcomes (Singh 2008). By enfranchising marginalized groups, especially women, in democratic politics, the hope is that it will activate new channels to “stir up” restrictive conservation regimes. In some instances, it may even produce space to envision more democratic forms of resource management (Agrawal 1992, 1997, 2005, 2010; Billgreen and Holmen 2008). According to Resurreccion and Elmhirst (2008), “gender is understood as a critical variable in shaping processes of ecological change, viable livelihoods and creates prospects for sustainable development” (pg. 5). Including women as key stakeholders in natural resource management projects and decision-making processes, allows for efficient, effective and sustainable results to be attained (Gupte 2004; Billgreen and Holmen 2008; Resurreccion and Elmhirst 2008). Despite these benefits, there are several challenges that some developing countries may face when trying to incorporate women as stakeholders (Agarwal 1992; Arora 1994; Reed et al., 2009). Some of these include traditional societal constraints, gendered institutions, and embedded cultural values within regions (Agarwal 1992, 2009; Arora 1994; Gupte 2004; Johnson et al., 2004).

2.3.1 Theoretical Underpinnings

The analytical approaches to gender issues in relation to the environment are ever changing and relatively diverse. As such, in order to create a foundation for the gender analysis which will be fully examined in Chapter 5, it is important to provide a brief discussion of some of the ideas which have been borrowed from existing theoretical frameworks on gender perspectives.

What roles do women play in the environment? Do the roles and relations of men and women in private and public spheres play out in actions and decisions related to forest management? These two questions have been heavily discussed and debated throughout feminist, environmental management and gender policy literature (Agarwal 1992; Resurreccion and Elmhirst 2008; Fischer and Chhatre 2012). The common thread between the answers to these questions is that their work in or experiences of the environment may vary by gender (Resurreccion and Elmhirst 2008). Moreover, all of the previously mentioned studies conclude that men and women hold gender-specific interests in natural resource and environmental management based on their roles, responsibilities and understanding of the environment (Billgreen and Holmen 2008; Resurreccion and Elmhirst 2008, Singh 2008) and their interactions with other men and women.

2.3.2 Gender and a Gendered Perspective

For the purpose of this thesis, gender refers to the economic, political and cultural attributes associated with being a man or a woman (Agarwal 1992, Resurreccion and Elmhirst 2008; Moss and Swan 2013). It is important to note that these attributes vary between and within countries and can change over time (Moss and Swan 2013). Moreover, gender roles are the socially defined tasks, responsibilities and behaviors that are considered suitable for women and

men in a particular community or cultural context (Agarwal 1997, 2010; Fischer and Chhatre 2012; Moss and Swan 2013). In order to understand the contributions of men and women in FM institutions, specifically community-based FM, we need to employ a gender perspective (Locke, 1999; Agarwal, 2009). It is important to not ignore gender because that makes the assumption that men and women are equal, that their roles are the same, that there is no division of labor, and that there is no difference because of sex (Hewitt, 1991). Therefore, incorporating a gender perspective is especially relevant in the management of resources, since issues of access as well as the use and management of resources are linked to prescribed gender roles, which are in turn situated within the broader social and cultural context (Bingeman, 2002; Agarwal, 2009). This gender-based approach can enable separate, complementary and conflicting interests to be identified in ways that could improve the sustainability and equity of environmental policy, programs and management plans.

The last three decades have witnessed increasing discussion of women's relationship with the environment in both conservation and development policy circles, and ever-stronger arguments for involving women in environmental projects (Leech, 1992). Discussions which focus on women's roles and their contributions are a valuable counterbalance to those environmental debates which disregard them (Leach, 1992). Women's work closely involves them with the environment and its resources, whether as gatherers of fuelwood, collectors of NTFP products, haulers of water or participants in agricultural production (Leach, 1992; Agarwal, 1997). Women also have specific responsibilities that make them closely dependent on, and give them distinct interests in, natural resources. An example that is pertinent to this research is women's responsibilities to provide for daily household needs in the form of fuelwood and

NTFP collection. In addition, women have deep and extensive knowledge of natural resources, stemming mainly from intimate daily experience (Agarwal 2009; 2010).

2.3.3 Women and NREM

Some have noted, that while women may have a stake in current natural resource management projects, it does not appear to be sufficient, as it does not allow the conditions for catalyzing women's environmental action (Agarwal 2010, Fischer and Chhatre 2012). Consequently, as noted by Agarwal (2010), women's involvement in natural resource management is unlikely to develop automatically because overall our current state is more focused on "agitational collective action" (49) rather than on "cooperative collective action" (49). According to Agarwal (2010), "agitational collective action" is sporadic, situation-specific and may involve extra local mobilization, whereas "cooperative collective action" involves frequent monitoring and decision making. Based on Agarwal's research (2010), women tend to be highly visible in "agitational collective action" where projects or policy development have a shorter timeframe, are less frequently monitored and include less decision-making processes. Therefore, it is suggested that if women are included and empowered more in "cooperative collective action", which is longer-term and more regulated, it will allow for women's environmental action to be ignited on a global scale (Agarwal 2010; Wilk and Jonsson 2013).

A common example of differing uses of natural resources based on gender is understood within the forestry industry (Saigal et al., 1996). The Center for International Forestry Research's (CIFOR) Poverty Environment Network (PEN) found that income from forest activities accounts for one-fifth of total household income for rural households living in or near forests; men contribute more than women because their activities generate an income whereas women are more involved in subsistence activities (Moss and Swan 2013). Moreover, while both men's and

women's forestry activities contribute to household livelihoods, there are considerable gender differentiations in the collection of forest products (Sarin 1993; SPWD 1993; Saigal et al., 1996; Shah 1996). Research conducted by McDougall et al., (2013) found similar gendered differences in forest-related work in Nepal. However, they also found that marginalized groups, women and the poor, were the ones who rely deeply and directly on the forests, but that they tended to have little or no effective voice or recognition in community based forest governance processes (Lachapelle et al., 2004; McDougall et al., 2013). This illustrates the importance of understanding the complexity of gender norms, roles and relations, as this results in identifying opportunities for improving FM and for ensuring greater equity (Sarin 1993; Shah 1996). Furthermore, overlooking gender differences has the potential to result in inappropriate assessments of the tradeoffs and effects of policies on forest communities (Sarin 1993; Saigal et al., 1996; Shah 1996).

2.3.4 Women in SFM

Forestry has regularly been considered a sector dominated by men, making it difficult for women to participate in FM and decision making (Sarin 1993; SWDW, 1993; Saigal et al., 1996; Shah 1996; Moss and Swan 2013). Women are often excluded from decision-making processes because of social and logistical barriers, the rules governing community forestry, and male bias in the attitudes of those promoting community forestry initiatives (Sarin 1993; SWDW, 1993; Saigal et al., 1996; Shah 1996; Moss and Swan 2013). Recent research by CIFOR suggests that women's participation will occur where there are less-exclusive institutions, higher household-education levels, and a small economic inequality between genders (Moss and Swan 2013). Several studies have shown that forest governance and resource sustainability are improved when there is enhanced women's participation in decision-making committees within

communities (Sarin 1993; SWDW, 1993; Saigal et al., 1996; Shah 1996; Moss and Swan 2013).

Gender equality is important for SFM (Agarwal, 1997, 2009). It is recognized in Canada and in developing countries that women are an important component in forest-based communities (Agarwal 2000, 2009; Reed, 2010). For example, many women play a vital role in forest communities because they take part in resource harvesting for home or commercial use, work in forest-supported industries, contribute to resource governance, and tend to have a comprehensive understanding of the state of the forest resources (Agarwal 2000, 2009; Reed, 2010). Richardson et al. (2011) suggest that the exclusion of women in FM in Canada, for example, may result in decisions about forestry that do not necessarily reflect the broad values and or needs of forest communities.

However, the participation of women in forest governance or in SFM activities in developing countries is sometimes constrained by various factors, such as management structures that restrict participation, lack of information about opportunities or benefits, lack of inclusion in start-up planning, cultural or religious barriers, failure to take into account gender specific needs (e.g. length and timing of meetings), lower literacy rates among women, lack of role models and social networks in forestry, etc., (Agarwal 2000; Reed, 2010; Mwangi et al., 2011; Sun et al., 2011).

Some communities have turned to alternative management practices in an effort to create more inclusive and equitable management within the natural resource sector (Agarwal, 2008). For example, some communities have adopted JFM or other community-based FM practices as a means to increase participation and guarantee that the process is fair (Singh & Pandey, 2010). Within the past decade, India has tried to reallocate the balance of power within JFM projects by including a gender policy to ensure that women are meaningfully included in decision-making

processes (Bird, 1996; Agarwal 1997; Locke 1999a; Moss and Swan 2013). Policy makers and advocates of JFM have come to a consensus that women should be full participants and that their involvement is critical because of the nature of women's work. JFM programs were first introduced in India in the late 1980s; however, only within the last ten years has gender inclusion been presented in JFM policies (Bird 1996; Agarwal 1997; Locke 1999a; Moss and Swan 2013).

2.3.5 Women and SFM in India

Women are the primary collectors of forest-based products in rural India, and it is recognized that as a forest-dependent group, they should be involved in decision-making within these institutions for the sustainability of village livelihoods and conservation efforts (Agarwal, 1997). However, as mentioned above, the institutional structures of local governance in India have largely limited the full participation of women in this capacity, and men have assumed the dominant role in decision making concerning resource management at both the local and state level (Agarwal, 1992; Agarwal, 2009). A clear example of the lack of female representation in decision-making roles within FM activities can be seen in the research conducted by Dearden et al., (1995) showing that the strength of women within the FD in HP is very low. The authors documented that there were only three women employed as Indian Forest Service (IFS) officers out of 101 positions (3%), two female HP Forest Service (HPFS) Officers out of 129 positions (1.55%) and 24 female forest guards out of a total of 2,687 (0.9%) (Dearden et al., 1995). Such inequalities, which continue to persist in communities that practice FM activities, affect how power is distributed within local resource institutions (Dearden et al., 1995; Agarwal, 2001a). Although the numbers of employees have changed since 1995; after speaking with several FD officials during my research it was verified that the actual female representation within the FD for jobs such as forest guard, IFS officers and conservators in HP has remained between 3 to 4%

of the total employee base (personal communication, FD officials, 2014). However, within the FD there are clerical and secretarial jobs within the district offices and these positions have a higher percentage of female employees at approximately 25-30% (personal communication, FD officials, 2014).

The marginal presence of women within village forest committees (VFCs) in India obviously reduces their bargaining power and influence in forest decision-making processes. However, the *Mahila Mandal* is a village women's group working to empower women within village communities in India and facilitate their involvement both structurally and economically (Davidson-Hunt, 1995a; Bingeman, 2002). Women's organizations were first formed after the 1952 community development program, and were reinforced under the Indira Gandhi administration to function as instruments of social change and to enable the involvement of women in the economic life of rural India (Berkes et al., 1998). A notable example of collective communitarian resistance by women in India was the Garhwali women's vanguard struggle, which began in the early 1970's with resistance to "scientific" FM practices (Krishna, 2004). This collective action soon became known as the *Chipko Movement* and later transformed the face of environmental action and highlighted women's invested interest in resource management worldwide (Krishna, 2004). Women's participation within local groups such as *Mahila Mandals* is significant because these groups contribute greatly to FM through the creation and enforcement of local-level rules about forest access and use.

2.4 SFM and Governance

There are several examples of inadequate and unsustainable FM by central governments and large private interests alike, from both developed and developing countries (Billgreen and Holmen, 2008). Consequently, decentralization has been understood by many scholars as a means to improve FM in a more sustainable, effective and equitable manner (FAO, 2000). Decentralized governance of natural resources (DGNR) concerns the ownership and control of, access to and use of resources. DGNR is considered one of the main strategies for promoting sustainable management, equitable decision-making, efficiency, participatory governance and equitable sharing of benefits accrued from exploitation of natural resources at the community level (Cundill and Fabricius, 2010). DGNR involves the process of transferring some of the decision-making powers and responsibilities (fiscal, administrative, legal and technical) to sub-national institutions at the provincial, district, city, town and community levels. Although DGNR has been shown to increase effective management of forests, some factors exist that constrain its potential success and effectiveness, including ineffective government policies, limited devolution of power, lack of resources, power disparities, lack of gender sensitivity, and inappropriate property regimes (Larson and Soto 2008; Turyahabwe and Banana 2008; Tole, 2010).

In order to be effective, and to advance the current aims of sustainability, researchers now argue that resource management has to consider cross-scale linkages, involve relevant stakeholders, integrate learning, and have the ability to adapt to change (Armitage et al., 2009; Berkes 2009). Therefore, collaborative governance is understood to be a promising approach for meeting the objectives of SFM in both developing and industrialized countries (Colfer 2005). Ostrom (1990) defines collaboration as “the pooling of resources by multiple actors or stakeholders to solve problems” (pg 72). The key elements that ensure collaboration are the

inclusion of relevant stakeholders, power sharing between different organizations, and joint decision making (Berkes 2009). In addition to the aforementioned elements of collaborative governance, it is important to note that this is an approach whereby actors, “emphasize inclusion and equity in governance” as well as “strive for balanced and strategic relations with other actors or groups” (McDougall et al., 2013, 571). As previously mentioned, women overall have less access to resources and less input in decision making processes than men in community forestry throughout South Asia (Agarwal, 2001), therefore collaborative governance works to address and alleviate some of the inequities which persist within community forestry and other approaches to FM.

2.5 Social Learning and NREM

Although, collaborative governance assumes effective resource governance and management, it is not adequate if it does not include learning. Participatory learning and action has been widely used in agriculture, natural resource management, and community development, and has been shown to develop the capacity for self-governance in various communities, especially those challenged by lower literacy rates and poverty (Cundill and Fabricius, 2010). Consequently, several scholars now believe that in order to achieve sustainability goals, effective collaborative governance needs to incorporate learning of both individuals and groups in order to increase the adaptive capacity of organizations to solve inherently complex problems (Dietz et al., 2003; Folke 2006; Berkes 2009; Diduck et al., 2012). Wollenburg et al., (2011) suggest that improvement of collaborative FM practices will occur when interest groups attempt to engage in an ongoing and evolving process of understanding each other’s knowledge, goals, interests, actions and capacities (Wollenburg et al., 2001). Learning in this context is a process that enables relationship building, helps to include marginalized groups of people, works towards developing

a shared understanding of resource issues, incorporates different forms of knowledge in order to make decisions, and improves the capacity to implement activities (Dedeurwaerdere, 2009; Wollenburg et al., 2001). As such, learning, or more specifically social learning, can be used as a means to achieve a more mutual dynamic understanding amongst stakeholders (Dedeurwaerdere, 2009). Several scholars have identified different concepts of learning, including action group learning (Wenger, 1998) individual transformative learning (Mezirow 1997; Sims and Sinclair, 2008), organizational learning (Argyris and Schoon, 1978), policy learning (Bennett and Howlett, 1992) and social learning (Schusler et al., 2003; Dedeurwaerdere, 2009). Moreover, all of these learning concepts have been identified and used within natural resource management settings.

Social learning acknowledges that different groups bring different knowledge to the learning process. These different kinds of knowledge can come in several forms, including; values, capacities, perspectives, methods and stores of historical experience (Dedeurwaerdere, 2009). When effectively shared, it is the knowledge and experience that can form critical assets in solving FM and related issues (Schusler et al., 2003). Another key component of social learning is therefore knowledge sharing, which emphasizes the diversity and complementary nature of different social groups' knowledge. Argyris and Schoon first introduced social learning into the field of academia in 1978. King and Jiggins (2002) have categorized outcomes of social learning in the form of single, double and triple loop learning, based on their examination of social learning in collaborative governance. In loop learning, learning occurs (although not always unilaterally) from error detection and correction (single loop learning); from error detection, values/assumptions restructuring, error-correction (double loop learning); and from error detection, values questioning/examination, values restructuring, error correction

(triple loop learning) (Argyris and Schoon, 1978; Cundill and Rodela, 2012). In other words, single loop learning involves participants/stakeholders finding solutions to problems/challenges they face and finding alternative means to improving outcomes, in this case in regard to managing forest resources (Argyris and Schoon, 1978; Cundill and Rodela, 2012; Assuah, 2015). Double loop learning is concerned with participants/stakeholder questioning the values and norms that form the basis of their collective decisions (Argyris and Schoon, 1978; Cundill and Rodela, 2012; Assuah, 2015). Triple loop learning involves stakeholders learning how to learn while managing resources, in this case forests and forest use areas (Argyris and Schoon, 1978; Cundill and Rodela, 2012; Assuah, 2015). In the different cases shown above, social learning is predicted to empower stakeholders to gain a better understanding of their actions as they share, deliberate and develop trust among themselves regarding managing natural resources such as the forest.

Social learning has been defined in the resource and environmental management context in several ways. Woodhill and Röling (1998, 64) define social learning as, “a framework for thinking about the knowledge processes that underlie societal adaptation and innovation.” Schusler et al., (2003, 311) define social learning as, “learning that occurs when people engage one another, sharing diverse perspectives and experiences to develop a common framework of understanding and basis for joint action”. Finally, Keen et al., (2005, 9) define social learning as, “a process of iterative reflection that occurs when we share our experiences, ideas, and environments with others”. Each of these definitions describes social learning as a framework for sharing and reflecting on our experiences and building a new common understanding which will be used to collaboratively and innovatively approach existing and future resources issues. For the purpose of this research, Keen et al.’s (2005, 9) definition will be adopted as it is the most

comprehensive. Within resource management, social learning has often been discussed by various scholars in relation to three broad approaches to management: adaptive management, adaptive co-management, and collaborative/participatory management (Keen and Mahanty, 2006; Dedeurwaedere, 2009; Cundill and Rodela, 2012). Consequently, understanding how social learning has been used in each of these approaches is important to understanding social learning in both practice and in the context of FM activities in mountain communities in India.

2.5.1 Social Learning and SFM in India

As a result of the current National Forest Policy of India (1988), local-level organizations have been developed in several areas of the country in order to address FM issues and work towards more effective SFM practices (Bennet and Howlett; 1992; Balooni, 2002; Behera, 2009). Through these efforts, platforms that could allow social learning to occur within FM have been formed. Despite the potential, I was not able to find much literature that discusses social learning in relation to FM in India. One paper I did find suggests that conflicts can play an important role in facilitating institutional learning and in making JFM more effective for both the local community and the government/civil servants (e.g., the FD officials) (Singhal and Rishi, 2012).

According to Singhal and Rishi (2012), FM institutions can bring about two different kinds of conflict; functional and dysfunctional. Functional conflict occurs when errors in FM practices arise which are then corrected in a manner that involves institutional innovations and fosters self-evaluation and change (Singhal and Rishi, 2012). It is suggested that this type of conflict can foster learning amongst the participants involved (Dedeurwaerdere, 2009). Dysfunctional conflict also promotes learning, however it is focused more on paying attention to

the excluded stakeholders within the group and on neglected issues (Singhal and Rishi; 2012). The research conducted by Singhal and Rishi (2012) provides a jumping off point for more study of learning through JFM and underscores the importance of considering how conflict might have played a role in learning.

2.6 Chapter Summary

Implementing SFM practices through collaborative governance regimes between local communities and the state (in the form of JFM) is one of a host of emerging approaches to encourage more local level forest decision making and benefit sharing in India. However, JFM practice thus far shows us that there are concerns about how such governance approaches can encourage SFM. Current issues surrounding local influence and decision-making potential, equitable participation, the impact of restrictive policies that have a colonial legacy and bureaucratic forest institutions continue to restrict the potential success of SFM in India. Understanding these issues in a mountainous region is important, as mountain specificities and rural forest-dependent communities present unique challenges for FM institutions, as outlined above. Although India's JFM Program aims to address these challenges, the process of addressing local governance institutions and gendered participation is complex as the literature above establishes. Therefore, understanding people's perception of local governance and sustainability has become an important and useful tool for measuring the effectiveness of JFM programs at the local level.

Given the participatory and community-based nature of JFM as described in the literature, there is also the potential for a broad base of social learning outcomes aimed at more sustainable management. Moreover, several researchers have argued that guaranteeing social learning outcomes in such collaborative multi-stakeholder processes is important because it is

through social learning that communities can learn and share ideas, and take collective action to problem solve and deal with uncertainties that are a part of FM. This becomes even more important if the individuals involved in FM activities share the goal of achieving some form of SFM, which has become a standard goal for all FM approaches.

Chapter 3: Research Approach and Methods

3.1 Introduction

I utilized a qualitative approach for the research and employed a case study strategy of inquiry in order to gain a comprehensive grasp of perceptions, understanding and learning outcomes associated with FM activities in mountainous regions within the Kullu District of HP. In order to meet and explore my objectives in depth, I used the following data collection procedures: participant observation, semi-structured interviews and forest transect walks. The data was organized using Nvivo software to facilitate the analysis and reporting of the research findings, as outline below.

3.2 Social Constructivist Paradigm

There are many different philosophical worldviews, which can frame how research is conducted and guided. The worldview or paradigm that I used for this research was social constructivism. Coming from a small community in the lower mainland of British Columbia, I have always been positively influenced by my surrounding community and have been taught the importance of working in the community for positive change. These personal values of community development and “giving back” likely originated from my Mennonite roots. These values carried me through my learning within my undergraduate honors thesis, which focused on interactions and the understanding of different livelihoods for people who lived in First Nations communities in Northern Manitoba. The work that I conducted in HP was centered around the lived experiences of participants involved in FM activities, in order to further understand their personal and group learning experiences of participating within FM/local governance structures.

According to Neuman (2000) and Creswell (2007), social constructivism (SC) is a worldview whereby the reality about the world is built through people's interactions, understanding, and experiences with events in the world. Its underlying epistemology that truth is what resonates with people. Moreover, social constructivists hold assumptions that individuals seek understanding of the world in which they live and work. Therefore, constructivist researchers often address the processes of interaction among individuals. It is important to note that by conducting social constructivist research I (as the researcher) recognize that my own personal background will shape my interpretations. I will thus position myself in the research to acknowledge how my interpretations flow from my personal, cultural and historical experiences.

The use of social constructivism allowed participants (forest users, committee members, NGO members, etc.) involved with FM activities in its daily operations, policy or research, and decision making over the years to share their experiences. They accomplished this by constructing meanings from their own lived experiences with the process and sharing that with me (Creswell, 2007, 2009, 2014). Consequently, the various multiple realities that the participants held regarding different aspects of FM and protection was understood through the context of the stories that they shared and through the data collection methods I used. The participants shared stories and personal reflections relating to what they learned about FM, barriers to getting involved, motivations for participating and outcomes from participation in FM activities (Creswell, 2009, 2014).

3.3 Qualitative Research Approach

A qualitative research approach was chosen because it is a thorough process of exploring and understanding the meaning of complex social and human problems in a holistic manner (Creswell, 2007; 2014). Moreover, the qualitative research approach heavily emphasizes the

importance of the participant's experiences, their perceptions and the meaning that they associate with a particular event or issue (Creswell, 2009; 2014). Lastly, a qualitative approach was the most appropriate and relevant approach for my work, since qualitative research typically occurs within a natural setting. This allows the researcher to conduct their research on site, and this involvement lets them gain a deeper understanding of the people and the site being studied (Creswell, 2005; 2009; 2014).

After reading past NRI student theses and talking with students who have previously researched in this area of India, I noted that there is evidence in this region of some fatigue among the local population in regards to quantitative survey research. More importantly, academics within this field have found that people have been more willing to conduct research with researchers who work and spend time with participants in the field, which is also supported by the literature (Agarwal, 2009). By using a qualitative research approach, I was able to gain an understanding of people's learning related to SFM practices, their reasons for engaging in FM activities, and the way they influence FM decisions (i.e., levels of participation) Furthermore, qualitative research enabled me to understand how women involved in FM activities participate and influence decision making in a commonly male-dominated sector.

3.4 Case Study Strategy

Denzin and Lincoln (1994) have defined strategies of inquiry in qualitative research as a process that is used to connect researchers to specific approaches and methods of collecting and analyzing empirical materials. The most common strategies of inquiry for qualitative research include case study, ethnography, grounded theory, phenomenology, biographical methods and historical methods (Creswell, 2014; Denzin & Lincoln, 1994). For my research, a case study approach was the most appropriate strategy of inquiry because I explored the phenomenon of

community-based FM through multiple lenses (not just one) in order to allow multiple facets of CBFM to be revealed and understood (Baxter & Jack, 2008).

According to Creswell (2014), case study research is a qualitative approach in which the researcher explores a bounded system (a case) or multiple cases over time. Moreover, he indicates that a case study is a good approach when there is a clearly identifiable case with clear boundaries and when the researcher seeks to provide a comprehensive understanding of the case. Similarly, case studies of communities can be understood as a systematic gathering of enough information about a community in order to equip the researcher with sufficient knowledge and awareness about several elements pertaining to the particular community being studied (Berg, 2004). Case studies of communities explore and can give the researcher understanding regarding the following types of questions: what occurs in a community; why and how do these things occur; and who among the community take part in these activities, among others (Berg, 2004). These questions were all relevant for my research on FM in the northern state of HP, as I needed to have a good understanding and awareness about the FM community and its structure in order to ensure that my research was rich and meaningful.

The aim of case study research is to dig deep, look for explanations and gain understanding of the phenomenon through multiple data sources (Creswell, 2014; Stake 1995). According to Yin (2003) a case study design should be considered when: (a) the focus the research is to explore “how” and “why” questions; (b) you cannot manipulate or alter the behavior of participants involved in your study; or (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study. In other words, a case study approach should be used when the researcher wants to gain a holistic understanding of a phenomenon (Yin, 2003).

As well, the case study, as a strategy of inquiry, is highly versatile in that a variety of data collection methods are at the disposal of the case study researcher and can be adapted to particular conditions or situations (Baxter & Jack, 2008; Stake, 1995). Burns (1990), a qualitative researcher, discussed six benefits of adopting a case study strategy of inquiry, *some* of which included: (1) the ability to generate rich data that may suggest themes for further intensive investigation; (2) the generalizability to a wider population may be possible since case studies have the aim of probing deeply and analyzing intensively; and (3) case studies may generate anecdotal evidence that can illustrate general findings (Burns, 1990). Consequently, since I explored the perceptions, attitudes and learning of participants involved in FM activities this approach was the most suitable. Lastly, the case study approach allowed me to build themes from the data collected (through focus groups, interviews and participant observation) and create rich and meaningful analysis from all of the interactions within the selected study sites.

3.4.1 Selecting “Cases” for a Case Study

As noted in Chapter 1, my research took place in the State of HP (northern India). Himachal emerged as the eighteenth state of the Indian Union in 1971 (Ravindranath and Sudha, 2004; Vasan, 2006a). HP covers 1.69 percent (55,673 km² total) of India’s total geographic area (Vasan, 2001) and is made up of 12 districts with a total population of approximately 6.86 million people (FAO, 2001; Vasan, 2006a). The state is situated at 31.1033° N and 77.1722° E, making it the second most northern state in India (Climate Data, 2015). Like other mountain regions, this area is characterized by vertical zonation of the eco-climatic belts, with decreasing temperature as the elevation increases (Berkes et al., 1998). The lowest elevation in HP is 350m above sea level, whereas the highest point lies at 6,500 m above sea level (Vasan, 2006a). The seasonal variability in the area accounts for a snowy and cold winter and a moderately warm, wet

monsoonal summer (Berkes et al., 1998; Climate Data, 2015). The average temperature in Kullu is 19.2 °C with an average yearly precipitation of 1,242 mm. There is a difference of 187 mm of precipitation between the driest and wettest months (Climate Data, 2015). During the year, the average temperatures vary by 17.4 °C (Climate Data, 2015).

In order to effectively and efficiently manage my selected cases from within the state, I sought out previous literature on managing case studies for this strategy of inquiry. Dyers and Wilkins (1991) recommend ensuring that the number of cases that can be investigated can be fulfilled with the available resources in sufficient depth to provide valid answers to the question for each case selected. I was recommended to pursue a case study strategy of inquiry, involving 2 villages in the Kullu Valley, from reading relevant literature, and through suggestions from my supervisor, some of my committee members and past NRI students (who had fieldwork experience).

The Kullu Valley, known as “The Valley of the Gods”, is in the Kullu District of HP. It is the largest valley in the Kullu District and has the Beas River running through the area. This district was chosen as a suitable case study region because it has a rich history of JFM activities and other CBFM activities that have occurred for a sustained period of time. In addition, there has been a significant amount of NRI student research previously conducted in the region that provides helpful baseline information and local contacts, as well as other benefits. Lastly, previous NRI students have conducted research in the Kullu District focusing on FM, and therefore my research has helped to continue a longitudinal research profile in the region.

The course of the Beas River presents a succession of magnificent forests of deodar, towering above trees of pine on the lower rocky ridges of the region (Sharma, 2005). Kullu

Valley is sandwiched between the Pir Panjal, Lower Himalayan and the Great Himalayan range. The Kullu District is located in the western Himalayas in India in the northern state of HP, and the study area lies between 31°21'N and 32°59'N and 76° 49' E and 78° 59' E, comprising a total of 5,503 km² (Vasan, 2006a).

Within the Kullu District, forests form an integral part of both land management and of the local village-centric system of land use (Duffield et al., 1998; Bingeman et al., 2000; Bingeman, 2001). The majority of the forests in the Kullu District are designated as Protected Forests, as opposed to Reserved Forests, under the 1886 Forest Settlement Act (Hobley, 1992). This means that the local people retained their usufruct rights⁶ to forest products such as fuelwood, fodder for livestock, conifer needles and cones, medicinal plants and other NTFPs (Hobley, 1992; Bingeman, 2001). The acknowledgement of local people's usufruct rights under the Forest Settlement Act also meant that these rights were recorded and formalized (Davidson-Hunt, 1995).

Moreover, Kullu was an ideal area to study FM in HP because it is known for its higher yields in forest products than the state average and is documented to have reduced the use of fertilizers, which suggests more sustainable land management (Vasan, 2006a). While all of HP has some documented FM and use, the high hill areas (such as Prini, Solang and Manali) in the state are more dependent on forest resources and more productive than the low and mid-hill areas (Ravindranath and Sudha, 2004).

Before I selected my case study sites, I established seven guidelines that would help me

⁶ Usufruct Rights: A Civil Law term referring to the right of one individual to use and enjoy the property of another, provided its substance is neither impaired nor altered. For example, a usufructuary right would be the right to use water from a stream in order to generate electrical power. Such a right is distinguishable from a claim of legal ownership of the water itself.

select sites that would meet the purpose and objectives of my research. The guidelines that were created were based on the following considerations: the number of years of local governance of FM activities; active involvement of women in local forest governance; recognition of SFM as a FM goal; and interest in participating in the research.

The fieldwork began with consideration of potential communities for the case study using the following guidelines:

- Sites where there is some form of community FM occurring
- Sites where women are actively involved in forest governance
- Sites where there is a good level of willingness from local community members to participate
- Sites that recognize SFM as a FM goal
- Sites that are accessible
- Sites that are willing to have a graduate student researcher come into the community to learn, participate and understand forest governance in a localized context
- Sites where local governance of FM activities has occurred for a sustained and continued period of time

Based on the above site selection criteria, two cases were chosen to fulfill the purpose and objectives of the research. Below is a description of the two selected study sites, Solang and Khakhnal.

The Two Selected Cases

The two villages that were selected for this research, Solang and Khakhnal, are shown below in

Figure 4. In order to ensure that I understood the FM activities and structure adequately in each study site, I first spend 1 week of participant observation in each village.

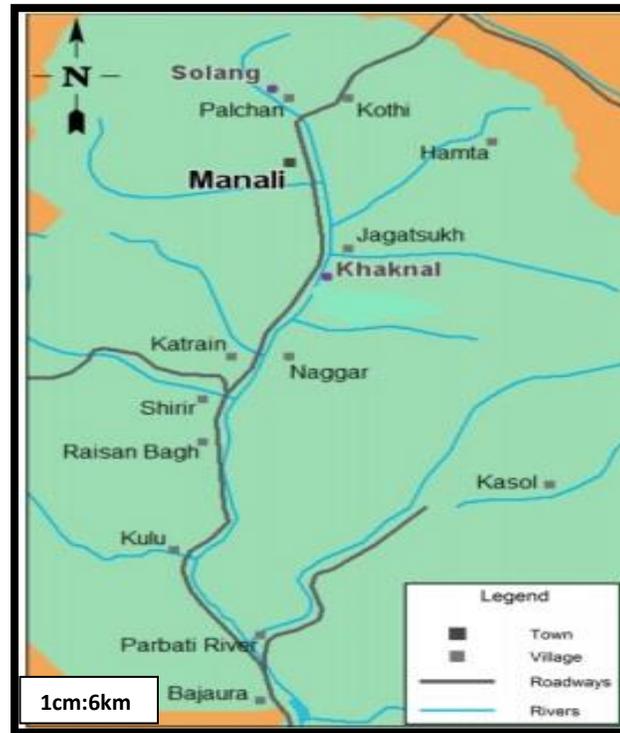


Figure 4: Selected Study Sites in the Kullu Valley (Solang and Khaknal also spelled Khakhnal)
Adapted from: L. Dunne (2013)

Upon completing my participant observation, I alternated between interviewing for 1-week time frames in each village. In total I spent approximately 4 ½ weeks in each village, including participant observation and interviewing. Upon completing my interviews and transect walks, I went back to the study sites and verified my responses and preliminary conclusions with my participants (in total this process was about ½ week in each village).

3.4.2 *Khakhnal as a Case Study*

Khakhnal is a neighboring village north of Naggar and south of Jagatsukh (Fig. 5).

Nearly all farmers living in this village are heavily engaged in growing cash crops, particularly

apples. The tourism sector in Khakhnal is steadily growing, as hotels, small restaurants and home stays were under construction during my fieldwork (Photo 1). Additionally, Khakhnal has road access throughout the village, allowing for easy access to the town of Manali and other surrounding villages.



Photo 1



Photo 2

Photo 1 & 2: Khakhnal Village showing road access and Khakhnal Forests

Khakhnal is one of the larger villages in the Kullu Valley with a population of approximately 450 people⁷. Many of the homes in the area are generational homes, meaning that several family members live under the same roof. The forests in Khakhnal (Photo 2) are accessible by foot from the village and are shared between the two villages, Khakhnal and Gorja, in the panchayat⁸. In order to access the forests one must walk 3.5 kilometers from the village road on a gradual incline that combines both a marked footpath and rocky terrain. I chose Khakhnal as one of my case study sites because there is a high level of local involvement in FM activities, two active Mahila Mandals groups that work in forest protection and management and there are two

⁷ It is important to note that the population is based on participant responses. In addition, because Gorja is adjacent to Khakhnal and there is no distinguishing boundary between the two villages this population number may include some Gorja residents as well.

⁸ Panchayat: Village organization. In the example of Khakhnal, both Gorja and Khakhnal fall within the same panchayat. Villages within the same panchayat often have access and forest rights to the same or adjoining forest areas.

organized village forest committees (VFCs). The two VFCs in Khakhnal are called: The Forest Rights Committee and the Forest Protection Committee. The committees are discussed at length in Chapter 4; however, some responsibilities that either the FRC or the FPC have include reporting illegal felling to the FD, helping with tree planting efforts, monitoring the Timber Distribution (TD) entitlement applications⁹ in the village and helping to educate the village on why it is important to protect the forest. Unlike most village forest committees, the VFCs in Khakhnal were formed ad hoc to address certain aspects of FM in the village and are not affiliated with the state FD. This unique governance structure has allowed local forest users to become more engaged in daily FM activities and operations while addressing village-specific concerns related to their forest area. Further discussion on the local governance structure, forest usage, and roles in FM in the village are outlined in Chapter 4.

3.4.3 Solang as a Case Study

Solang is the northern most village within the Kullu Valley, as shown in Figure 4. Many families in Solang were once shepherds and followed an agro-pastoral livelihood. However, during my field research I discovered that there are very few shepherds in the village now because most people sold their sheep and goats in order to pursue different work opportunities. Most if not all people living in this village rely heavily on tourism from Solang Nala¹⁰, a nearby recreation area. Solang Nala attracts domestic and foreign tourists for skiing, paragliding, ATV

⁹ Timber Distribution entitlement applications: The TD rights were opened up in 2013 after a 15-year ban. The TD entitlement allows forest users and homeowners to be granted an unconverted tree (based on a fixed scale) from the FD to be used for house construction and home repair upon successful completion of the TD entitlement application (Government of HP, 2013)

¹⁰ Solang Nala: Solang Nala is how locals refer to the Solang valley. Nala is the Hindu name for valley. Solang Nala is where the tourist activity takes places and where the ski hill is located.

riding, horseback riding, gondola rides and other activities (Photo 3). In addition to the ski hill, there are several small tea stalls, guesthouses and dhabas¹¹ located near the base of the village in order to attract more tourists to the area. There is road access in Solang, however the road only extends as far as the ski hill across the Solang River from the village. In order to reach Solang, one must cross over the river via footbridges and then begin a winding ascent up a steep hill for about 20 minutes (Photo 4).



Photo 3: Solang Nala Tourist Ski Hill

¹¹ Dhabas: is the name given to roadside restaurants in India and Pakistan. They are situated on highways and generally serve local cuisine, and also serve as truck stops.



Photo 4: Solang Village Houses

There are approximately 40¹² households in the village with several of the houses clustered together. The total population of Solang from the base of the hill and in the hilltop (not including the town) is approximately 180 people. In the town of Solang there are several guest houses, hostels and other lodging spaces for tourists and local travellers, as such these numbers and dwellings were not included in the population total (as I only captured the responses from individuals living in Solang itself and those who use the village forest). In 2009, Solang experienced a devastating forest fire that spread into the village and affected nearly 85% of the homes in the area. As such, house construction and house repairs have been occurring from 2009 and are still ongoing in order to rebuild the infrastructure that was damaged or destroyed. Within

¹² In the hilltop of Solang (See in Photo 4) there are approximately 23 households and at the base of the hill (not extending into the town) there are 17 households. The village fire only affected the houses on the hilled areas (Seen in Photo 4)

the village there is a central courtyard that surrounds a primary and secondary school for the local children.

The forests in Solang are accessible by foot and are approximately 1.5 km away from the village. Unlike Khakhnal, Solang has a clearly marked foot path (Photo 5) to access the forests and access is also easier as there is no rocky terrain.

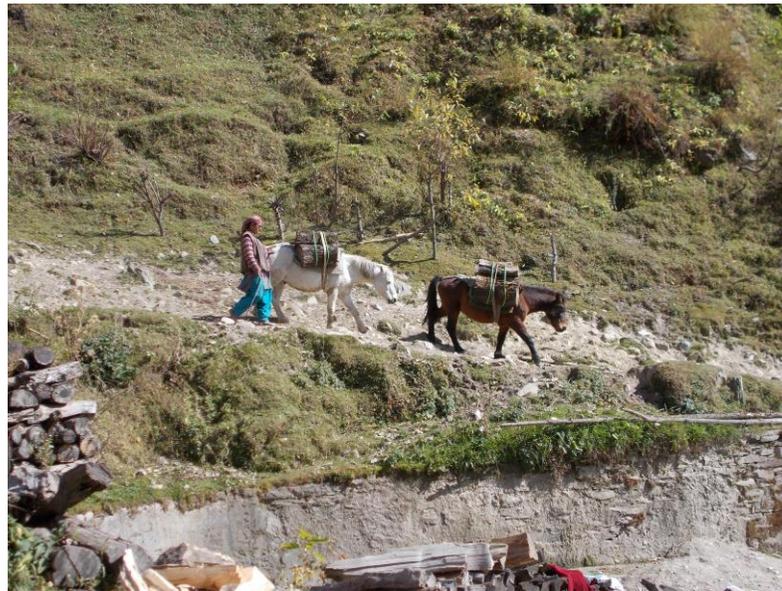


Photo 5: Mules and local forest user using the forest foot path to bring down fuelwood for household usage.

I chose Solang as one of my case study sites because there are well-documented FM activities from researchers and past NRI students for the past 16 years. Moreover, Solang has women who are actively involved in FM (i.e., in tree planting, NTFP collection, medicinal plant nursery workers) and the village also has a JFMC that works in conjunction with the FD. Unlike Khakhnal, Solang has a medicinal plant nursery in the village that is owned by the department; however, locals in the village are paid daily wages to plant, harvest and package the medicines (Photo 6). Furthermore, the FD also pays a daily wage to the locals who help with tree planting efforts in the village. In this way, the relationship between the FD and the local forest users

operates at a closer level because there are employment opportunities available throughout the year.



Photo 6: Women working in the medicinal plant nursery in Solang

Further discussion on the local governance structure, forest usage, and roles in FM in the village are addressed in Chapter 4.

3.5 Data Collection and Sampling Procedures

To satisfy the objectives of the study, the data collection procedures selected for this research included participant observation, semi-structured interviews and forest transect walks.

3.5.1 Participant Observation

Ritchie and Lewis (2003) describe participant observation to be a form of data collection (in qualitative research) that occurs when the researcher joins a group of individuals to record action, interaction or events that occur within the setting being observed. Rynes and Gephart (2004), note that in participant observation it is common for the researcher to play the role of a member of the group and to use subjective experiences as critical data. In this sense I acted as

both a participating observer and as an observer throughout my field research. As a participant, I observed FM activities, including harvesting and planting, people undertaking FM jobs and duties (both men and women), and how people involve themselves in JFM and other FM programs (i.e. what they say and do at meetings). All of the observations were recorded using field notes in a journal throughout the field season.

By using participation observation as a form of data collection I was able to explore the daily activities of men and women related to FM activities and observe the forest roles and duties of men and women. Specifically, I paid close attention to FM activities, roles and dynamics between individuals involved in FM activities, and the levels of local influence on FM decisions and activities. I also examined the different approaches and adaptations (including women's and men's roles in FM) to FM activities conducted in Solang and Khakhnal in order to understand the differences and similarities between the two locations. Furthermore, I observed the interactions between individuals involved in FM activities at all levels (i.e. local user groups, ENGOs, the FD, and other government officials). Prior to conducting the semi-structured interviews and the forest transect walks, participant observation allowed me to become familiar with the forest communities and the observable dynamics that occur within them. From the participant observation I was able to further ask for clarification on practices, behaviors and activities that I did not understand (due to both cultural and language barriers) during the interviews and forest transect walks, in order to ensure that my observations reflected the reality of the situation and/or activity.

3.5.2 Semi-Structured Interviews

I used semi-structured interviews in order to gain an understanding of people's perspectives regarding local FM activities, the role of women in local forest and related

governance institutions, and learning outcomes of the participants as a result of being involved in FM activities. According to Qu and Dumay (2011) semi-structured interviews are the most commonly used qualitative research data collection method. Researchers use this method for data collection because it is useful for exploring a respondent's perceptions and opinions regarding their understanding of various social issues and/or events (Qu and Dumay, 2011). Based on the above reasons, interviewing was the most meaningful and appropriate data collection method that was able to satisfy my objectives.

The informants selected for the interviews were adult local community members of various ages, genders and social standing (e.g., FD officials, VFC members, Village Pradans, forest users etc.,) that were in some way involved in FM decision-making or activities. My interview respondents included people who held positions in the FD, were involved in JFM or similar institutions, or involved in the collection and selling of forest products. The informants were selected by using a snowballing technique, whereby participants were asked to identify other people involved in areas such as FM or decision making related to forests. The interviews would vary in time but would usually take between 15 minutes to one hour.

A translator was required to conduct interviews, and I collected data obtained through the interview process. I worked closely with the translator guide that has worked for NRI students in the past and has gained significant experience. During the interviews I took detailed notes in my field journal and typed each set of notes into my computer at the end of each field day. I verified my field notes and transcriptions with my translator on a weekly basis to ensure that my notes and interviews accurately reflected the participants' responses. Additionally, after each interview I verified the responses and my summary notes with each interviewee in their local language with the help of my translator. Before I interviewed any participants I had my translator sign a

confidentiality oath (See Appendix D) to ensure that participant privacy and confidentiality of information would be upheld and respected throughout my field research. Prior to conducting the interviews, I received verbal consent (See Appendix C) from all of the participants and notified them as to what the research is for and how I would use their responses anonymously. While the majority of the interviews were conducted with the use of a translator, approximately 1/3 of the respondents spoke English, allowing me to conduct these interviews without the help of a translator.

Interviews with forest users and committee members took place at either their home or at a nearby tea stall, whichever they felt more comfortable with. During the interviews, the topics discussed included their level of involvement in FM, the importance of the forests and how individuals personally used and/or protected the forests. In addition to local forest users and committee members, I also interviewed several members of the State FD. The complete participant interview table is outlined below (see Table 1).

Table 1: Interview Respondent and Number of Participants

Interview Participants	Number of Participants
Study Site Villages	
Khakhnal Forest Users	19 (5F/14M)
Khakhnal Local Governance Members	18 (11F/7M)
Khakhnal Timber Depot Employees	2 (2M)
Solang Forest Users	18 (7F/11M)
Solang Local Governance Members	14 (10F/4M)
Solang Timber Depot Employees	2 (2M)
Total	73
Academics and Research	
University of Delhi	2 (1F/1M)
GB Pant Institute of Environment and Development	2 (2M)
HP University (Dept. of Geography)	2 (1M)
HP University (Dept. of Environmental Science)	1 (1M)
Total	7
State Forest Department Employees	
FD Officials (forest guards and block officers)	7 (1F/6M)
DFO	1 (1M)
FD Employees (Medicinal Plant Nursery, Watchman for forest)	6 (5F,1M)
FD Office Staff	2 (1F/1M)
Total	16
Non-Governmental Organizations	
Dev Rishi Protection Group	2 (2M)
Human Welfare Society	3 (1F/2M)
Jagran Avam Vikas Sanstcha(JAVS)	5 (1F/4M)
Centre for Sustainable Development	1 (1M)
Total	11
Forest Transect Walks	
Total	6 (4M, 2F)
Semi structured Interviews (excluding Academics)	100
Total of all Interviewees (including Forest Transect Walks and academic interviews)	113

Please note the 'M' and the 'F' in the Governance Members, Academics and Research, Government and NGO row all indicate the number of males and the number of females in the given respondent category

Please note that several women were Mahila Mandal and Forest Users therefore when distinguishing in the interview responses I indicated if they were Mahila Mandal and Forest Users

For the local forest governance this category encompasses VFC members, Mahila Mandal Members & Yuvak Mandal members. As such, 2 women in Khakhnal under the local forest governance were VFC members and the other 6 were Mahila Mandal Members. In Solang all of the governance members who were female were Mahila Mandal Members. Lastly for the forest transect walks it is important to note that 3 were conducted in Khakhnal and 3 were conducted in Solang.

These interviews were used to learn more about the relationship between the local village and the FD, the roles of the FD in FM, and how JFM has changed over the years. These interviews were held in designated FD offices in Kullu, Khakhnal, Manali, Solang and Nagger. I interviewed several FD officials, at different levels of the FD hierarchy, over the course of the 3.5-month field research season. The interviewees whom I spoke with included the District Forest Officer (DFO) in Kullu, the Range Forest Officers (RFO) for Nagger and Solang, the Deputy Forest Ranger (DFR) in Manali, the Block Officer/Deputy Range Officer (BO) in Nagger, office staff workers in Kullu and the Forest Guards (FG) for Khakhnal and Solang. I also interviewed employees at the forest timber depot in Khakhnal and Solang, which supply fuelwood and construction timber at subsidized rates. It was relevant to interview some employees at the timber depots, as I wanted to understand their perspective on the TD entitlement application and see if they have noticed changes in illicit/illegal felling since the TD entitlement has been reopened in Kullu. Lastly, I also interviewed locals who were employed by the FD to work either as forest watchmen ¹³ or as medicinal plant nursery workers.

These interviews gave me insight into some of the interactions and relationships that the local forest users have with their respective local FD staff. The information gathered in some of these interviews was not directly relevant to the results of the research, but all interviews with FD officials provided insights about the nature of the FD in general and helped to form a more complete picture of its functioning as an organization. The third group of individuals that I interviewed were members of Non-Governmental Organizations (NGOs) who were working in

¹³ Forest Watchmen: These are people authorized and hired by the FD who act as enforcers and community guards. They are responsible for the enforcement of JFM agreement in their village forests and to watch for trespassers within the forest area. They are paid wages for their work. They are responsible for the protection and maintenance of the forest resources at the local community level (personal communication with FD officials, October 24, 2014).

the field of environmental conservation, human welfare and resource protection. Four NGO members were interviewed in order to better understand the role of NGOs in FM and protection and in educating the public about the importance of environmental protection. The interviews with members of the four NGOs were held either at the NGO's office or in the individual's home.

I also spoke to academics at the University of HP, the University of Delhi and the GB Pant Institute of Himalayan Environment and Development. In total, I interviewed seven academics (see Table 1). These interviews were conducted in order to find out more about research documenting FM in HP, policies or regulations regarding JFM and its implications on SFM, participation and local governance, and the changes that have occurred within the forestry sector. Additionally, these interviews served as a way to gain understanding about FM activities within mountainous regions in India from experts and academics who likely have had different experiences in the field than community members. Additionally, these interviews allowed me to better understand how FM has changed over the years and if this has affected either people's perspectives on local forest governance activities or the roles of men and women in FM activities. Some of the academics I interviewed included Dr. Sudha Vasan (University of Delhi), Dr. Dev Dutt Sharma (University of HP) and Dr. JC Kuniyal (GB Pant Institute), all of whom are researchers who specialize in the field of forestry institutions in the Western Himalayas. These interviews were held in the respective offices of the academics at their university and were 1-1.5 hours long. Participants were interviewed in their designated office spaces (FD, NGO, and academics), in their homes, in the forest while they were doing forest work, or in nearby tea stalls.

Within the thesis I use the term forest users, forest user groups and interview participants. Forest users are those individuals who use the forest either for management purposes or to fulfill daily household and livelihood needs. In this sense, there is an overlap between forest users and forest user groups; however, the term “forest user groups” relates to the specific categories of forest users. The forest user groups which were found to be active in Solang and Khakhnal are:

- The forest users (i.e., those living in/around the forests and who use them for daily livelihood purposes; however, they are not members of organized local level governance structures),
- Mahila Mandal members,
- Village Forest Committee members (more specifically this includes the JFM committee members in Solang and the Forest Rights and Forest Protection Committee members in Khakhnal),
- NGO members (primarily members of; the Dev Rishi Protection Group, Human Welfare Society and Jagran Avam Vikas Sanstcha), and
- FD Officials (including forest guards, block officers, district forest officer).

Although all of the forest user groups use the forest to some degree, those who live in and around the forest were shown to have a higher dependency and reliance on the forest use areas. It is important to note that although I interviewed NGO members and FD officials not all of them lived directly in Solang and Khakhnal; therefore, their use and reliance on the forests were different than the Mahila Mandal members, VFC members and forest users. Within the thesis I reference the forest user group and the case study site below each participant interview response. This allows me to reflect either the perspective of that particular forest user group or of one or more individual (s) within the forest user group. For example, “Khakhnal, Forest User, 2014”,

“forest user” includes those individuals who live in and around the forests, but are not members of the Mahila Mandal or the Village Forest Committee or some other group. This distinction is made because it is important to reflect upon forest users understanding, learning and participation as it can be different than individuals who are involved in local level forest governance structures.

3.5.3 Forest Transect Walks

I used forest transect walks as my third and final data collection method in order to see how people use the forest, what type of work they do in the forest, and to learn what people value about their village forests. De Zeeuw and Wilbers (2004), define transect walks as a tool for describing and showing the location and distribution of resources, features, landscape, and main land uses along a given transect. Moreover, it is a systematic walk along a defined path (transect) across the community/project area with local people to explore certain conditions or phenomena by observing, asking, listening and looking (FAO, 2005). A transect walk is a type of semi-structured walk (USAID, 2009). Transect walks are structured in that they are planned to include visits to locations that represent a range of situations or settings (USAID, 2009). According to De Zeeuw and Wilbers (2004) there are different types of transect walks; however, the most popular and effective kind is called the joint walk. A joint walk is based on the concept of ‘seeing is believing’, Such walks relate to learning from the local communities through undertaking joint walks with them. This allows ‘on-site’ observation of different aspects of a selected area or areas, and simultaneous in–depth discussions with the community members (De Zeeuw and Wilbers, 2004).

While conducting transect walks I noticed that several participants shared personal stories and discussed issues relating to TD entitlement applications, land ownership and illegal felling

patterns in the village. During the transect walks I was alongside the forest user and casually asked them how they use the forest, what they do in the forest, how often they go into the forest and what they value about the forests (Photo 7). All of the transect walks took place while the individuals were already on their walk to the forest in order to not take time away from their daily household forest duties (Photo 8). I conducted 10 forest transect walks with the help of my translator.



Photo 7: Forest Walk in Solang



Photo 8: Forest Use Interviews with Forest Users in Khakhnal

Each transect walk ranged from two to three hours depending on the distance from the village to the forest. During the walks I would take pictures of NTFPs that individuals would collect, the paths that individuals would take while working in the forest and anything that individuals would point out as something that they found of value in the forest. These pictures were then used as a way to “member check¹⁴” with the interviewees, once we were settled in the forest area, to ensure that I had adequately captured their forest values, uses and forest responsibilities. In addition to the photos taken along the transect walk, I also took detailed notes on my personal observations during the walk in order to create a realistic description of the access to the forests, distance to the forests and ways in which people use the forest. Lastly, I also took notes while I asked the interviewees questions, with the help of my translator guide, both during the transect walk and while in the forest doing forest work (i.e., collecting cones, pruning branches, bundling

¹⁴ Member Check: In qualitative research, a member check, also known as informant feedback or respondent validation, is a technique used by researchers to help improve the accuracy, credibility, validity, and transferability (also known as applicability, [[internal validity]], or fittingness) of a study (Creswell, 2003).

firewood). Further discussion and analysis relating to forest uses, forest roles and responsibilities and the FM structure in both of the study sites are found in Chapter 4.

3.6 Data Analysis

The data analysis process closely followed Creswell's (2003) guidelines. The guidelines that I adhered to included:

- organizing and preparing data for analysis based on the general themes identified in the literature such as;
 - gendered participation in FM,
 - the effectiveness of JFM as a means to attain SFMand,
 - people's perceptions regarding local forest governance activities
- instrumental and communicative learning constructs,
- coding,
- identifying key themes and representing the key themes in a meaningful qualitative narrative, and,
- interpreting data in relation to the literature (Creswell, 2003, 2014).

In following these guidelines, I began my analysis as I transcribed field notes and interview and forest transect walk data by keeping a journal of evolving grounded themes. Once the transcriptions were completed I organized the data and categorized it into different sections based on themes using Nvivo software for qualitative research. I used Nvivo to help classify and find key patterns within my transcriptions, sort and assemble information, analyze my data, recognize themes, and to help me draw meaningful conclusions. In Chapters 4-6, findings from

the semi-structured interviews are presented and the terms ‘few’, ‘some’, ‘many’ and ‘most’ are used when referring to the number of respondents speaking that supported a particular point or belief. The term ‘few’ refers to ten percent or less, ‘some’ refers to 11 to 50 percent, ‘many’ refers to 51 to 89 percent and ‘most’ refers to 90 percent or more of respondents supporting a particular finding or learning outcome. This research is qualitative and the percentages are meant to show the level of support for a particular finding not the possible importance of it. A finding noted or supported by only one respondent can still be significant and may support different conclusions or themes within the research. I interviewed four different categories of respondents: study site village members (Forest Users, Governance Members and Forest Depot Employees), Academics, Non-Governmental Organizations and Government. When interviewee quotes are included, the study site village and the category of the respondent are included. This ensures that the different points of views of individuals involved in FM activities as well as their specific forest dependent village are represented.

Due to the various qualitative data collection methods that I employed - participant observation, semi-structured interviews and forest transect walks - I was able to make a detailed account of my field experiences while showing the patterns of cultural and social relationships within two forest-dependent villages (Holloway, 1997). The detailed account of such field experiences is often referred to as a “thick description” (Lincoln & Guba, 1985). Thick description, in qualitative research, means that the researcher can evaluate the extent to which the conclusions drawn are transferable to other times, settings, situations, and people (Denzin et al., 1994). After each interview and transect walk was completed, I made sure that I verified the responses or “member checked” with the interviewees to ensure that my observations and collected data accurately reflected the responses of the participants (Stake, 1995).

Lastly, the research findings were presented to the University of Manitoba and to the communities where I conducted fieldwork in the Kullu Valley¹⁵. When I complete the research, I hope to share my research with the communities of Solang and Khakhnal, in the form of a poster or written report that shows my results in a way that is easy to understand and can be used by the communities.

¹⁵ Kullu is the capital town of the Kullu District in the Indian state of Himachal. Kullu itself is located on the banks of the Beas River in the Kullu Valley which is the largest valley in the Kullu District. Both Solang and Khakhnal are located within the Kullu Valley in the Kullu District (Bingeman, 2001; Vasan, 2006b).

Chapter 4: Forest Management in the Kullu District

4.1 Introduction

The purpose of this chapter is to present data that shows how FM is currently being practiced in Khakhnal and Solang, while also addressing why people engage in FM activities and the particular roles or responsibilities that individuals or groups have in managing and protecting village forests. The term ‘forest’ has different meanings depending on your geographical, environmental or personal positioning. This chapter begins by addressing the various local definitions of a ‘forest’ and the specific rights that locals have to their village forest areas. Following this, there is a detailed overview of how locals use the forest and the barriers that exist both personally and at the community level to participating in FM activities. This chapter further explores several formal and informal platforms which motivate individuals to become engaged in FM activities. The structure of the FD and the roles or responsibilities of forest users, NGOs, the FD and village-level governance structures are explored to understand the complexities and dynamics of managing and using this common-pool resource we call village forests.

4.2 Forests in the Kullu District

The forests of HP constitute two-thirds of the state’s geographic area and are crucial to the region’s environmental and economic well-being (Walia, 2005). These forests play a significant role in preserving the fragile Himalayan ecosystem and they are also the primary livelihood source for its rural population (Walia, 2005). The majority of people living in rural areas in HP depend on the forests for survival¹⁶ (Walia, 2005; Vasan 2006a). Of the 12 districts that make up the state of HP, the Kullu District is one of the most forested regions (Balooni,

¹⁶ As per a census done during 2011, HP has a population of 6.1 million, of which 91% live in rural areas and 90% of this rural population depend on forests for their subsistence. (Walia, 2005)

2002; Walia, 2005). The Kullu District's forests cover approximately 50% of the total land area, while the remaining surface cover consists of agricultural fields, grazing land, abandoned land and land which is regarded as unfit for vegetation (i.e., snow, ice and rock) (Vasan, 2006a). The large percentage of forest cover in Kullu means that the district accounts for over 14% of the total forest area for the state of HP (Government of HP, 2015). The forests in Kullu are primarily mixed forest with tree species consisting of: bamboo (*Bambusa vulgaris*), chil/cheel (*Pinus roxburghi*, or "Roxburgh", oak¹⁷, deodar, kail (*Pinus wallichiana* or "Blue Pine"), fir (*Picea pindrow* or "Silver Fir") and spruce (*Picea smithiana*) (Walia, 2005). The forests in the lower reaches of the Kullu Valley, south of Kullu town, experienced severe forest cover depletion in the pre-or early colonial periods prior to 1860 (ODA, 1994). However, the upper reaches of the Kullu Valley (i.e., where Solang and Khakhnal are located) and much of the rest of the Kullu District have not experienced significant deforestation in the past 150 years (Gardner, 2002; Bingeman, Berkes and Gardner, 2004). The lack of deforestation in this area is partly the result of some sensitivity and recognition towards the customary village forest use practices in the Kullu District during the drafting of the forest settlements under the India Forest Act in the late nineteenth century (ODA, 1994; Bingeman, Berkes and Gardner, 2004).

4.2.1 Defining "Forests"

There are several ways in which the term "forest" and "forest areas" are understood locally. These different meanings and local understandings can influence the ways in which people use, value and relate to the area. It is important to recognize the varying local perspectives on what constitutes a forest or forest area because it can help individuals involved in FM

¹⁷ White Oak (*Quercus incana*), locally referred to as "Ban";
Green Oak (*Quercus dilatata*), locally referred to as "Moru";
Brown Oak (*Quercus semecarpifolia*), locally referred to as "Kharsu".

activities better understand their individual and shared FM roles and responsibilities (Duffield et al, 1998; Singh and Pandey, 2010). When speaking with my interview respondents in Khakhnal and Solang, the term “forest” was not used often. Instead, the term “jungle” was used in place of “forest”. Below are four local responses to the questions “*what are your local forests?*” and “*what makes up your village forest?*”

In Khakhnal we live in the jungle and there are jungles all around us. We have the best jungle here in Khakhnal. It is big, dense and full of healthy trees. The jungles are everything that is green and tree-like in the forest area.

Khakhnal, Forest User, 2014

If there is thick forest (pine trees) and other wild trees then you are in a forest... Forests need to have a good thick cover of trees... If you have good forests then you get a good environment which leads to good rain and snow which results in a good crop.

Solang Forest User, 2014

Forests are a necessity and are a necessary part of human life especially in the villages. The forests help to keep the flooding and landslides in check so that we are more protected and safe if they were to hit the village. They also help to make the environment less polluted because they release lots of oxygen and store the bad pollutants and carbon [referring to the carbon sink]. The forests here in Khakhnal makes up a huge area and is all the expanses of tree cover that you can see with the naked eye.

Khakhnal, FPC Member, 2014

Our jungle is everything green which you can see in all of the areas surrounding us

Solang, Forest User 2014

Based on the interviewee responses, most of the individuals referred to a forest or jungle having one or more of the following characteristics or serving one or more of the following purposes:

- 1) A forest or a jungle is made up of trees, shrubs and other vegetation
- 2) They are essential for survival in the two villages
- 3) They bring environmental, economic and personal benefits for people who live amongst the forests or use them frequently; and,

4) They surround the village and everything that is green makes up the village forest.

As indicated above, forests are locally perceived to be everything (objects as well as functions) contained within an area that has trees, shrubbery and other vegetation; people even talked about forests as places where there are not any trees in sight (i.e., vast green fields or pastures for shepherding). The local understanding of “forests” and “forest areas” is very holistic and all encompassing; however, the primary perception of forest areas includes areas with trees. These differing understandings and perceptions pose unique challenges in FM because the primary preoccupation of the FD has and currently deals with forest areas that specifically contain trees (Chhatre, 2000; Bingeman, Berkes and Gardner, 2004).

4.2.2 Understanding Forest Rights

The forests that residents in Solang and Khakhnal have access and rights to are located relatively close, less than 5km away from the actual village. As such, the forests are an important resource, used daily for pasturing cattle, for timber to construct houses, for fuel, fodder, manure and agricultural implements. Contrary to indications from other areas of India (Guha, 1984), the process of settlement of rights in Kullu and Mandi did not result in the termination of local people's rights, but rather their recognition and formalization (ODA, 1994). The process of forest settlement commenced in 1866 in Kullu and later followed the classifications laid down under the Indian Forest Act of 1878 (Gadgil and Guha, 1992; ODA, 1994). The legal framework which structured the use of resources in the Manali area and Kullu District is the 1886 Anderson Settlement Report. A later report was prepared by A.H. Diack in 1898 which further detailed land and resource use areas (Diack 1898; Gardner, Sinclair and Berkes, 2000).

Under the Anderson report, only limited areas of forest were placed in the category of reserved forest. The majority was defined as protected, primarily in recognition of the importance of the needs of local people (ODA, 1994). The Anderson report (1886:36) allowed an extensive list of rights for local forest users in regards to their village forests. Some of the rights include: “the rights to cut grass, to remove medicinal roots, fruits, flowers, dry fallen wood, except deodar (*Cedrus deodara*), walnut (*Juglans regia*), box (*Buxus sp*) and ash (*Fraxinus sp*), to cut bamboos, and to take splinters of deodar and kail (*Pinus wallichiana*) stumps” (Hobley, 1992, 11). These rights were allowed in all forests, within the Kullu District, without permission from government authorities. (For a list of what locals can take from the forest, see Appendix G).

The forest settlement in Kullu was unique in its generous definition of village rights and resulted in a diminished reserved forest and a larger forest area with recorded village rights, in comparison with other parts of India. However, all of the forest rights in the Anderson Settlement were assigned to the individual landholder at the time of the revenue settlement (Gadhil and Guha, 1992; Gardner, Sinclair and Berkes, 2000; Bingeman, 2001). The rights were vested in the individual, rather than the village, which made it difficult for a village to regulate the activities of their members within the forest area (Gadgil and Guha 1992; ODA 1994). Therefore, the responsibilities for management, regulation and enforcement were nevertheless appropriated by the state under the Indian Forest Act of 1878. According to Gardner, Sinclair and Berkes (2000), “the result was a state forest divided into village forest rights areas, to be used as recorded by villagers, but managed by the state, as determined on the basis of the de jure

property rights established in 1886” (pg. 4). This de jure¹⁸ regime of FM is still practiced today in the Kullu District.

In Kullu, the formal settlement of forest rights in the nineteenth century was based on individuals having rights to specific forest resources. This situation “led to the breakdown of any collective censure for the over-use of resources” (Hobley, 1992, 15). In order to satisfy my first objective, related to how community-based FM is currently being practiced, I needed to understand how forest rights were understood by the NGOs, local forest users or governance members, and the FD. Therefore, in order to learn about community FM in the Kullu District, I asked a series of questions that included: “*how do you use the forest?*”, “*what rights do locals have to their village forest?*”, and “*how is the forest currently being managed?*”

When asked “*what rights do you have in your village forests/jungles?*” many of the respondents classified as forest users and governance members in Solang and Khakhnal simply discussed what they take from the forest. Many of the responses from local forest users described daily activities in the forest, the frequency of visits to the forest and certain NTFPs that are collected often for their household. The quotes below echo how the majority of forest users responded.

I am not sure of my rights in the forest. I go into the forest everyday to graze my cows, and get fuelwood for the house I know I am allowed to do it because everyone else does it in the village and I have never gotten in trouble.

¹⁸ A statutory or de jure right concerns a set of rules established and protected by the state (e.g. registered land titles, concession contracts, forestry laws and regulations). De jure tenure regimes, in general, define the distribution of rights and responsibilities between the state and local communities (and, of course, the private sector). These are likely to vary across the landscape. Whereas, de facto rights are patterns of interactions established outside the formal realm of law. They include customary rights, a set of community rules and regulations inherited from ancestors and accepted, reinterpreted and enforced by the community, and which may or may not be recognized by the state (Larson, 2012).

Solang, Forest User, 2014

These are our forests, we live in them and take care of them so we are allowed to take what we need within reason. I don't know the exact rights that I have and don't have to the forests but I need the forests to live and so does everyone else in Khakhnal.

Khakhnal, Mahila Mandal member, 2014

I have never been shown what the rights I have in the jungle. I take what I need for my home and my family. I don't cut down trees and I don't take my cows in fenced areas in the forest. I follow the rules because I respect and love the jungle.

Khakhnal, Yuvak Mandal member, 2014

In their responses, whether knowingly or not, all forest user participants described how they use the forest. This inherently coincides with some of their forest rights outlined in the Anderson Settlement. However, when I asked the NGO members and the FD Officials, “*what rights do the locals have in the village forests?*”, most respondents answered that the local rights to the forests involved access to NTFPs, grazing land for their animals, and the ability to apply to TD entitlement for house or cow shed construction. The responses below echo the majority of how NGO members and FD officials responded when asked about village forest rights for locals.

We have fundamental rights to use the broken, rotten, uprooted and dried trees as fuelwood for heating our homes... The TD Rights are used for house construction however people need to apply for them in order to benefit from them. I will never apply for the treaty rights because I love the forests too much.

Solang, Forest User, NGO Member Centre for Sustainable Development , 2014

People have rights to their forests. They have the right to collect fuelwood, medicines, grasses, hay, and cones [referring to pine cones]. They can graze their animals in the forest as well. The locals also have the responsibility to follow the rules, they cannot go into newly planted areas, cannot graze their animals in fenced off areas and they cannot lop trees. Most people know their rights but I think sometimes people try to push their rights in the forest to more than they are allowed.

Khakhnal, FD Official, Forest Guard, 2014

People have a lot of rights in the forests as forest users but unfortunately many people do not know their rights. The rights that people have to their village forest are: the right to collect timber wood for house construction, the right to collect fuelwood, grass, hay and medicinal plants. Also people have the right to graze their animals in the forest and they

have the right to collect wood to make agricultural tools. They also have to respect and adhere to the rules set out by the FD to ensure that the forests are not being overused.

Khakhnal, JAVS NGO Member, 2014

While the local forest users described their actions in the forest area, the NGO members and the FD officials discussed detailed rights that locals have and don't have in their local forest areas. The current forest use is a reflection of formal and informal rights of access, and the ability of forest users to assert their rights or force access where they have no rights (Hobley, 1992). Forest rights and the way they are exercised provide important evidence of local authority structures, and the ways in which individuals and groups manipulate relationships of power.

4.3 Forest Uses

Over the past decade, there were about 100 million forest dwellers in India living in and around forest lands and another 275 million for whom forests are an important source of their livelihoods and means of survival (Vasan, 2006a)¹⁹. The number of people dependent on forests in India is the highest in Asia (Saxena, 1997; Vasan, 2006a). A forest user and dweller in Khakhnal succinctly described this reliance and dependency on village forests,

I am entirely dependent on the forests because I need the forests for my apples and my other crops and I use the forest to feed my cattle and I am building a new home so I use the wood from the forest to help construct my house in the village. Without the forests we have no fuelwood and we could not survive the cold winters here without fuelwood. If there were no forests here, I could not live and my family would not have a good life... We would die without the forests.

Khakhnal, Forest User, 2014

Besides fuelwood and other wood products, forests provide what were misleadingly termed “minor” forest products, and are now better known as non-timber forest products (NTFPs). HP

¹⁹ According to research conducted under Women in Informal Employment: Globalizing and Organizing (WIEGO) the number of forest dwellers in India remains between 100-102 million, of which over half (54 million) belong to tribal communities (WIEGO, 2015 unpublished)

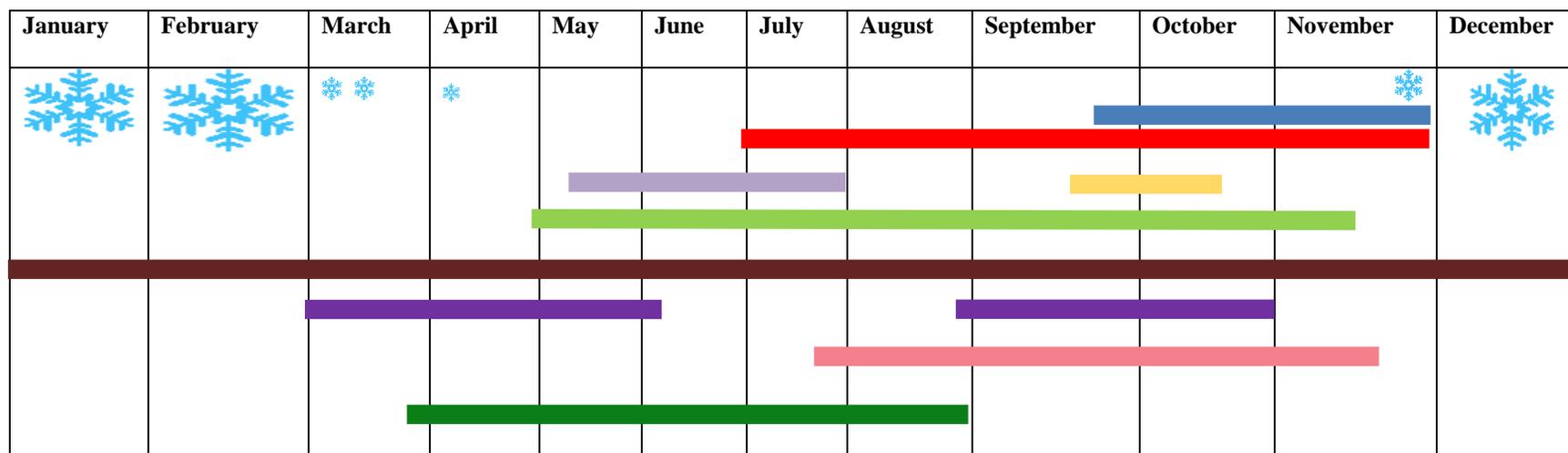
forests provide a variety of NTFPs, such as resin, bamboo, bhabbar²⁰ grass, fodder grazing, and medicinal herbs. NTFPs have also played an important role in being a reliable food source for forest dwellers in HP. A CIFOR research study indicated that 85% of forest dwellers in HP depend on NTFPs for 20-25% of their daily food requirements (CIFOR, 1995). Although the study by CIFOR (1995) indicated that HP forest dwellers rely on the forests for daily food requirements I found that the majority of the forest users that I spoke with did not *regularly* collect edibles from the forest (e.g., berries, mushrooms, wild plants, wild tubers etc.). Some participants discussed collecting wild plants and berries when they are in season (see Table 2); however, the collection of medicines and plants seemed to be minimal in Solang and Khakhnal for two main reasons. First, in Solang the forest dwellers were very cautious about picking medicines and plants from the forests because the local village deity had recently put a ban on the collection of these items in an effort to preserve the land (this is discussed at length further below). Second, in both Khakhnal and Solang every household had a shared family garden plot where they would grow their own vegetables, beans, plants and fruits, making them less reliant on forests for their daily food supply.

Based on the interviews with the participants from the study site villages I found that in addition to collecting fuelwood and NTFPs, people primarily use forests for the following purposes: to graze their livestock, for recreation and tourism (i.e., trekking, skiing, and hiking), and to collect wood for house construction or other purposes through their TD entitlement. Many of the interview respondents discussed using the forest for two or more of the purposes listed

²⁰ Bhabbar: Bhabbar (*Eulaliolopsis binate* (Retz.) C.E. Hubb.) is a common grass growing in abundance in the Shivalik ranges (Northern Himalayan areas). It has many uses, including in the manufacture of paper, in rope making (commonly called "baan"), as packing material and for feeding cattle. Bhabbar grass is a prime NTFP (Uttarakhand Bamboo and Fiber Development Board, 2015).

above. For example, the interview respondents in Solang discussed using forests for NTFP collection and for tourism purposes in order to gain income through leading different trekking expeditions in the forests. In this way, the forests serve as both a resource that supports the daily household needs of the residents and also as an income-generating resource for those involved in the tourism-based sector. On the other hand, many of the interview respondents from Khakhnal discussed using their village forests for house construction (through TD entitlement application), livestock raising, and NTFP collection. I think that the differences in how people use the forests in Khakhnal and Solang can be attributed to the primary economic sectors in each village (i.e., agriculture and tourism). Table 2 (below) illustrates the time of year when forest users collect certain forest products and NTFPs. This information was obtained through speaking with local forest users in Khakhnal and Solang. It is important to note the effect that the snowfall has on forest collection and forest activity, as many of the forest users discussed how they may start collecting products at slightly different times of the year depending on when the first snowfall comes.

Table 2: Forest Uses Related to when Collection or Activities Occur



LEGEND	
	Fuelwood collection
	Grazing livestock
	Mushroom and berry collecting
	Trekking, forest adventure use
	TD Entitlement application (<i>all year round people apply and get TD wood for house construction</i>)
	Medicinal plant collection
	Grass, hay and fodder collection
	Tree planting, installation of check walls and fences (<i>regulated by the FD</i>)
	Snowfall. <i>Please note the larger snowflakes indicate when forest users noticed the most snowfall, the smaller snowflakes indicate the smaller levels of snow. Snow that covers the whole month indicates snow typically falls all month. In Khakhnal and Solang the level of snowfall would affect the forest uses.</i>

Source: Birch (2015) information retrieved through personal communication with local forest users in Khakhnal and Solang

4.3.1 Fuelwood Collection

Between October and November, the primary forest use activity for in Solang and Khakhnal is fuelwood collection for the winter months, which all households engage in. The photo below is of two women carrying large bundles of fuelwood back to their homes from the forest. The fuelwood bundles weigh 65 pounds on average, however many individuals carry heavier loads in order to reduce the frequency of visits to the forest per day.



Photo 9: Fuelwood Collection in Khakhnal

In Solang, people felt a greater need to collect fuelwood more frequently than forest users in Khakhnal because Solang receives more snow annually and has no road access from the village to the town. Individuals in Solang discussed needing to collect enough fuelwood in order to heat their homes and cook their food for the 4-5 months of harsh winter conditions. The collection of fuelwood is a labor-intensive and time-consuming activity that is done every day for two months or until there is a sufficient supply. Due to the physical demands and timely nature of fuelwood collection, some forest users changed their forest gathering activities in order to save time and

prevent physical exhaustion. Below are three responses of forests users in each study site that discuss their changing habits for fuelwood collection;

I go to the forest to collect fuelwood. I usually cut the wood and clean the wood and my wife will bundle the wood and together we carry the wood from the forest to our home... My family and I used to collect grasses in the forest but we don't anymore because it was too time consuming and I wanted to spend more time at home with my family... Nowadays I tend to not to go into the forest to collect fuelwood as much as I used to before because I can prune and clean my apple trees and use the sticks for fuelwood.
Solang, Forest User, 2014

We don't collect fuelwood from the forest because we prune the apple trees and get wood that way. It is time saving for us to collect wood from our apple trees.
Khakhnal, Mahila Mandal member, 2014

I still go into the jungles but I don't go nearly as often as I used to. My family and I found that it was too hard to get fuelwood every day so the village pays people to get fuelwood on their behalf. They take up several mules and horses to the jungle and then they are able to collect enough fuelwood for 2.5 months in just 1 day. My family and I also cook our food on a gas top so we don't need as much fuelwood as the other people here because we don't use wood for cooking.
Solang, Forest User, 2014

Some individuals are choosing to use wood pruned from their apple trees, use gas heating or outsource their fuelwood collection (which still relies on the local forests) to locals in order to maximize their available time and limit the physical strain that comes with daily fuelwood collection and forest work. The adaptations to forest work that some forest users are making could change the frequency of visits to the forest, the level of dependency on the forests themselves, and the amount of timber products and NTFPs that are taken from the forest. Consequently, these changing behaviors pose questions about how forest work and forest activities will continue to change as forest users/forest dwellers keep finding new and efficient ways of collecting forest products and resources.

4.3.2 Medicinal Plant Collection

Another change in NTFP collection behaviors amongst forest users in Khakhnal and Solang has been the gathering of medicinal plants for personal and commercial use. Forest dwellers in HP have had a long history of using medicines from the forest because 24 of the 100 most important medicinal plant species traded in India are found in the state (Kapta, 2006). Moreover, the majority of valuable and commonly used medicinal herbs are concentrated at high altitudes, meaning that the Kullu District is an optimal place for medicinal plant collection (Singh, 1999). However, the harvesting of medicinal plants has had negative environmental effects in the forests, with severe soil erosion and depletion of vegetation in areas where medicines are gathered (HP FD, 2006). For both study sites, the increased soil erosion is of particular concern because both villages are located in high sloped regions prone to landslides, rockslides and avalanches. Until recently, forest users in Solang and Khakhnal would collect common medicines like: chora²¹, kuth²², patish²³, talsi²⁴ and kungus²⁵ to cure common ailments and to sell to the local village markets for small monetary compensation (see photo 11, below).

²¹ Chora is a root used to cure gastric problems and stomachaches. It is also used in foods as a flavoring additive (Uniyal, 2003).

²² Kuth is a flower used to cure body itches. It is also used by the locals to massage their sore joints (Uniyal, 2003).

²³ Patish is a root used by locals in a variety of ways, including helping to cure sore stomachs, headaches and fever, and to relieve constipation (Uniyal, 2003).

²⁴ Talsi is a leaf used to cure the common cold and cough by local forest users (Uniyal, 2003).

²⁵ Kungus is a leaf used to help alleviate joint and muscle aches (Uniyal, 2003).



Photo 10

Photo 10: Medicinal plant collection in Solang forests



Photo 11

Photo 11: Woman collecting Talsi a medicine used to cure the common cold

However, many of the forest users in Khakhnal and Solang no longer collect medicines from the forest, in an effort to respect their village deity's²⁶ (see photo 12 for the local deities in Solang and Khakhnal) wishes and to conserve the forest land. Below is the response of a forest user discussing this change in attitude/behavior towards medicinal plant collection.

We collect one herb from the forest that acts as a sweetener for our tea and coffees. Other than the sweet herbs we do not collect any medicinal plants. Our village God said that we cannot collect any more medicines from the jungle so we respect that and no longer collect them anymore. The God said that it ruins the soil.

Khakhnal, Forest User, 2014

²⁶ Deity: Himachal Pradesh is known as 'the land of Gods', famous by the name 'devbhoomi' all over the world. As such, this state is said to be protected and sheltered by the power of numerous local deities. Every region in Himachal believes in a distinct deity. All the faith of the local people is vested in these local Gods, called 'devta' in the regional language. The Kullu District/Region believes in the deity named Hadimba mata (Vasan and Kumar, 2006).



Photo 12

Photo 12: Local village deities in Solang and Khakhnal (display of village deities during the Kullu Festival in October)



Photo 13

Photo 13: Local village temple (many villages within HP have one or more temples in the village, depending on the size. This shows the religious and cultural significance that the deities hold in both Khakhnal and Solang)

The reason why many forest users are choosing not to collect medicines from the forest any longer, and are opting to purchase their herbal medicines from the market, is because many of the areas where the medicines grow are sacred groves or devban connected to the village deity. Devban are forest patches in the Himalayan region of northern India considered sacred by a local community (Vasan and Kumar, 2006). Their sacred status acts to prohibit many resource-use practices, which the community considering them sacred may be undertaking in neighbouring areas (Fernandes and Kulkarni 1983). As such, devban often have a distinct vegetative cover that is dense, multi-storeyed and includes a large array of plant diversity compared to surrounding forests (Fernandes and Kulkarni 1983; Vasan and Kumar, 2006). Sacred groves are a unique social institution, combining distinctive cultural, religious, conservation, resource use and management ideas and practices.

When asked why they no longer collect medicines from the forest, many of the forest users discussed their need to respect their village god and the importance of protecting the sacred forest lands. Below are three responses of forest users, in both study sites, who reflect on how their changing behavior in forest collection activities is the result of respecting and protecting the devban in their village.

The environment is more important than the deities so it is our duty to protect it... The environment is so important that in the past the village Gods have been involved in plantation work and forest protection activities... I became involved in this forest protection NGO in order to be closer to the village Gods and to make sure that their forests are well managed and maintained.

Solang, NGO Member, 2014

I have never felt a need to take wood, grasses or medicines from the forests because it belongs to our Devta. I cannot take what is not mine, it would be disrespectful. I live on this land and I need to love the land...not harm it by taking what is not mine away.

Solang, Forest User, 2014

A few years ago the local deity told us that we cannot harvest our medicines from the jungle anymore. I listened right away and stopped collecting medicines for myself and my family. All of the jungles are sacred and connect us to our Devta, we need to respect and listen to the deities. I only collect broken or rotten wood from the jungles now, I don't want to make my Devta upset.

Khakhnal, Forest User, 2014

The conscious choice of forest users to stop collecting medicines from the forest in order to respect the village deities is a motivation for locals to participate in FM activities to ensure that others respect the wish of the Gods. The significance of local-level, indigenous, community institutions such as devban in the sustainable management of natural resources is increasingly being acknowledged and emphasised (Vasan and Kumar, 2006). Devban is an example of a community level institution that is helping to increase and promote conservation and the sustainable future of the forests at the village level in HP (Fernandes and Kulkarni 1983; Poffenberger and McGean 1996).

4.3.3 Trekking and Guiding

While the primary forest uses that forest dwellers in Solang and Khakhnal chose to partake in included NTFP collection and fuelwood gathering, some individuals spoke of using the forests for trekking or guiding purposes, animal grazing and for collecting wood for house construction through the TD entitlement application. The lush and thick forests in HP provide great terrain for several trekking expeditions from beginner to advanced levels. In Solang, some individuals have taken advantage of the forests by offering treks, ATV tours and other nature-based adventure experiences. One individual very succinctly described how he uses the forests for recreation and tourism purposes,

I don't use the forest to collect fuel wood, grasses or medicines but because I am a trekking guide I go into the forests a lot with tourists and take them on amazing treks and tours of this area. Because we live in such a beautiful area the forests and all of the mountains are a way that I make money because I plan easy to hard and short to long treks in these areas for all ages.

Solang, Forest User, 2014

Forest users in Khakhnal did not use the forests for tourism or recreation purposes simply because the area has an undeveloped tourism industry when compared to Solang. The forests in Solang provide a unique income-generating opportunity for locals while also introducing tourists from near and far to the majestic and diverse forests of HP.

4.3.4 Grazing Animals in the Forests

Grazing based livestock husbandry plays an important role in the economy of the state. A study by the Indian Planning Commission (2005) found that 19 out of 20 households in HP keep at least one species of livestock. Over 91.4% of households have at least one cow (see photo 14, below); however, many households have other livestock species including goats, buffalo, sheep, pigs and horses (Indian Planning Commission, 2005). This was evident in both Khakhnal and

Solang, as most families collectively had either one or two cows²⁷. I also observed that many houses in Solang had one to two goats or sheep; however only some houses in Khakhnal owned goats or sheep. I suspect that there were more goats in Solang because there is more open grazing land, there is no road access (likely safer for the goats as there is no traffic) and the village has a long history of shepherding. Lastly, I observed that the forests users in Khakhnal did not own horses, pigs, or buffalo; however, there were a few individuals in Solang who owned one to two horses or mules. In Solang, the few horses and mules owned by forest users were used to support tourism (i.e., pony and horse rides for kids, mules to carry equipment on walking treks). Additionally, the mules in Solang were used by some individuals to haul fuelwood from the forest to the village (see Photo 5, pg 58).



Photo 14: Grazing cows in the forest in Solang

²⁷ Families owning one to two cows: Most of the houses in Khakhnal and Solang were multigenerational, therefore families collectively owned the animals. It is not appropriate to base the number of cows per number of houses but rather the number of animals per family unit, as this is more indicative of the culture (personal observation, 2014, verified by the responses of forest users in Khakhnal and Solang)

Livestock and animal husbandry has made forest users more dependent on their immediate environment in order to meet their daily requirements for fodder to support their livestock (Mani, 1994; Rawat, 2010). In both Khakhnal and Solang many forest users described using the forests to graze their animals. Below are two responses from forest users who discuss how they use the forest to graze their animals;

I go into the jungles daily to graze my three cows. While my cows eat the grasses, I collect the mushrooms, berries and bundle up the hay that I need for the day.

Khakhnal, Forest User, 2014

I am a shepherd so I travel with my goats for many kilometers and I graze my goats in the jungles wherever possible. Shepherding is a hard job, you travel a lot, you are away from your family and the work is very physical. Not many people are going into shepherding anymore but we still need goats to eat and make wool so it is an important job.

Solang, Forest User, Shepherd, 2014

Although the forests are used frequently to graze livestock, some forest users discussed how they have been choosing to graze their cows and sheep in the nearby apple orchard fields for convenience and to avoid the steep climb to the forests.

I do graze and feed my cows and my two goats but I do not go into the forest anymore. When my husband goes into town I take our animals into the apple fields and they eat all the grass and weeds. It is better this way because I can do my housework while the animals feed and I don't have to worry about them going into areas they are not supposed to go in [referring to the newly planted areas in the forest]

Khakhnal, FRC Member, 2014

Another change in livestock rearing that Khakhnal and Solang forest users have experienced is the decline in the number of shepherds in both villages.

Shepherds used to be a respected job in the village. But now there are fewer and fewer people who become shepherds. It is not a popular way to make money and the work is very long and tiring and you are often away from your family for a long period of time. The work of a shepherd does not interest most people nowadays. We used to have about 25 shepherds in the area but now we have about two or three. It used to be very common to have every second or third household to have a shepherd in the family but now only two or three households in the entire village have a shepherd..

Khakhnal, Shepherd, 2014

The change in livestock raising and grazing patterns for some forest users is the direct result of adapting to a different lifestyle. Although many of the forest users still use the forests in the same way and for traditional purposes such as NTFP collection, livestock grazing, and fuelwood collection, there are noticeable changes in how people are trying to make forest work for their daily needs more efficient and effective. Individuals are starting to notice the negative effects of over-extracting products and resources from forests. As a result, many forest users are changing their behaviors (i.e., stopping to collect medicinal plants in both Khakhnal and Solang) in order to ensure that the forests will be sustained for generations to come.

4.3.5 TD Entitlement Application and House Construction

In addition to the traditional uses, some of the forest users were choosing to apply for the Tree Distribution (TD) Entitlements as an additional way to not only benefit from their village forests but to also practice their inherent rights to the forest. The TD entitlement states that, “timber shall be granted to the right holders who have their recorded rights in the concerned forest settlement reports for grant of timber for construction, repair and addition or alteration of residential houses, cow sheds or for bonafide domestic use” (Government of HP, 2013, pg. 2). The TD entitlement was recently reopened in HP after a ten-year ban, in an effort to support forest users in repairing and rebuilding their homes and cow sheds. During the interviews with the forest users, I noticed that the TD entitlement came up frequently in relation to forest usage and also in relation to the change in illegal felling and lopping of trees in the area. As a result, I felt a need to explore forest users’ opinions, perceptions and utilization of the TD entitlement to

better understand if this renewed policy has changed FM activities, forest uses, the amount of forest cover in the area and illegal forest activities²⁸ in Solang and Khakhnal.

Many forest users in Solang and Khakhnal were interested in applying for the TD entitlement in order to rebuild and reconstruct their homes after different natural disasters. In Solang, many forest users felt motivated to reap the benefits from the TD entitlement in order to rebuild and reinforce their houses and cow sheds that were damaged in a village fire in 2009. In Khakhnal, many forest users felt that the TD entitlement could help to repair and reinforce the houses and cowsheds that had been damaged by landslides and rock falls in the past. Although the TD entitlement seems to be beneficial for the forest users, most of the forest users in Khakhnal and Solang discussed their frustrations with how the TD entitlements are allocated and distributed in each village.

The TD rights (tree treaty) are very good because we need to build houses so it is very useful. The tree treaties should only be used for personal benefit (home building) and not for personal profit where it is sold to outside vendors and people. However, with so many treaties there are more trees that are gone in the jungle so it is looking quite sparse. It is hard to tell why some people get treaties and other people don't yet they have the same reasons as to why they want it and seem to have followed the paper work well enough. People who are rich or who have personal connections with the FD seem to get treaties quite fast and quite often however those who get it may not be the ones who need it most.

Khakhnal, Forest User, 2014

In addition to forest users' frustrations over who the TD entitlements have been granted to (i.e., those who are not perceived to have a high need for the timber), some also expressed concerns about the application process itself, which involve many forms, take a long time and need

²⁸ Illegal Forest Activities: The primary illegal forest activities which have been of particular concern in the areas in the past are: illegal felling of trees, trespassing in the forest, littering and taking products from the forest which are not authorized under the Anderson Settlement (i.e., deodar timber (personal communication, FD Official, 2014)).

various levels of FD approval. Some forest users also expressed frustration with the miscommunication about how the TD entitlements are given by the FD to local forest users.

In the past when we helped with plantation [tree planting] we would get paid but when we did plantation work last time we did not get paid and it was all volunteer. The FD tells the community members that if they want to get TD Rights that they have to help with plantation work but we helped with plantation and still do not have our TD rights granted.

Khakhnal, Forest User, 2014

Getting the TD rights is not easy because it is hard to get the paperwork in on time because we need to travel to the Kullu town to get approval by the District Forest Officer. The actual paper work is long and many of us don't understand the wording because lots of people in the village who are applying for the TD rights have a limited education. Getting TD rights fast seems to be more about who you know in the forest department and the relationships that you have with the range and block officers.

Solang, Forest User, 2014

The lack of clarity in how people get TD entitlements and the long application process make the TD system very inaccessible for many individuals in the village. The lengthy process and the lack of open communication between the forest department and local forest users further enforces a top-down approach to FM. As a result, local forest users lack autonomy and decision-making power about how their local forests are managed.

The TD entitlement is designed to give every eligible household the equivalent of one medium-sized tree from their respective village forests. The result has been many trees being extracted at a faster rate than villages have previously experienced. This is causing some forest users to be concerned about how the TD entitlements could drastically affect the level of tree cover in the village forests. As well, some forest users discussed how there is little monitoring of the harvesting of TD entitlement trees, meaning that people could take more trees than they are allowed. Forest users also indicated that individuals in the FD accept *baksheesh* (bribes) and in return have ignored individuals who sold the TD timber they were allocated, felled more trees than were allowed, or who were simply cutting down trees without applying for TD timber.

I do not like the treaty rights [same as TD rights] because I think that eventually too many of the trees will be gone and then our jungles will be sparse and empty. When the jungles are sparse and empty it makes us more prone and vulnerable to landslides, rock falls and flooding. There is not enough awareness about why we need to protect the forests at the village level and if people knew why we need to keep the forests intact and healthy then maybe they would not abuse the treaty rights.

Solang, JFMC Member, 2014

I think that by the government allowing treaty rights it really just shows negligence on their part and it also shows that they don't really think about or consider the forests. I think what needs to be done is that for every tree taken from treaty then two more need to be planted to replace the lost trees and to ensure that we are not abusing or taking advantage of our forests... I think that if we replant trees once we take some trees from the forest then we will learn the value of the forests. Otherwise if we do not replant them, then we will end up depleting the forests.

Solang, NGO Member, Forest User, 2014

The TD rights are not good for the village. I go into the jungle and I notice way too many empty spaces where there used to be beautiful, big standing trees before. When people in the village get the TD the FD only marks the tree that they are allowed but they don't watch them take the trees. Many of us in the village know that people who allowed to take 1 tree for their family actually end up taking two or three or even four because no one is there to stop them. Sometimes people sell this wood back illegally for money or they store the extra wood in their cow sheds and hide it from the rest of the people in the village.

Khakhnal, FPC Member, 2014

The TD rights makes me very angry. I know too many people who give baksheesh to the FD and then they won't report them or give them a fine. It disgusts me, they should be enforcing the rules and protecting our jungle.

Khakhnal, Mahila Mandal member, 2014

The volume of trees that have already been taken for TD entitlements was concerning to many forest users. Many of the forest users felt that when trees are taken from the forest then more trees need to be planted in order to replace them. Additionally, many of the forest users spoke about replanting to ensure a sufficient supply of trees for the future. None of the forest users mentioned the word *sustainability* or the term *SFM* when discussing their concerns with the amount of trees taken from the forest. However, the notions of: replanting, not overexploiting a resource, and ensuring a plentiful future supply were all discussed and are all key components of SFM.

It is a good thing that there are treaties (TD Rights) but I think there should be more plantation [referring to tree planting] work to fill in all of the trees that have been taken away. There seems to be lots of treaty rights given but not enough trees are being replenished so we need to balance out the jungles.

Khakhnal, NGO Worker, 2014

Many of the individuals in Khakhnal and Solang felt that the TD entitlement system was inaccessible, corrupt, and poorly monitored by the FD Staff members. The TD system appears to have reduced the local forest users' responsibility for FM or monitoring of the forest areas, while increasing the FD's decision-making power and management responsibilities. Another difficulty with the TD system is the formal processes (i.e., filling out long forms, pleading cases to the FD) that individuals must go through in order to apply for the TD entitlement for their household.

Below is the response of one forest user who clearly articulates his frustrations with the TD Entitlement application process;

The TD application is very long...I am trying to get the TD approved. But it is over 14 pages long... A lot of the words in the form are very hard for me understand because I don't use these words often and no one tells you how to properly fill it out... we try to help each other out. The TD needs the signatures of the forest guard, block officer, range officer and the district forest officer. The DFO is in Kullu and you can't schedule appointments to see him... I have gone twice to Kullu by bus and the DFO was too busy to sign my paper. It is a very long, difficult and a process that is not easy to understand. I am not sure when or if I will ever get the TD for my family.

Solang, JFMC Member, 2014

This makes the application process more accessible to some people than others and makes it susceptible to corruption. The difficulties and challenges that forest users expressed about the TD system is an example of an unwelcoming FM structure which was identified by many participants as a personal barrier for participating in FM activities.

4.4 Opportunities, Motivations, and Barriers for Participating in FM Activities in the Kullu District

4.4.1 Opportunities to Engage in FM

The opportunities that are available to the local forest users to engage in FM activities can be categorized as formal and informal platforms.

4.4.1.1 Formal Platforms to Engage in FM

The formal platforms that encourage participation are scheduled, regulated and monitored FM activities. The opportunities that exist for forest users in Khakhnal and Solang to participate in formal FM activities include:

- Tree planting with the FD
- Working in the medicinal plant nursery (Solang only)
- Attending workshops led by the FD
- Joining a Village Forest Committee that is facilitated by the FD
- Helping with additional projects for the FD including; installing fences, putting in check walls and forest fire protection

I tend to help out with tree planting work when the FD wants to plant more trees in the area. There is tree planting in the village about one-two times a year.

Khakhnal, FPC Member, 2014

I have in the past helped with putting out the forest fires in the village with the FD. It is not a one-man job so they call out for help from the locals. Usually only the young to middle aged men go.

Solang, Forest User, 2014

I also work with the FD by planting medicinal plants in the nursery. In May I go to work in the nursery by planting medicines. There are around 10-12 women involved in the nursery.

Solang, Forest User, Nursery Worker, 2014

Many participants in Khakhnal and Solang discussed engaging in formal FM activities at least once in the past five years. The most common way that forest users engaged in formal FM activities was through helping with tree planting work with the FD. Many of the forest users chose to participate in tree planting, rather than the other types of work, because they found it to be more enjoyable and more people could get involved.

I like to help out with tree planting whenever it happens in the village. I like seeing everyone in the village come together and work towards something. It shows that we care about the jungles. The tree planting goes by fast because I talk with my friends and we have a good time.

Khakhnal, Forest User, 2014

In relation to participation in formal FM activities I found that only women were engaged in helping and working in the medicinal plant nurseries (in Solang). Moreover, only the male forest users, with the exception of Mahila Mandal Pradans and the female Pradan in Khakhnal, discussed attending workshops led by FD. These workshops were offered to teachers, Pradans in village-level organizations and executive members on VFCs. Therefore, the lack of female participation is not surprising as there are no females who hold executive positions in the VFCs in either Solang or Khakhnal. Additionally, male forest users were primarily involved in helping to install check walls and fences, and assisting in forest fire protection. Lastly, tree planting was a shared FM activity amongst male and female forest users. In Solang and Khakhnal, the Mahila Mandal were very active in assisting in tree planting and communicating to village members and fellow forest users about tree planting.

4.4.1.2 Village-level Organizations

In Khakhnal and Solang there are many different kinds of village-level organizations that locals can become involved with in order to work towards certain causes, meet like-minded people, and help in village efforts (i.e., village safety, cleanup and tree planting work). The

village-level organizations in Khakhnal and Solang are the Mahila Mandal, the Yuvak Mandal, gram panchayat committees and various village forest committees.

4.4.1.3 Mahila Mandal and Yuvak Mandal

The Mahila Mandal is a women's village-level organization that works towards improving the village through helping with poverty alleviation programs, women's empowerment projects, village cleaning, sexual health initiatives, and tree planting. When asked "what are the Mahila Mandals?" and "what is the role of Mahila Mandals in your village?", the Pradan of the Mahila Mandals in Khakhnal responded:

It is community driven and there are many Mahila Mandal all over India. If there is any kind of work that the village needs then the Mahila Mandal helps out. The Mahila Mandal are very focused on helping the village in whatever way possible. We help by keeping the village clean, making sure it is safe, making sure the areas are protected and making sure that the village is healthy and happy.

Khakhnal, Mahila Mandal member, 2014

There are presently over 200 Mahila Mandals in the Kullu District, each working to represent the interests of their whole village (Agarwal, 2010). While many of the groups are working effectively and meeting several of the village concerns, there are some groups that may be less effective due to lower levels of participation, lack of village support, or a disorganized structure (Agarwal, 2010). The range of initiatives undertaken by these groups varies according to local problems and their capacity to deal with them. However, they have acted as a focal point for the FD's JFM program, and have been supported in their actions by members of the JFM staff.

The Yuvak Mandal is an organization for either male youth or young adult males. This organization is focused on sports and recreation activities as well as community development work (i.e. helping poorer villagers with house construction), however they have also been known to contribute to tree planting efforts, forest fire protection initiatives and cleaning of the village.

Both the Mahila and Yuvak Mandals are registered under the Societies or Cooperatives Acts, and have a formal structure including payment of membership fees, office bearers and rules. In most cases the organizations operate informally, but members state that it is important to have a formal constitution to give them credibility in the wider political arena. Generally, meetings are held once a month; however, if there are new projects or initiatives that need to be discussed then the mandals meet on a more regular basis. Membership in the mandals in Khakhnal and Solang averaged 30 people. Each mandal followed a similar organizational structure that included five elected positions; a Pradan (president), vice Pradan (vice president), secretary, trustee and treasurer and several unelected positions for anyone wanting to participate and become a member of the particular mandal.

Village mandals have provided an effective organizational structure for collective action, and have been able to bypass traditional leadership structures while gaining direct access to bureaucracies and development assistance (Vasan, 2006b; Tucker, 2010). The Khakhnal and Solang groups have been able to plant and protect small areas of forest with the help of the forest users, FD officials and/or NGO members. In addition, the Yuvak Mandal and the Mahila Mandal often help clean up litter in the forest areas, educate others in the village about the importance of helping with tree planting, and report any illegal felling to the FD. Below are two responses which show the role that the Yuvak Mandal and Mahila Mandal play in FM;

The Yuvak Mandal is made up of male youth in the village... Even though the focus is on sport and recreation we help out with village tree planting, cleaning up in the forest areas and we go into the forests and report illegal felling when we can. The forests are our responsibility to take care of so I want to teach these boys the importance of looking after the forests and preserving the forests. Many children look up to the Yuvak Mandal so if they set a good example then maybe the little girls and boys in the village will start to do what they see more and learn about why we need to plant trees and clean up the garbage in the forest.

Khakhnal, Yuvak Mandal President/Leader, 2014

The Mahila Mandal do a lot in the forests... We help when there is plantation work, we try to get more areas of the forests protected, we tell people about the harm in felling and lopping trees in excess and we often go into the forest as a group and watch for trespassers in our forests and see if anyone is cutting unmarked trees. If we catch people in the village stealing we either tell the forest guard or we tell the village Pradan.

Khakhnal, Mahila Mandal Pradan/President, Khakhnal, 2014

However, despite the successes of these organizations, the current institutional and legislative framework does not give them sufficient support and recognition to enable active protection and management of forest resources without the assistance and approval from the FD. They are not autonomous in their protection, management or decision-making efforts.

4.4.1.4 Gram Panchayat Committees

A gram panchayat is a local self-government institution at the village or small town level in India, with a Sarpanch²⁹ as its elected head (Sundar, 2002). Under British colonial rule, the role of panchayats was strengthened, whereas under post-independence they were given little right of co-determination (Sundar, 2002). After attempts to deal with local matters at the national level, panchayats were reintroduced as institutions of local self-governance in 1992 (Ministry of Panchayati Raj, 2015). As of 2002, there were about 265,000 gram panchayats in India. The gram panchayat is the cornerstone of the panchayati raj system³⁰ (Ministry of Panchayati Raj,

²⁹ Sarpanch is the elected head of a village-level statutory institution of local self-government called the panchayat (village government) in India (gram panchayat), Pakistan and Bangladesh. This differs from a Pradan because they are the elected representatives of the village or of smaller VFCs (Pradan is also known as President) (Sundar, 2002; personal communication with Khakhnal Village Pradan, 2014)

³⁰ Panchayati raj system: The Panchayati Raj in India generally refers to the system introduced by constitutional amendment in 1992, although it is based upon the traditional panchayat system of South Asia. Mahatma Gandhi advocated *panchayati raj* as the foundation of India's political system, a decentralized form of government where each village would be responsible for its own affairs. In India, the Panchayati Raj now functions as a system of governance in which gram panchayats are the basic unit of local administration. (Sundar, 2002; personal communication with Khakhnal Village Pradan, 2014)

2015). A panchayat is needed for every town and village structure (Ministry of Panchayati Raj, 2015). The Sarpanch, or the elected head, has the *main* responsibilities of:

- Maintaining street lights, construction and repair work of roads in the village and also the village markers, fairs, collection of tax, festivals and celebrations.
- Keeping a record of the births, deaths and marriages in the village
- Looking after public health and hygiene by providing facilities for sanitation and drinking water
- To organize the meetings of Gram Sabha³¹ and Gram Panchayat

A gram panchayat consists of between 7 and 17 members, elected from the wards of the village, and they are called a “panch” (Ministry of Panchayati Raj, 2015). People of the village select a panch, with 1/3 of seats reserved for female candidates (Ministry of Panchayati Raj, 2015). In order to establish a gram panchayat in a village the population of the village should be at least 500 people of voting age³² (Ministry of Panchayati Raj, 2015). Since the Kullu District is made up of thousands of smaller villages, often several villages join together to form one panchayat (personal communication with Solang and Khakhnal village Pradans, 2014). Additionally, due to geographical distance, Khakhnal was in the Gorja Gram Panchayat and Solang was in the

³¹ Gram Sabha: means a village assembly which shall consist of all adult members of a village and in the case of States having no Panchayats, Pada, Telas and other traditional village institutions and elected village committees, with full and unrestricted participation of women. Within the Kullu District, Gram Sabhas are village level whereas Gram Panchayats are panchayat level and include 2 or more villages. This is not the case for all regions within India; however Gram Sabhas and Gram Panchayats are discussed in relation to the two case study sites that I worked in (Sundar, 2002; personal communication with Khakhnal and Solang Village Pradan, 2014).

³² Voting Age: You must be 18 years old to vote in India. Previously, 21 was the voting age, however the Constitution (Sixty-first Amendment) Act of 1988 lowered the voting age (Sundar, 2000).

Palchan Gram Panchayat (personal communication with Solang and Khakhnal village Pradans, 2014). According to the Ministry of Panchayati Raj (2015), the gram panchayats are required to meet together at least twice a year. When I was in the field, participants related that the meetings are usually held once in January and once in August for the Gorja and Palchan panchayat. When asked “*what is the role of the gram panchayat in FM?*” most of the participants responded that the gram panchayat serves as a way to stay connected with villages that are in close proximity to one another and keep each other informed of what is happening at the village level. Based on the participant responses, it seems as though the panchayats in Kullu operate differently compared to potentially larger panchayats, focusing more on communicating between villages on upcoming projects, events, village-level concerns and festivals. Consequently, it can be inferred that the gram panchayats do not serve a direct role or actively participate in FM activities, at least compared to the other local governance structures that exist in Khakhnal and Solang, such as the Yuvak Mandal, Mahila Mandal, and the VFC.

4.4.1.5 Village Forest Committees (VFC)

Village forest committees are the local institutions through which communities and the local FD effect management and protection arrangements for local forests. Village forest committees are different across various states in India. Some of the VFC variations include: village development forest committees (VDFC), joint FM committees (JFMC), forest rights committees (FRC) and forest protection committees (FPC) (Vasan, 2006b; Tucker, 2010). Within Solang and Khakhnal, the VFCs were referred to differently. The committee in Solang is called the JFMC and in Khakhnal there are two committees - the FRC and the FPC.

While VFCs were originally designed to be the local institution through which the FD and local forest users collaboratively manage and protect the forests, the level of involvement of

the FD in the VFC varies across different villages. For example, in Khakhnal the FPC and the FRC both function without the support or attendance of FD officials, whereas in Solang the JFMC works with FD officials and attends meetings on a semi-regular basis.

4.4.1.6 Forest Protection and Forest Rights Committees

The FPC has 13 active members and the FRC has 17 active members. For the purpose of this thesis, the term “active” membership or “active” involvement in a committee will be understood through the response of the FRC president;

There are several active members on the Forest Rights Committee and in many other forest-related committees in our panchayat. If you are an active member, then it is expected that you come to 80% of the meetings. Some committees meet monthly or every two months and some committees meet four times a year... Also, for members who want to be involved in the committee, it is expected that they help as much as they can with certain programs, activities or advocacy work that the committee is trying to work towards. As long the members regularly attend meetings and can be relied on when there is work to be done in the committee, they are considered active... If people miss sometimes but tell the president and want to still stay informed and in the know they are still thought of as active members. When we do not see members for more than two meetings without notice and they do not help out with committee work then we consider them members who are interested but do not play an active role in the committee.

Khakhnal, FRC Pradan/President, 2014

Although the committees do not strictly adhere to the JFMC guidelines set out by the Ministry of Forests and the Environment, they meet every two months or when there are crucial matters related to TD entitlements, tree planting or forest protection that need to be discussed (MoEF, 2015). Some of the activities that the forest protection group in Khakhnal takes part in include trying to stop illegal felling in the village forests, advocating for increased forest protection in the village, and reporting illegal activity that occurs in the forest to the FD. The FPC started in 2010 as a way for concerned local residents to advocate and work towards increasing the area of forests that are protected (i.e., banning anyone from felling trees in the area, prohibiting grazing, and continually planting tree saplings in the vicinity). The group is made up of 13 men; however,

they open the meetings and dialogue to any concerned resident or anyone wanting to learn more about their protection efforts. The FPC is structured with a four-person elected executive committee consisting of the president, vice president, treasurer and advisor. The advisor is someone who has had formal training or work-related experience in FM and protection. Below is the response from the FPC president that clearly articulates what their committee does, how it works, and what their goals are;

The Forest Protection Committee is a group of concerned residents in Khakhnal who want to further protect our forests. We saw a need more local involvement in forest management so a group of us decided to start something. We usually meet informally every second month and we add more meetings when we hear of illegal felling in the area or more TD entitlements being granted in the village. We follow the same structure as most committees except we have an advisor who gives us their knowledge about forest management so we can make informed decisions about asking the FD to protect more areas in the forests. The advisor also helps to write proposals to the Forest Department asking to protect more areas in the forest and also writes proposals to ask other agencies for funding to increase the amount of fencing, get more seeds etc. I would like our committee to grow but for now we are bringing a voice to the importance of increasing the protected areas in our forests and trying to inform people in our village.

Khakhnal, FPC Pradan, 2014

The FRC serves a different purpose and functions differently than the FPC in Khakhnal. The FRC is a newly established committee in Khakhnal and was formed once the TD Entitlements were reopened in May of 2014. The FRC is made up of 17 active members, five of which are female. The primary purpose of the FRC is to monitor and screen the local TD entitlement applications for forest dwellers in Khakhnal and Gorja. Additionally, the FRC educates residents of both Khakhnal and Gorja (an adjacent village) about their rights in the forest and what products they can and cannot collect³³, and how to harvest NTFPs responsibly. Although the FD

³³ This refers to the rights that forest dwellers have in accordance with the Anderson Settlement. Forest users/dwellers can collect broken, fallen, or rotten branches/trees. However, they cannot take trees that have been newly planted, or any products that are in fenced zones. There can also

has all the power in deciding who gets the TD, when households get the TD, and which TD wood individuals can take from the forests, the Pradan in Khakhnal saw a need to establish a committee to monitor the amount of TD entitlements that are applied for and the number of TD entitlements that are approved or denied. Below is the response from the FRC Pradan (who is also the Pradan of Khakhnal) when asked, “*what is the purpose of FRC?*” and “*why did you decide to create a committee after the TD entitlements were reopened?*”;

The FRC is a way to keep track of the need of the TD entitlements in Gorja and Khakhnal and ensure that people are informed if they really need the TDs. We have noticed in the past that some people who get the TD do not actually need it... they are not rebuilding homes or cow sheds and they have money to buy wood from the lumber depot. There was also a problem in the past that when people would get the TD then they would cut two or three extra trees when they were only allowed to cut one. The committee makes sure people do not sell the TD wood for profit and they use it for the designed purpose. We have noticed that only about five people in Khakhnal and Gorja have received TD entitlements. We also want to understand why the other 30 or more people who have applied have not received it. The FRCs goal is to manage our TD entitlements responsibly, inform the community on the importance of not over felling trees and help preserve our forests through helping with tree planting, fence installation and putting up grazing restriction zone signs.

Khakhnal, FRC Member, 2014

The two village forest committees in Khakhnal operate differently than JFMCs because they operate without the guidance or direct involvement of the FD. However, despite this they are quite active in monitoring forest use and FM activities, and are diligent in advocating for increased forest protection.

4.4.1.7 Joint Forest Management Committee

The JFMC in Solang has 15 active members and works with the FD more formally than do the VFCs in Khakhnal. It adheres closely to the JFMC guidelines set out by the Ministry of

sometimes be restrictions imposed by the village deity on medicinal plant collection. (See Appendix H)

Environment and Forests (2015), which state that the Executive Committee of JFMC shall have four office bearers: President, Vice President, Treasurer and a Member Secretary (FD Representative- typically the forest guard). Under these guidelines, the Executive Committee meetings should be held at least four times in a year and there should not be a period of more than 90 days between any two Executive Committee meetings (MoEF, 2015). The meetings should generally be organized according to the need for protection in the forest/forestry operations in the field or distribution of forest produce.

- Summer Meeting (May-June): The nature of activities to be undertaken during the monsoons should be discussed and necessary decisions should be made (MoEF, 2015).
- Monsoon Meeting (September-October): The process for distribution of grass should be discussed and the decision should be conveyed to all the members of the JFMC (MoEF, 2015).
- Winter Meeting (December –January): The activity of lopping and pruning should be discussed during this meeting and the methodology to be followed should be decided (MoEF, 2015).
- Spring Meeting (March-April): The members should discuss the process for selling minor forest products and inform the JFMC members about the decision (MoEF, 2015).

When asked if the committee follows the guidelines as set out by the MoEF, all members interviewed stated that they try to meet four times a year, however the times and topics of the meetings do not always follow the designated prescribed meeting schedule (as outlined above). The president of the JFMC stated that they meet with the village's designated forest guard, who has the secretary position, and the committee gives their suggestions on where they feel trees should be planted, what areas need further protection, and what tree species to plant. Below is

the response from the President of the JFMC about how the committee functions and what role local forest users have in the JFMC;

The JFMC works in Solang. We usually meet four times a year to discuss matters relating to forest use, forest management and forest protection in our village forests. If there is not much going on sometimes we skip a meeting. Usually when the Forest Guard comes he has suggestions of plans and things to do. So as a committee, we offer our input and then they take it into consideration. The members often tell the Forest Guard what we want and we try our best to work on plans together. Sometimes the Forest guard tells us that there are problems with budget so we cannot always plant the tree species we had hoped for or put in as much fencing as we wanted. I know when the forest budget is big from the FD we do a lot of forests work but when the budget is small there is a little constraint on what we can do in the forest.

Solang, JFMC Pradan, 2014

The JFMC, FRC and FPC all share one commonality; each is an organized village structure which acts as an information source for other forest users to learn more about current and future plants for FM and protection in the village forest use areas. The VFCs in Khakhnal and Solang serve as connecting sources for local forest users to learn about FM and to get involved in other aspects or activities related to FM.

4.4.2 Informal Platforms to Engage in FM Activities

While the formal platforms to engage in FM activities attract many forest users to participate, the work itself is often more sporadic, seasonally dependent, and primarily dictated by the FD. The formal platforms help to reinforce the generally dominant underlying principle behind government projects of “I manage, you participate” (Shinghi et al, 1986; Saxena, 1997). However, informal platforms are village driven and are not regulated or monitored by the FD or an outside body. The informal platforms that were prevalent in the two villages related to forest users advocating to protect more of their forest areas as well as forest users collectively deciding not to take certain products from the forest. The opportunities that exist for forest users in Khakhnal and Solang to participate in FM in this way include activities such as:

- **Advocacy:** Forest users in Solang and Khakhnal discussed how they advocated for various forest work to be completed or issues to be resolved at the village level. Forest users spoke of asking their local panchayat and district forest office to abolish the TD entitlements, increase plantation work and increase the amount of fencing in order to protect more of the village forest area. All advocacy work was done at the local village level and was not managed or facilitated by a structured body or network that was external, such as an NGO
- **Conscious Care:** Actions by those individuals who deliberately choose not to graze in protected areas, to not illegally fell trees and to respect the forest through their own individual notions, were indications of conscious care. For example, some participants discussed cleaning the forests and removing dead or rotten trees on their own accord as a way to take care and nurture the forest area.

The fact that the informal platforms support participation that is locally driven relates directly to Kuperus' definition of public participation as, "the process by which the rural poor are able to organize themselves and, through their own organization, are able to identify their own needs, share in the design, implementation and evaluation of the participatory action" (1987). The informal platforms encourage effective FM by supporting local-level decision making, the enforcement of rules and laws, and local monitoring of the forest use areas (Singh, 1996; Singh and Pandey, 2010).

Forest users in Khakhnal more often spoke of engaging in these informal platforms for FM than did the forest users in Solang. The reason is likely due to Solang's longer history of formal FM activities, as compared to Khakhnal. Solang also has a medicinal plant nursery that is owned and operated by the FD in the village. Furthermore, Khakhnal's FPC serves as a village-

level monitoring, protecting and conserving body for the village forests, rather than an organized unit where forest users meet and discuss village forest concerns with the FD.

It was a huge decision for everyone in the village to collectively decide to stop cutting trees for funerals and weddings. There is not a lot of forest cover for us here in the panchayat so we need to protect everything that we have. We need to preserve, protect and nurture all the forests that we have because our children will need them when we are gone. There were some members in the village who wanted to take some trees from the forest for a funeral but we ended up taking them to court and tried to sue them because we are in the act of protecting the forest together and if one person goes against this then it will not be very successful.

Khakhnal, FPC Member, 2014

We protect the forest by fighting against big development projects like the hydro project that is proposed to be installed in this area. For the pending hydropower project we collect money from the village and we then use this money to pay for our transportation to talk to people in Kullu about why we don't want these developments to occur in the area. We act as the village voice for the members who don't have the confidence or ability to voice their concerns. We are concerned about the project because they have already cut trees in the area and we think that they have taken more than they need.

Khakhnal, Mahila Mandal member, 2014

As indicated above, the formal platforms to engage in FM relate to the regeneration and rehabilitation of the forest, whereas the informal platforms relate to the protection and conservation of existing forest areas. Both the informal and formal platforms to engage in FM activities possess qualities that motivate the forest users to continue to participate in FM.

4.4.3 Motivations for Participating in Community FM Activities

As outlined in Chapter 2, a number of studies have discussed the importance of people's involvement in FM (e.g., Chopra et al., 1990; Palit, 1993; Poffenberger and McGean, 1996; Sarin, 1996). These studies show that in many of rural India's institutional settings forests are better managed when voluntary participation is secured (Lise, 2000). Given this, I felt it was important to understand what motivates forest users to participate in FM activities because it could help to further increase local participation in FM. In Khakhnal and Solang, all forest users

discussed participating in FM because of their dependence on the forest (i.e., fuelwood collection and NTFP gathering) for the purposes of survival; however, they also discussed several other motivating factors that drew them to participate in activities related to FM. Table 3 (below) illustrates the five key factors that forest users discussed as reasons which motivated them to become involved in FM activities.

Table 3: Motivating factors for participating in FM-related activities

Motivating factors	Brief Description
Community Connection	Working with people in the village towards a common shared goal. Stronger sense of “community” achieved through doing work collectively.
Personal Learning Opportunities	Opportunities for personal learning from participation in formal FM activities.
Forest Care and Sustainability	Forest users genuinely concerned about the wellbeing of the forest and the livelihood (i.e., sustainability) of the jungles for future generations. Motivated to help protect and conserve the forest use area
Enjoyable experience (i.e., fun)	Becoming involved in FM activities allowed for certain social fulfillment for some forest users/interviewees.
Financial benefits	Certain forest-related work with the FD offers small compensation, motivating some forest users to participate based on financial compensation for their work.

When asked, “*what motivates you to help with tree planting?*”, “*why do you like to help out with forest activities (i.e., nursery work, fence installation)?*”, and “*why did you join the village forest committee?*”, the forest users discussed that they liked meeting people in the village and feeling connected to people in the village through working towards a shared goal. This motivating factor was identified as *community connection* because the forest users expressed that when they participate in FM activities they gain a strong sense of community.

I became involved in the forest protection committee because I wanted to meet the people in Khakhnal and I wanted to be a part of something. I feel connected to the community, the people and the forests because I am a member of the committee now.

Khakhnal, FPC Member, 2014

I wanted to -help out in tree planting work with my family because it was a way to get together and do something good for our village. It was nice that nearly everyone came out last year and we all worked together to plant over 550 trees in Solang's forests.

Solang, JFMC member, 2014

Community connection was identified as the most common motivating factor for being involved in some form of FM in both Khakhnal and Solang by many of the forest users. Another motivating factor was the opportunity for personal knowledge building and learning about the forest and FM. Some forest users mentioned that they wanted to learn more about the village or FM so they got involved with plantation work and/or in a village-level committee such as the Mahila Mandal, Yuvak Mandal, Village Forest Committees, and panchayat-level committees.

I never had the chance to go past 6th standard in school so I have made a strong effort to get involved in anything in the village that can help me learn. I wanted to plant trees to learn how to plant trees safely and properly. I also became involved in the village meetings to stay informed about what is happening and learn more about how decisions are made in our village.

Khakhnal, Forest User, 2014

Before I joined the Mahila Mandal I didn't know anything about how to take care of the forests or what grew in our forests, I wanted to learn more about all aspects of our village so that is why I became a member and got more involved in FM.

Solang, Mahila Mandal member, 2014

Becoming involved in local level governance groups or formal FM activities (i.e., with the FD) has also provided some forest users with a learning opportunity that might not have been available if they had not joined the committees or helped the FD. The learning that occurs from joining a committee or helping with forest work fosters collaboration, which in turn allows the forest user to gain sufficient knowledge and feel more empowered and responsible for their village forests (Brodt, 2002; Armitage et al, 2009). This learning can in turn create awareness for

the forest users of the importance of forests for future generations, which is a motivating factor in its own right.

The awareness that forests need to be sustained for future generations relates to the third motivation to participate in FM activities, *forest care and sustainability*. Some forest users mentioned that they have always felt strongly about forest protection and wanted to get involved in tree planting work and other FM activities because they want to ensure that there is enough forest in the future for their children and grandchildren.

The forests are my life and I need to take care of them the best that I can. If I don't take care of the forests now and use them responsibly then my kids and future grandkids will have nothing. I'm doing all that I can to ensure that there are good forests for the future.

Solang, Forest User, 2014

I have lived in the jungles my whole life. Without the jungles I would be lost. I will do anything and everything to make sure that there are jungles for my kids once I am gone. I help with tree planting because it is important and it is my duty as someone who lives in the jungles.

Khakhnal, FPC Member, 2014

The care and concern that motivated some forest users to continue to participate in FM activities in order to protect and manage the village forests shows their personal connection and dependency on the forests. This connection, which many of the forest users indicated had developed during their childhood, creates a sense of responsibility for some forest users to ensure that the forest areas are not being overexploited or mismanaged.

In addition to the three aforementioned motivating factors that encouraged participation in FM activities, some forest users also added that they liked participating because they found it fun. Forest users mentioned that FM activities were fun and enjoyable because they were a break from everyday tasks, allowed one to be out in nature, and provided a way to socialize with people in the village.

Helping in the tree planting has been fun, I was able to meet new people in the village and we worked all together to make our jungles fuller and healthier.

Solang, Mahila Mandal Member, 2014

Forest work is very hard but when you are with good people it is enjoyable and it doesn't make it seem like a chore. I also do my forest work with two other women in the village and we have a nice time talking and helping each other gather grasses, mushrooms and berries.

Khakhnal, Mahila Mandal member, 2014

The children in my class love to help out in tree planting work with the school. It is a day when they don't have to sit in the classroom and they can wander in the huge forest and plant baby trees with their friends. The kids always say that tree planting is one of their favorite days at school.

Khakhnal, Forest User, Elementary School Teacher, 2014

The fact that some forest users found forest work to be fun shows that this work satisfies some forest users' social and leisure needs. Lastly, acknowledging that forest users find personal enjoyment to be a motivating factor in participation can help the FD and other governing bodies increase participation by ensuring that activities have social benefits for the individual and community.

The final motivating factor for forest users to participate in FM activities was the financial incentives offered by the FD to help out with forest work. The FD offers some paying jobs in FM that are exclusively reserved for local forest dwellers. Some of the paying includes working in the medicinal plant nurseries in Solang and working as a watchman in the village forest areas. In addition to the paying jobs, the FD sometimes offers a small daily compensation for locals who help with tree planting, putting up fences, and installing check walls; however, the compensation is based on yearly budgets and donor funds allocated for certain projects. Forest users in Solang were the main forest users in the study who expressed financial incentives as a motivating factor for participation in FM-related activities. This is because Solang has a

medicinal plant nursery which employees between 10-12 women and has two village forest watchmen, whereas Khakhnal has fewer paid opportunities for forest users and dwellers.

I joined the nursery to help make a little more money for my family. While my kids are at school I go to the nursery and plant medicinal plants and help tend the fields. The money I do make helps my family out and I enjoy the work that I do.

Solang, Forest User, Nursery Worker, 2014

When I first got started in tree planting we would get around 100 rupees per day. Getting some money for planting trees made me want to continue to help with the forest work because I could earn some money and help out the village as well.

Khakhnal, Forest user, 2014

One day the FD asked me if I wanted to watch the forests and be their watchman. They said they would pay me up to 200 rupees a day that I worked...I said yes right away. The extra money is really needed for my family.

Solang, Forest User, Forest Watchman, 2014

I wanted to get involved in medicinal plantation/ nursery work because I had time and it was a way to earn extra money for the household. Although we have lots of land there is no work during May and April that I can do to help out on my family's land. I figured rather than not doing anything that I wanted to make some money so I choose to work with the FD during the low times when there is little work to be done.

Solang, Forest User, 2014

Monetary compensation can encourage participation; however, it can also pose challenges by creating difficult power relationships. Forest users can become reliant on the money from the FD; however, the FD is dependent on outside donors and funding sources in order to provide compensation for some forest work. When and if certain paid forest work projects fall through due to lack of funding, this can create hostility and frustration towards the FD from the forest users.

We used to be paid for plantation work and I really liked it. Not only was I helping to replant the forest but I was also getting a day's pay too. Now the FD has stopped giving us money for planting trees and it makes me mad. You can't promise to give us money one time and then not give it to us the next time. I haven't helped out with

tree planting since.

Solang, JFMC Member 2014

Within the motivating factors for participating in FM activities, I found that there were some distinct differences in the responses by the female forest users and some shared motivating factors between the male and female forest users. The motivating factors that were primarily discussed by female forest users included community connection and financial incentives for participating in FM-related activities. The financial incentives for participating in FM activities were discussed as a motivating factor by female forest users who have been compensated for tree planting work and/or medicinal plant nursery work in Solang. Many of the women discussed that they do not work outside of the home because of household and family responsibilities, therefore being able to make some money by helping with forest work in their village was very enticing. In addition to these two main motivators, I found that enhancing learning opportunities and improving forest sustainability were factors shared among VFC and Mahila Mandal members, the VFC being a mix of men and women. Lastly, I found that both male and female forest users indicated that participating in FM-related activities was fun and/or enjoyable, which was an incentive to join

A study conducted by Allendorf et al., (2013)³⁴, which examined the motivations for locals to participate in protection and conservation efforts in India, also found similar factors which motivated locals to become engaged and participate in the conservation of forests.

Allendorf et al., (2013) found that the motivating factors, included:

³⁴ Allendorf et al (2013) conducted a study to assess what motivates participants to engage in conservation and protection efforts within the Manas Biosphere Reserve in Assam, India. They found that community-based guardians and concerned locals were motivated to participate by multiple factors including conservation, social benefits, and economic opportunities.

1. the desire to protect the forests and ensure that the forests and wildlife were conserved for future generations,
2. the financial incentives which provided supplementary income to their family,
3. the friendships that were created through participation,
4. the welcoming and appreciative environment that made conservation efforts satisfying, and;
5. the chance to learn new skills and practices for conservation.

Overall, the results from my research and Allendorf et al’s (2013) research shows that it is important to understand the motivating factors that encourage forest users to participate in FM activities, since they can help to increase local participation in natural resource management.

4.4.4 Barriers to Participating in FM Activities

Although both Khakhnal and Solang are forest-dependent communities, some individuals voiced concerns about the barriers to accessing and participating in daily forest activities and more formal FM activities (i.e., FM activities that are associated with the FD). Table 4, below, illustrates the five barriers that participants discussed as reasons why they do not participate in FM activities.

Table 4: Barriers to participating in FM related activities

Barriers	Brief Description
Lack of access to the forests due to weather conditions and distance	Due to the heavy levels of snow that the study sites experience, particularly Solang, access to village forests can be very time sensitive. Moreover, the forests are a few kms away from the village itself and require a hike up very steep hills to access the forest products

Personal physical constraints in getting to the forest	Age, health, and lack of or limited mobility were identified as reasons why participants choose not to participate in formal FM activities as well as daily forest product collection
Unwelcoming FM structure	Participants mainly discussed that the structure is corrupt, confusing and very “top down” (i.e. not bottom up). The structure itself does not give forest users and dwellers full acknowledgement of their rights and personal forest knowledge (i.e., in recognition of decision-making power) that they feel they deserve.
Personal priority shifts	Some personal responsibilities in the home are changing and thus there is a transition away from a forest-dependent lifestyle for some families. This change in personal priorities and responsibilities has resulted in less access to the forest for daily forest product collection.
Change in lifestyle	The change in lifestyle is very closely related to personal priority shifts. However, forest users and other interviewees mentioned that the younger generations are choosing to move away from the village lifestyle, attend school past the secondary level, and have jobs that do not relate to apple growing or tourism in the Solang mountain area. As a result, there is a noticeable amount of young people not as engaged in forest product collection or participating in FM activities in comparison to 10+ years ago.

Forest work and NTFP collection is time consuming, physically exhausting and requires lengthy uphill walks to the forest on sometimes difficult and uneven terrain. When asked, “*why do you not go into the forest as much lately?*” or “*what stops you from partaking in daily forest activities?*”, some forest users noted the difficulty in physically getting up to the forests, while others noted their personal safety concerns with going to the forests.

For 4-5 months when there is snow then no one from the village really goes into the forest because it is too far and not very safe. Right now between October to November we

collect fuelwood and throughout the year when the weather is good we graze our animals near the forests.

Solang, Forest User, 2014

All of my life I have gone into the forest and have gotten hay, wood and grass for my household. I now do not go into the forest because I am older and have lots of back pain. The forest is quite a long walk away from where I live and it is uphill nearly all of the way so it is very hard to access because of my age and my health. Rather than me going into the forest and possibly getting hurt I send my daughter in law into the forest instead.

Khakhnal, Mahila Mandal member, 2014

These particular barriers were experienced by more senior forest users rather than middle aged or younger forest users. Although the forest users who noted these physical barriers to accessing the forest chose not to go into the forest themselves, all mentioned sending a family member or friend on their behalf in order to get their required forest products. This barrier to participating directly in FM and forest product collection seems unavoidable due to the topography of the land, distance to the forests and weather conditions in the area. However, forest users have adapted to these barriers by seeking help from others in order to fulfill their forest product needs. As noted with the TD system, the FM structure can seem confusing, corrupt and unwelcoming to local forest users. Some forest users in Khakhnal and Solang purposefully choose not to participate in FM activities that are affiliated with the FD.

I like going into the jungle on my own and collecting the things that my family needs to cook food and heat our homes but I don't like how the structure of FM is run here in Khakhnal. We [referring to the local users] use the forests, we live in the forests and we have rights to the forests...but the FD seems to operate, own and make the rules about how to manage it. It doesn't seem right. I try to stay away from that and I just use the forest how I need it.

Khakhnal, Mahila Mandal member, 2014

The people who live in the village care about the forests but the issue is that the FD can come and go as they please. They don't have to care about the forests because it doesn't affect their day to day life... they don't rely on the forests as much as the people who directly live in the forests do.

Khakhnal, FPC member, 2014

The FD is not letting me get the TD but I applied and filled out the paper work like everyone else who got it. I just don't understand. They don't treat me nicely. Next time they do plantation work or put up fencing I am staying at home and won't help them.

Solang, Forest User, 2014

The unwelcoming FM structure was also noted in relation to decision-making power by some forest users. Some individuals were confused and frustrated that they had little influence in how the forests were managed, despite being the primary users and living in the area. Some interviewees did not like that the forests were managed with little recognition of the forest users themselves, and noted their unwillingness to participate in FM activities associated with the FD.

All of the members in the village make decisions about FM. The people together living in the panchayat all decide together... The last decision that we made together was to make a fence behind Gorja to protect the area from grazing and further felling of trees. In order to get this area fenced we need funding and approval by the FD... It's frustrating that we need the approval of the FD to protect more land in OUR forests. We use and live in the forests but we don't have the village funds or the power to reserve it officially... Without the FD it is not marked as reserved forest land it is just forest land that isn't being used. I don't like the way we are managed here.

Khakhnal, FPC Member, 2014

We are not being heard as forest dwellers and forest users. I live here, I protect the forest but the FD does what they want...they should not be accepting baksheesh in our forests. I am unhappy and I don't want to help put up fences, check walls or help in the forest plantation this year. They need to know it's wrong.

Solang, Forest User, 2014

Forest work and helping with tree planting or putting in fences has become less of a priority for some individuals in Solang and Khakhnal due to a shift in personal priorities or the desire to change into a less forest-dependent lifestyle. Some individuals are choosing to work more hours in the town rather than participate in daily forest work, while others want to move away from the forest entirely in search of a different lifestyle.

I used to do more work in the forest and help with tree planting but I make more money working in town than I do helping to plant trees each day. I can earn about 250 rupees if I work in town but I only earn about 100 rupees for tree planting and the work is much longer and more tiring.

Solang, JFMC Member, 2014

The lifestyle of the people here is changing. The people do not want to do as much manual or physical labor anymore. The younger generations are seeking a different type of life and they are moving away from the villages and towards the cities. Some of them don't even want to help with tree planting or collecting fuelwood anymore. The times are changing and our village forests will change very quickly too.

Khakhnal, Forest User, 2014

I don't want to live in the forests all my life. It is a hard life. I am in university now and I don't think there is enough work for me in the village. I want to get out of the village and I do not want to depend on the forests. I want to experience new exciting things outside of Solang.

Solang, JFMC Member, 2014

While the barriers of access and physical mobility were expressed by the senior forest users, the shift in personal priorities and a yearning for a different lifestyle was expressed by the younger forest users (i.e., approximately between the ages of 18-30). The desire for those individuals to not remain in the forest-dependent areas and have the capacity to embrace a different lifestyle could partly be the result of increased exposure to different lifestyles and cultures through their schooling. Although the barriers which were expressed by some forest users in Khakhnal and Solang deter them from participating in household forest work or more formal management activities, there are several opportunities and platforms that persist in both villages for individuals to become engaged in FM.

In relation to the barriers for participation in FM-related activities, I did find some gendered differences in responses among forest users. I found that two barriers including, a shift in personal priorities and a change in lifestyle, were mostly identified by male forest users. Three possible explanations for this are the high demand for males to fulfill tourist-related jobs in the

town of Solang (resulting in the shift away from forest-dependent living) and the opportunity to pursue different employment³⁵ (i.e., employment not related to horticulture or small-scale tourism in Solang) or educational ventures outside of the village. For example, some forest users who discussed a change in lifestyle discussed wanting to pursue work outside of horticulture (i.e., apples in Khakhnal) or the tourism industry in Solang. Participants discussed that there are more young individuals who are moving away from their village and venturing into larger towns such as Manali or even large cities such as Delhi to find different opportunities. However, both male and female forest users equally discussed that limited access to the forest and personal physical constraints act as personal barriers to collecting daily NTFPs as well as participating more formally in other FM activities (i.e., tree planting, check wall installation and helping to install fences). Lastly, both female and male forest users also felt that the unwelcoming forest management structure was a barrier.

4.5 Chapter Summary

This chapter focussed on presenting my results related to how individuals use the forests, different rights that people have in the forests, and the different motivations, barriers and opportunities that exist to becoming engaged in FM activities. All of the aspects of FM and forest uses that were discussed relate to fulfilling the first objective of this research, as set out in Chapter 1, to establish how community-based FM is currently being practised. The data in the chapter shows that local village forests are primarily used for NTFP collection, livestock grazing, timber collection for construction, and tourism-based activities such as trekking, hiking or skiing. In order to make forest work and forest product collection more efficient, forest users and

³⁵ Some younger forest users/participants discussed wanting to pursue business or marketing-related careers in a larger city, while others wanted to work in the tourism sector in a more densely populated area.

dwellers (who constantly used and rely on the forests) have started to use different NTFP collection techniques. Some of these new practices, such as not collecting medicinal plants and pruning apple trees for fuelwood, have helped to encourage the sustainable use of the forest areas (Vasan, 2001; 2006; 2010).

Meaningful public participation is considered central to effective and fair natural resource management because it allows for multiple perspectives to be considered, encourages learning among stakeholders, and gives a voice to stakeholders (e.g., Agarwal, 2001b; Robson & Hunt, 2010). It is widely accepted and recognized that an emphasis on participation lies at the heart of JFM; however certain political, economic, personal and cultural barriers can impede participation in FM activities (Vasan, 2006; Robson & Hunt, 2010). Forest users in Khakhnal and Solang identified being engaged in FM through formal and informal opportunities such as tree planting, attending workshops, joining committees and doing advocacy work on their own accord. Despite the level of public participation that exists in Khakhnal and Solang, some forest users identified several barriers that exist in their village that deter them from participating in non-household related FM activities. Some of the barriers included the unwelcoming and hierarchical FM structure, difficulty accessing the forests, and personal priority shifts.

Singhal and Rishi (2010) conducted a study in over 20 villages that practice JFM in Madhya Pradesh and Chhattisgarh to understand the barriers that exist to participation in JFM as well as to illustrate the various levels of participation in JFM. The common barriers to participation that were found included a lack of awareness about meetings and organized forest work, unapproachable FD staff, and changing lifestyles and dependency on the forest areas (Singhal and Rishi, 2010; 2012). The authors found that despite these barriers, forest users participate both in formal FM activities (i.e., tree planting, attending meetings, attending

workshops) and informal activities (i.e., trying to protect more areas in the forest and consciously choosing to use less areas in the forest for NTFP collection). Their study also revealed over 40 indicators of participation in JFM in order to better understand and recognize the varying levels of participation that exists in the villages (Singhal and Rishi, 2010). The indicators that showed the highest level of village participation in FM included reduced forest offences, perceived ownership of forests by villagers, and maintenance and status of forest and trees (Singhal and Rishi, 2010). Understanding these indicators can help in fully recognizing the various ways in which people participate in JFM and the levels of participation of members of different forest user groups and organizations, such as NGOs, Mahila Mandal, VFC, and FD. It is also important to identify and understand the barriers to participating in FM that exist for forest users, in order to create a more welcoming and accessible environment where local participation in FM activities can occur.

Chapter 5: An Examination of Forest Management Roles and Responsibilities in the Case Villages

5.1 Introduction

This chapter is divided into two parts; the first part examines the different gender contributions to FM that men and women make and the second part explores the roles and responsibilities of the various forest user groups in FM and protection. As established in Chapter 4, there are many ways in which forest users contribute to and are involved in FM activities. In this chapter, I consider the roles and responsibilities of women and of individual user groups (i.e., Mahila Mandal members, VFC members, FD Officials, NGO members and forest users) in FM and protection.

According to the Regional Community Forestry Training Center (RECOFTC, 2003), many elements help to contribute to inclusive and effective forest governance. In this chapter I explore some of the components which contribute to good forest governance, including clearly defined roles and responsibilities, participatory decision-making, gender sensitivity, and equity and representation and power balance in the committee formation, and relate them to the responses of the participants who were interviewed (RECOFTC, 2003).

5.2 Women and JFM in the Kullu District

As established in Chapter 2, women play a vital role in forestry and FM in India; however, their contributions to forest protection and management often go unrecognized and are not rewarded with increased decision-making power or representation on formal JFM (or FM) committees (Agarwal, 2009, 2010). This was underscored in the data presented in Chapter 4. The data showed that women are the primary gatherers of NTFPs in the forest and that members of the Mahila Mandal play a large role in reporting, educating, monitoring and maintaining forests

in Khakhnal and Solang. Despite their significant roles and responsibilities, women make up only a small percentage of the membership of forest committees and NGOs, and few hold positions within the FD. In Chapter 4, participation in FM activities (both formal and informal) was viewed through the examination of barriers and motivations to participation as well as opportunities to become involved in FM activities. From a gender perspective, it is important to understand whether there are differences in women's and men's participation in community-based FM, particularly JFM, and if the current mechanisms in place to encourage women's participation are working.

5.3 Women's Participation in FM Practical Realities

Chapter 4 outlined women's participation in FM-related activities through their membership in the Mahila Mandal or through their involvement as forest users. While women are participating and active in using, monitoring, maintaining, abiding by rules, and educating others about the forests, they are not as involved as representatives or active members in the village forest committees (i.e., FRC, FPC and JFMC). The JFMC in Solang is made up of approximately 15 active members (i.e., those who regularly attend meetings and help with formal FM activities) of which two are female. In Khakhnal the representation of women in VFCs varies. The FPC has 13 active members, none of whom are female. However, the FRC, a group made up of approximately 17 members, has five active female representatives. Despite varying levels of female representation in the VFCs, all of the elected positions (i.e., president, vice president, secretary, treasurer) in Khakhnal and Solang were held by males.

The Government of HP (1993) states that membership in the Village Forest Development

Committees (VFDC) or Village Forest Committees (VFC)³⁶ is based on representation by one adult male and one adult female member from each household. The committees' guidelines state that the executive body/core membership should be 9 to 12 individuals, including the Mahila Mandal Pradhan ³⁷, and at least half of the five required general village members (not formally representing a village organization or group) on the executive must be women (Government of H.P, 1993). Therefore, the lack of representation of women ³⁸ in executive positions within the village forest committees in these two villages is very surprising, especially considering that in HP, JFM policy makes several references to including women (Government of HP, 1993). Appendix I of the national JFM policy (Goldbole, 2002) illustrates the amount of female representation needed in VFC across several states in India that actively practice JFM. Some authors have pointed out that the exclusive designation of one adult male and one adult female as members of the VFCs in practice results in voices and interests being excluded from JFM (e.g., Sundar, 2000). For example, widows and younger daughters-in-law may still be left unrepresented in VFCs. Despite the current provisions in place to include female representation on VFCs, the reality is that the low number of females holding positions on the committees and who are having their interests and perspectives being represented is not resulting in women's participation even in a general sense. It is important to understand why this is the case and the

³⁶ VFC and VFDC: The terms VFC and VFDC are used to describe village level committees that work towards FM, protection and maintenance. Different states in India choose VFC or VFDC. In Himachal, VFC is commonly used at the state and village level (personal communication with FD officials, 2014). It is important to note that VFC is the umbrella term for forest committees – in Solang the committee is called JFMC and in Khakhnal it is referred to FPC and FRC

³⁷ Pradhan this is the Hindi equivalent of President. Pradan is the leader or president of the given group

³⁸ There is a low number of females involved in the two villages as active participants/ members in the committees as well. In Solang, there are no female committee members and in Khakhnal the FRC has less than 30% female membership, and there are no female members in the FPC

barriers that currently exist for women in Khakhnal and Solang to joining VFCs and having their perspectives and opinions about FM and protection be represented fairly in a male-dominated sphere.

5.3.1 Barriers to Participation

Most women in Solang and Khakhnal identified multiple barriers that precluded their active involvement in VFCs, including personal time constraints, lack of knowledge about when and where meetings take place, feeling insecure about their education and literacy levels, and feeling unwelcome being the only woman in a committee.

It seems like the committees and meetings are already made up and I don't when or where they are. I want to join and I want to learn more but I don't know where to go or how to be invited. I feel like I'm not welcome since people don't tell me about meetings or joining forest committees.

Solang, Mahila Mandal member, 2014

I have three children and many animals. I don't have the time to go to meetings. I want to know what is happening and see how I can help in the forests but my responsibility is my home and my family.

Khakhnal, Mahila Mandal member, 2014

I am too shy to go to the meetings. I only went to school till I was twelve years old. I don't want other members to laugh at me or think my responses are silly... I don't think I know enough to get involved in forest committees.

Khakhnal, Mahila Mandal member, 2014

Although not directly discussed as a barrier to participating in Village Forest Committees by the women, I noticed that of the women who were involved in the Forest Right Committee most had previous connections with local governance or had close family members on the committee. For example, one of the female members of the FRC was a previous village Pradan in Khakhnal and two other female members had their father and brother in the executive committee. This could be perceived as a barrier to other women participating in VFCs because they may feel as though membership in forest committees is quite exclusive and/or previous

experience in a local governance structure is needed in order to become a member. Interestingly, Matta and Kerr's (2006) research in Tamil Nadu also found that many of the women who were involved and who were active members in the VFCs either had familial connections with the committee or had previously served in village governance bodies. When they interviewed women who were not members of the VFCs to ask about their feelings towards VFCs, many felt that membership was very selective and individuals without political or local governance background could not join. This same pattern of "elite" or exclusive female membership has also been observed by Reed and McIlveen (2007) in their research on forest advisory committees in British Columbia, Canada. They found that when females were board members on the forestry advisory committees that they all had extensive forestry experience (formal or informal), had formal business knowledge and/or they held official leadership positions within the community (Reed and McIlveen, 2007). Moreover, they also noted that no females held executive positions of President, Vice President or Treasurer, which is consistent with the lack of female representation in the executive committees in Solang and Khakhnal (Reed and McIlveen, 2007). Consequently, they noted that all of the members had a certain level of bargaining power and influence on the committee that in turn may have excluded a more diverse set of board members (i.e., that is more representative of the population, including women, minorities, Aboriginal people) from joining (Reed and McIlveen, 2007). Although, the responses from my female participants did not indicate this observation as a direct barrier to their participation in VFCs, it could be an unconscious barrier that impeded them from pursuing involvement in forest committees (Matta and Kerr, 2006)

Despite the barriers to actively participating in VFCs, most of the women I interviewed were members of the Mahila Mandal and/or had someone close in their family (i.e., mother,

daughter, aunt) who was a member of the Mahila Mandal. A few of the Mahila Mandal members discussed that being members in the VFCs and/or working for the FD as paid staff is still perceived by the community to be more of a “man’s job”. Those women who viewed certain jobs as inherently “gendered” in the community felt that if a woman were to join the VFC or the FD, they might not be welcomed or the village would disapprove of their participation. When asked, “*why do you think that these gendered roles persist in your community?*”, many of the women’s responses dealt with village traditions and/or household responsibilities. Below is the response of one Mahila Mandal member in Khakhnal on why these gendered roles continue to persist at the village level;

Women have always raised the children, taken care of the home and kept the family fed. The men have been the ones who go out and earn the money for the household. Most of us women in the village do not have the language skills or education to seek work in the town. And many of us feel self-conscious to voice our opinions in front of others. This is changing slowly...more women are involved in the panchayat and more women are becoming educated but the change is slow. It will take some time to change the village mind set on these roles and have everyone agree that managing the forest and being on the committee is a forest user and forest dwellers job and not just a man’s job.

Khakhnal, Mahila Mandal member, 2014

One Mahila Mandal member discussed that although very few women are currently working for the FD, more should be encouraged to work for the FD since women are heavily involved in the daily forest activities.

Forestry and FM is still more of a man’s job but the women work so hard every day in the forests collecting materials for the family from the forest in order to live. I think more women would like to work for the FD because we know about the forests so well and we really care about our jungles in Khakhnal.

Khakhnal, Mahila Mandal member, 2014

There are no women in the JFM committee in Solang or if they are I don’t know about it. We also have never had a female block officer or forest guard in Solang. It seems like everyone agrees that these are jobs for men and not open to the females. I hope this changes because I think the women can add a lot of valuable knowledge and care to the

FD and give their concerns in the committees.

Solang, Mahila Mandal member, 2014

The responses above directly support my personal observations and the interview responses of the low number of females employed by the FD (with the exception of the medicinal plant nursery). Of the 16 FD employees that I interviewed, there was only one female forest guard, one female office support staff and four female medicinal plant nursery workers. This low sample size is indicative of the general gender balance, in certain positions, within the FD across HP. However, the medicinal plant nursery workers and office support staff in the district forest offices have a far higher percentage of female employees than positions such as forest guard, block officer and conservator. The female forest guard discussed her personal observations of the number of females employed by the FD and the reasons why she thinks there are so few women employed by the FD:

I have worked as a forest guard for just about one year now... I used to work in the office printing off TD entitlement forms and doing more paper work but I changed positions for the higher pay and the opportunity to move up in my job. This job is more secure than my old job...I know off four female forest guards or block officers in all of Kullu. The number never seems to rise or fall a lot...It usually is about 2-4% of the total FD staff that are females. We [the FD] hire many female nursery workers but that work has been traditionally done by females and it is more casual seasonal work with not very much pay. I think a few reasons why females aren't involved more is because there is a perception that patrolling the forests is a dangerous job and that we can get attacked or abused. I always patrol the forests with a partner so my safety is never at risk. If someone isn't available from the FD I take my husband into the forest with me so I know I am safe. I also think that females may not have had the same education as males so if they do not have good spoken and written Hindi it may be hard for them to do this position. It is also very helpful to speak good English because I travel to Kullu often and in meetings English is spoken sometimes. I also think there are not enough incentives for women to come to the FD. There are so many men here that it is hard to be one of the only females...it is hard to gain the respect because people are not use to women working in these types of jobs.... I want to see more women work as forest guards with me.

Manali, FD official, Forest Guard, 2014

5.3.2 Factors Motivating Women's Participation

Interestingly, many of the reasons why women indicated that they did not want to join or participate in VFCs were the motivating factors for why they chose to join the Mahila Mandal. For example, many women stated that they wanted to learn more about FM and how to help out the village since they had not had the opportunity to learn about it formally in school. One of the commonly discussed barriers for joining the VFCs was that women were self-conscious about their literacy and education levels; however, this a motivating factor in joining the Mahila Mandal. Women discussed that they did not feel judged or insecure about their schooling levels in the Mahila Mandal because there was a mutual understanding amongst all of the females in the group. Many of the women discussed that if they were a group that was outnumbered by men then they would be scared or shy about sharing their opinions, however in the Mahila Mandal, since all members are female, more of a trusting bond is built.

I wanted to join because I have lived in the village for a long time but I didn't know very much about it and how things ran so I wanted to learn more. I joined to meet people and learn more about Khakhnal.

Khakhnal, Mahila Mandal member, 2014

I wanted to expand my learning and I like going to the meetings with other Mahila Mandal and the FD when we are invited.

Solang, Mahila Mandal member, 2014

I never was able to go past the 6th standard in school and I wanted to learn more about the village and how to help out. I felt like I can learn in a safe and welcoming place in the Mahila Mandal.

Solang, Mahila Mandal member, 2014

Many women stated that the Mahila Mandal felt like a safe and nonjudgmental group because it was all females. They also discussed feeling a strong connection to all of the members because they all share personal struggles and hardships of raising kids, tending to their loved ones, and taking care of the household.

The Mahila Mandal is a strong sisterhood. I feel respected and appreciated when I attend the meetings and tell others what I think or feel. We all can relate to one another and we all help each other out as much as we can.

Khakhnal, Mahila Mandal member, 2014

Us women need a space where we can feel like we matter... the Mahila Mandal is our space to talk, listen and help the village.

Solang, Mahila Mandal member, 2014

Finally, some women stated that the Mahila Mandal group was more understanding of their personal time commitments and responsibilities, as compared to the VRCs, making it easier to join. For example, some women stated that the Mahila Mandal welcomes young mothers or new grandmothers to bring their children and grandchildren to the meetings, and many of the women work on knitting projects (i.e., knitting sweaters, socks and hats) during the meetings as well.

I like bringing my new baby to the meeting. I am able to get out of the house and away from chores while still taking care of my child.

Khakhnal, Mahila Mandal member, 2014

The meetings are a nice way to socialize with other women in the village. Lots of the women bring their knitting and we work on making sweaters, socks and hats for the winter all while talking about village cleanups, safety programs and helping with plantation work.

Khakhnal, Mahila Mandal member, 2014

5.4 Roles in the Forest for Men and Women

When asked “*is your role in FM role different than your husbands or other men in the community in FM activities?*” and “*do men and women have different duties and responsibilities in the forests?*”, the responses indicated that there are distinctive gendered roles in the forest as well as gendered division of power in FM (i.e. rule-making, decision-making responsibility, holding positions in the FD). The nature of gender roles and the division of labor in villages of the Upper Kullu valley are such that women are the primary collectors of forest products.

Women are primarily responsible for collecting bedding (i.e., leaves and other forest materials) and fodder for livestock (see Photo 15), as well as fuelwood on a daily and seasonal basis.

The women in the village hold the majority of the responsibility in the forest. The women do a lot of the work like: collecting leaves, grasses, hay and grazing the cows in the forest. The daily roles of women in the forest are more than men because we are also required to take care of our children, the household, our in-laws and prepare food for the family members all while getting the forest work completed.

Khakhnal, Mahila Mandal member, 2014

Women at both study sites were also primarily responsible for medicinal plant collection and grazing the household animals in the forest areas. When asked, “*are there differences in what men and women collect and what responsibilities they hold in the forest?*”, all of the forest duties above were listed as women’s work by most of the forest users. In general, men are not responsible for meeting daily forest product needs of the family.

Women do the majority of the forest work... Women’s work is to go into the forests and get hay for the household. The women go into the forest every day and they go throughout the entire year.

Khakhnal, FPC Member, 2014

Women and men should use the forest the same amount and help share responsibilities in the forest however they don’t... Women tend to go into the forest more frequently and for longer periods of time throughout the year... When the men and women don’t share the duties in the forest then the men don’t realize how much work the women do at home and in the forest.

Solang, Mahila Mandal member, 2014



Photo 15: Women carrying bags of fodder from the forest to the village in Solang

When describing the forest work that women frequently do, many forest users referred to the women's roles as nurturing, mothering, tending to or caring for the forests.

Women in the village mother and tend to the jungles. The trees are like our children we like to watch them grow into big and healthy trees. The women do work in the forest like collecting plants, medicines and helping to plant more trees in the area.

Solang, Mahila Mandal member, 2014

We collect everything we need for our families from the jungles and we do it carefully and with love.

Khakhnal, Mahila Mandal member, 2014.

Women seem to do a lot of the nurturing and caring roles in the forests like collecting hay, grasses, planting baby trees and cleaning up the litter in the jungle

Khakhnal, Mahila Mandal member, 2014

Furthermore, many forest users, both male and female, discussed that some of the work in the forests is more commonly done by women because they have a deep understanding of and a strong connection to the forests.

The women of the village know the forests. They nurture, love, respect and learn from the forest. They know things about how the forests works and what makes it healthy that many of us have no knowledge of... They are like the keepers of the forests.

Khakhnal, FPC member, 2014

The women understand the jungles because we are in the jungles every day and throughout the entire year. We know not to take too many leaves or grasses. We come in daily and take what we need.

Solang, Forest User, 2014

Subtle variations in this relationship with the forest and the rules that govern the division of labor do exist, even amongst villages in close proximity to each other. In Khakhnal, there were few instances where either men or women indicated that men in the household help with the work of bringing fodder and bedding for livestock. All of the forest users in Khakhnal who discussed males helping in forest product collection indicated that the woman of the household, who was typically the collector, was either sick, elderly or pregnant, and therefore unable to go into the forest. In these instances, a man had to step in.

Usually my wife collects all of the forest products. She would go every day to feed our cows, collect fodder, grasses and fuelwood but now I do it because she is expecting our first born soon. It is too dangerous for her to go into the forest while pregnant. Once our baby is born she will go and do forest work again.

Khakhnal, Forest User, 2014

However, in the village of Solang there were households where men shared in the work to build up the stores of fodder and bedding, including households where women were not physically hindered in some way from taking on this task. Participants discussed that in Solang the males help in the forest product collection more so in October and November in anticipation of the cold winter months.

Within this month (October) the men and women do the same kind of work in the forest. Because it can snow anytime now the men tend to help out more right now in order to get the forest work done faster. If the men did not help us right now then we may not be able to collect enough grasses and hay for the remaining months. The remaining months the women do the majority of the work.

Solang, Mahila Mandal member, 2014

Often times the men will cut the wood in the forests and the women will bundle the wood and carry it down from the forests to the village. Men use forests only in the winter to collect fuelwood for the household otherwise they are making money for the household down in the town.

Solang, Forest User, 2014

There is too much to collect for winter for one person in the forests, so we help our wives, mothers and sisters mostly for October till the beginning of November.

Solang, JFMC member, 2014

Solang is located on a higher elevation than Khakhnal and receives snow earlier and in more abundance than in lower lying villages. As such, the time between harvest at the end of summer and the first snow fall in Solang can often be shorter, putting more pressure on people to build up adequate supplies of fodder, bedding and fuelwood before first snowfall. In addition to males helping in what is often termed “women’s work”, it was also discovered that some females in Solang help out with some activities in FM that are typically deemed “men’s work”. For example, some females noted that they help their husbands and other male family members building cow sheds and houses in the village.

I usually just collect all the fodder, grasses and fuelwood for the house with the help from my husband when it comes closer to winter. But sometimes I also help my husband. Right now he is repairing our house and he is a making a stronger and bigger cow shed for our three cows so if I help then it gets done faster.

Solang, Forest User, 2014

One possible partial explanation for this may be that in 2009 Solang experienced a devastating village fire that destroyed or severely damaged several homes and cow sheds in the area. Now that the TD Entitlement has been reopened there is an opportunity for the forest dwellers to do house construction and home repairs with no cost for materials.

The fact that reciprocal forest work and responsibilities are important and occur in other activities in Solang such as house building, more so than was evident in Khakhnal, may also contribute to the shared nature of some forest work. While generalizations are possible, it is

important to keep in mind that even between villages in a relatively small geographical area there is a degree of fluidity in the roles of women and men with respect to the forest. It is also important to note that these exceptions to the general rule highlight the point that women's role as primary collectors and gatherers of forest products is not a 'natural' role, as is sometimes stressed in Women and Development theories (Guljit and Shah, 1998; Jewitt, 2000). It is probably better described in terms of "women's various material realities" (Agarwal, 1992, pg. 127).

5.5 Men and the Forests

While the female and male forest users discussed that women are the primary collectors of forest products for the household and that they hold the majority of the household responsibilities in relation to forest use, many also noted that men have some gendered forest-related work and responsibilities as well. For example, all of the forest users interviewed indicated that the job of cutting the fuelwood (See Photo 17), herding sheep in forests (i.e., roles of a shepherd), collecting the TD wood (see Photo 16) and applying for the TD entitlements are all responsibilities of the men in the village.



Photo 16

Photo 16: Man carrying his daily supply of fuelwood down to the village in Khakhnal



Photo 17

Photo 17: Man chopping household fuelwood with an axe in Solang

The responses below highlight the common forest duties and FM related activities that the men in both Khakhnal and Solang take part in.

If there is funeral, wedding or village feast then the men go and collect the wood. It is hard work and the men are able to cut down the trees easier than the women... The men are responsible for grazing the sheep and the women are responsible for grazing everything else. The men in the villages have always grazed the sheep, shepherds are never women.

Solang, JFMC member, 2014

Men in the villages herd the sheep. This is always what has been done all over Himachal. Women can graze the cows and other animals but the role of a shepherd has always been the job for men. The job of shepherding requires many long days and many months away from home...the women need to be home with the family and the children.

Khakhnal, Forest user, 2014

If a family wants to get TD Rights, only the men in the household will apply for it. I think most of the men who would apply for it understand the paperwork better and know the process of how to apply for the TD Rights better than the women in the village.

Khakhnal, Forest User, 2014

The men go into the forest only when they are needed or when there are jobs that women cannot do easily and need help with. The jobs that men do include, fuelwood cutting, applying for the treaty through the range officer and sometimes helping to carry the fuelwood down from the forest into the village.

Khakhnal, FPC Member, 2014

When asked, “*why are there differences in what the men and women do in forest?*”, forest users discussed that certain forest work requires different abilities that are inherently designed for a male or a female to easily fulfill the job. For example, they explained that certain duties in the forest require different levels of strength, physical ability, attention to detail, care and/or education that vary among males and females. Many forest users spoke of forest work that requires more strength and that physical work such chopping wood (see Photo 14), carrying large logs down to the village and preparing large ceremonial fires for weddings or funerals are fulfilled by men because they are normally physically stronger than women.

You see men do work that requires a lot of power and strength like cutting the wood or using the chainsaws. The women don't do those jobs and they usually ask for help from their husbands or any males in the home.

Solang, Forest user, 2014

The men tend to do forest work that requires lots of strength.

Khakhnal, Mahila Mandal member, 2014

Men go into the forest only when there are tasks that women can't do as easily like chop the wood in the forest or carry the fuelwood down from the forest into the village.

Khakhnal, Forest User, 2014

Additionally, many of the forest users explained that forest work that requires a great deal of care and attention to detail is typically carried out by women in both Khakhnal and Solang. Forest-related activities including pruning the apple trees to gather fuelwood (see Photo 18), collecting litter in the forest, planting medicinal plants in the forest area and taking out dead or rotten branches from the forest were all described as jobs that are more suited for females and are

normally carried out by them.



Photo 18: Women pruning and cleaning branches of trees for household fuelwood

Lastly, some forest users discussed that the reason why men and women have different roles and responsibilities in forests is because of regionalized cultural traditions and practices. The cultural traditions and practices which participants discussed as being inherently gendered included males taking on the role of shepherds, women collecting medicines from the forest and males collecting fuelwood for ceremonial purposes. When discussing why these duties were the responsibility of men or women in the village, participants used the words “how it has always been done”, “culturally a man’s/woman’s job”, “traditional roles” and “Himachal Pradesh practices”. It is important to note that these cultural traditions and practices that affected the roles and responsibilities in FM were the same in Solang and Khakhnal. Based on participant responses, it can be inferred that these cultural traditions and practices are consistent throughout HP.

5.6 Understanding Roles and Responsibilities in FM

One of the main objectives of JFM is to provide a visible role to local communities in the planning, management and protection of forests and to give them a share of the benefits from these forests (Sundar, 2000; Murnali et al, 2003). On operational parameters, JFM is built around the notion of developing a partnership between the FD and forest users on the basis of jointly defined roles and responsibilities (Arora, 1994; Murnali, 2003).

In 2003 Murnali et al, conducted a study to evaluate the weaknesses and pitfalls of the JFM model across five states (Himachal Pradesh, Andhra Pradesh, Chattisgarh, Orissa and Rajasthan) where JFM has been practised and well documented for more than 15 years. One of the notable conclusions of their study was that awareness among community forest users, NGO members and other FM stakeholders about shared and individual roles and responsibilities for managing the forests needs to be strengthened (Murnali et al, 2003). They also noted that the lack of clarity and understanding in determining what roles and responsibilities people have in JFM created frustration, confusion and ineffective management of forest-use areas (Murnali et al, 2003).

In both Khakhnal and Solang, I found that many forest users, NGO members and FD officials had very different perceptions of who owns the forest area as well as the assigned roles and responsibilities users have in relation to FM in the villages. For example, when asked “*who owns the forests?*” all of the FD officials stated that the government (and by proxy the FD) owned the forests; however, many of the forest users in Khakhnal and Solang believed that they were the primary owners of the forest.

The FD controls all of the forest activity in terms of what goes in and what comes out.

Khakhnal, FD official, Forest Guard, 2014

We live in the forests, we grew up in the forests. The forests belong to us.

Solang, Forest User, 2014

Conversely, many of the Mahila Mandal members and members of the village forest committees stated that the FD owns the forest, but they believed that the locals should have shared ownership of their village forest use areas, captured by one member below;

The FD owns the forest...But the forest dwellers and users should own them. They live there and know more about the forest than the FD. All of the village forests should belong to the particular village. The members of the village should own ownership.

Khakhnal, FPC member, 2014

Lastly, many NGO workers stated that they believed that the FD owns the forests but that ownership of the forests should be shared by the local forest users and the respective NGO in the village. The varying understandings and perceptions of what should be in terms of forest ownership led to differing opinions and perceptions on the roles and responsibilities of NGO workers, forest users, FD officials, VFCs members and Mahila Mandal members in relation to FM and protection.

In order to determine the roles and responsibilities of each user group, I asked participants “*what needs to be done in the forest to make sure it is taken care of?*” and “*who is responsible for doing these activities or having these responsibilities to ensure the forests are taken care of?*” I also asked some participants to describe “*what it means to manage the forests well*” in order to relate the responsibilities to effective FM. For the purposes of this section in the paper, the term effective FM will be understood through the voice of a local forest user;

To manage the jungle well means that we have enough trees for now and for the later. We [the forest users] are not taking more than we need and there is frequent plantation work to fill in the tree gaps. We [all of the interviewee groups] all are working together and doing our part to make sure that the jungles are healthy, long living and big. We know what we have to do separately and together to keep the village jungles alive.

Solang, Forest User, 2014

Below are the eight roles and responsibilities that participants identified that needed to be assigned and executed in order to effectively manage the village forests:

- **Monitoring:** Responsibility to monitor the forest and inspect forest cover, amount of dead or fallen trees, and overall forest health.
- **Usage:** Responsibility to use the forest for daily household purposes (i.e., fuelwood, fodder, grasses, hay) and for village celebrations (i.e., funerals, festivals and weddings).
- **Reporting:** Responsibility to report illegal activity and trespassers in the village forest areas.
- **Educating:** Responsibility to educate others about the importance of the forests and how to protect them.
- **Maintenance:** Responsibility to plant trees, put in check walls and maintain the forest. Other maintenance activities included removing rotten or dead trees and cleaning up garbage left in the forest areas.
- **Rule Abiding:** Responsibility to follow the enforced rules (i.e. not graze in fenced areas).
- **Enforcing:** Responsibility to enforce the rules relating to forest usage and forest activities. Responsibility to penalize those individuals who are caught taking part in illegal activities in the village forest areas.
- **Decision-making:** Responsibility to make decisions regarding FM and protection plans (i.e., when to plant trees, what tree species will be planted, which areas to protect in the forest, what mitigation efforts need to be implemented in the village to prevent the negative effects of natural hazards, deciding how many TD Entitlements will be allotted and deciding which trees can be felled for TD Entitlement purposes)

Several researchers have found that determining clear responsibility for monitoring, enforcing, maintenance, education and respecting designated forest use rules has led to more sustainable management of various forest areas in India (Arora, 1994; Agarwal, 2001a; Agarwal, 2001b; Behera, 2009; Bizikova et al, 2012). Table 5 (shown below), illustrates what each different interviewee group felt about the responsibilities they and other user groups had in relation to effective FM. The responses reflect the views of the majority of the particular interviewee group. The forest user group categorized at VFC includes the JFMC members in Solang as well as the FRC members and FPC members in Khakhnal. All of the responsibilities reflect what the interviewee groups felt *are currently* the responsibilities of the various user groups, and so the responses may differ from what legislation or formal JFM policies state *are* the various responsibilities of the different user groups (i.e., forest users, Mahila Mandal, VFC, FD and NGOs). Moreover, responses do not indicate what responsibilities the different interviewee groups think other forest user groups *should* have. For example, many of the forest users felt that they should have responsibility for enforcing the rules about FM, however the responses in Table 5 indicate only who currently has the responsibility of enforcing the rules from their point of view. Below is an overview of the different perceptions and understandings of the roles and responsibilities for the five different user groups who are involved in FM.

Table 5: Roles and Responsibilities in FM amongst various user group

Interviewee Groups	Monitoring					Using					Reporting					Educating					Maintenance					Rule Abiding					Enforcing					Decision-making						
	Who is responsible?					Who is responsible?					Who is responsible?					Who is responsible?					Who is responsible?					Who is responsible?					Who is responsible?											
	FU	MM	VFC	FD	NGO	FU	MM	VFC	FD	NGO	FU	MM	VFC	FD	NGO	FU	MM	VFC	FD	NGO	FU	MM	VFC	FD	NGO	FU	MM	VFC	FD	NGO	FU	MM	VFC	FD	NGO	FU	MM	VFC	FD	NGO		
Forest Users-FU	○	✓	✗	✓	✗	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗	○	✗	✓	✓	✓	✓	✓	✓	○	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✓	✗	✗	✗	✓	✗
Mahila Manda I-MM	✓	✓	✓	✓	✗	✓	✓	✓	○	✗	✓	✓	✓	✓	✗	○	✓	○	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	
VFC	✗	✗	✓	✓	✗	✓	✓	✓	○	✗	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	○	✓	✓	✗	✗	✗	✗	✗	✗	✗	
Forest Dept. - FD	✓	✓	✓	✓	✗	✓	✓	✓	✓	○	✓	✓	✓	✓	✗	○	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	
NGO	✓	○	✓	✓	○	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	

*Gender Breakdown| FU: 68% male, 32% female; MM: 100% female; VFC: 85% male, 15% female; FD:65% male, 35% female; NGO 80% male, 20% female.

LEGEND	
✓	Responses indicated that they felt that the particular user group was/is responsible for the particular activity/ role/responsibility
✗	Responses indicated that they felt that the particular user group is not responsible for the particular activity/ role/responsibility
○	Responses were varied amongst the user group or the responsibility for the particular user group was not mentioned. An inconclusive O was chosen to indicate that responsibility or duties were undetermined for the particular user group.

5.6.1 Roles and Responsibilities of the Forest Users

Forest users are those individuals who rely on forest products for survival and who often live amongst or in the forests throughout the year. As such, forest users are often active in protecting local forests because forests are vital to their well-being. Although members of the Mahila Mandal and the VFC are all forest users, the category of forest users only included those individuals who are not a member of the Mahila Mandal or any VFCs. The reason that I chose to separate the Mahila Mandal and VFC members from the forest users is because I wanted to reflect the experiences and involvement of individuals who are on local governance committees compared to those who are not involved in local governance structures. According to Stanz et al., (2007), the level of involvement in FM activities can affect the perceived roles and responsibilities certain groups have in the forest. That is, the more involved certain groups or committees are in the forest, then the more responsible they may feel towards ensuring that the forest area is well managed and protected (Stanz et al, 2007).

In order to understand how local forest users view their responsibilities in the forest, as well as what other groups understand to be the responsibility of forest users in FM, I first looked at the designated responsibilities of forest users/dwellers as set out in the HP FD Forest Manual. Understanding the designated forest responsibilities of various user groups allows us to be aware of the degree to which the outlined responsibilities are being followed, and also see if some groups take on different responsibilities or play a larger role in FM than is outlined in the forest manuals. The forest manual states:

As per settlement records local people enjoy certain rights and concessions to use forest resources either free of cost or on payment of nominal fee and such rights are appended to agricultural land. The National Forest Policy, 1988 unequivocally stipulates that rights and concessions should always remain related to the carrying capacity of the forests. In

HP due to increasing human and cattle population and increasing demands and commercial needs the rights and concessions are now beyond the carrying capacity of the forests. The holders of the rights and concessions in forest areas will have the responsibility to identify themselves with the protection, development and management of forests in order to ensure the continuity and sustainability of such rights and concessions (HPFD, 2014, pg. 15)

The responses from the forest users indicated that they felt that the responsibilities and roles that they personally hold include:

- the responsibility to use the forest properly,
- the responsibility to report illegal activity in the forest,
- the responsibility to maintain the forest (i.e., planting trees) and,
- the responsibility to abide by the rules in forest use areas.

It is the responsibility of the whole village to take care and protect the jungle, but we don't make decisions or make rules about how to manage the jungle

Khakhnal Forest User, 2014

We are the main users of the forest, we need to plant trees and clean up litter in the jungle. We don't get people in trouble if they are caught illegally felling trees but we report it to the FD. We also need to make sure we don't graze our animals in the fenced areas or cut trees without permission

Solang Forest User, 2014

The local people here will cooperate with the FD in some ways. If there is a forest fire in the village then the member within the village help to put it out. The local people will often extinguish the fires because it is their local property and if they lose their forests then naturally their own society and livelihood will be lost.

Khakhnal Forest User, 2014

Interestingly, all of the remaining interviewee groups selected the same four responsibilities for the forest users.³⁹

³⁹ Therefore, all of the responsibilities outlined by the forest users were also indicated as responsibilities for the forest users by the remaining four interviewee groups

When participants were asked, “*who is responsible for making decisions about FM in the village?*” (i.e., Khakhnal or Solang), the responses varied between who currently holds responsibility, who should have responsibility and what decisions participants wish they had decision-making power over. Most forest users discussed how they felt that the local people do have a say in some village-related forest decision-making. For example, many forest users discussed that members in the village collectively chose not to cut wood for funerals, weddings or other cultural celebrations. However, when it came to larger FM decisions, such as when trees are to be planted, what tree species are to be planted and how to best manage the forest, most forest users indicated that these types of decisions are the responsibility of the FD officials and employees.

As a village we make some decisions like to not cut trees for the funerals but most decisions about how to protect and manage the forest comes from the FD because they have title of the land and they have more of the formal training in forestry.

Khakhnal, Forest User, 2014

Most forest users recognize that large FM decisions are made by the FD, although they feel the FD has too much power and that decision-making should not be the responsibility of the state alone.

We don't think that the FD should have too much power in decision making because they don't use and rely on the forests like we do.

Solang, Forest User, 2014

The responses revealed by Table 5 indicate that forest users play an important role in managing the forests, from the perspective of all interviewee groups, because they currently hold four of the eight responsibilities for ensuring effective management of the forest areas.

5.6.2 Roles and Responsibilities of the Mahila Mandal

In terms of forest protection capability, the Mahila Mandal have shown themselves to be very effective in the past (Hobley, 1992). There are over 150 Mahila Mandals within the Kullu

District, which makes the women's group a very accessible, widespread and active organization. Based on the responses, it is evident that Mahila Mandal members feel that they play a very critical role in FM. All interviewed Mahila Mandal members indicated they felt that they had some responsibility for monitoring, using, reporting, educating, rule abiding, maintaining the forest areas and enforcing rules within forest use areas. Many of the Mahila Mandal members also discussed how they either work alongside the FD in protecting the forest or they fulfill many of the FD's responsibilities in ensuring that the forests are well taken care of. Despite the role that the Mahila Mandal members feel that they have in FM activities, there are no outlined roles and responsibilities for the Mahila Mandal by the FD within any of the forest manuals or JFM handbooks (HPFD, 2014).

If the villagers see illegal felling or illegal activity occurring in the forest then it is their responsibility to report it to the Mahila Mandal but other than that they have no other direct role in FM and forest protection.

Khakhnal, Mahila Mandal member, 2014

The main responsibility for passing on information about illegal felling lies with the Mahila Mandal Pradan. When people report the illegal felling to me [Mahila Mandal Pradan] then I report it to the forest guard or the block officer depending on who is more available.

Solang, Mahila Mandal member, 2014

The responsibility of forest protection belongs to the FD but if the forest department is not doing their duties properly then the Mahila Mandal will step in and help out.

Khakhnal, Mahila Mandal member, 2014

Many of the Mahila Mandal members discussed that their primary roles in the forest included enforcing the rules, educating others about the importance of the forest and monitoring the forest areas. Interestingly, all of the other interviewee groups felt that enforcing the rules was not a responsibility of the Mahila Mandal. This misunderstanding about who is responsible for enforcing the rules can create negative relationships amongst the different interviewee groups

(i.e., NGO members, VFC members, Mahila Mandal members, FD Officials and Forest Users) because some may feel that they have more power and control in FM as opposed to other individuals and groups. The members of the Mahila Mandal discussed that they do not understand why they are not included in decision-making activities about FM in the village because they are heavily involved in all aspects of FM.

The FD has asked the Mahila Mandal in the past to attend meetings and to help out with plantation work, but it is very rare that the FD asks the Mahila Mandal for advice on FM or ask for their input on things that they would like to see changed...The Mahila Mandal do not really have an influence on how the forests are managed or preserved but we really care about how they are managed and who mainly manages them...but it doesn't seem like they want us to help make decisions even though we help in many other areas of protecting and making the forests
Solang, Mahila Mandal member, 2014

Many of the Mahila Mandal who voiced their concerns about the lack of decision-making power and influence on FM activities said that they felt unappreciated and under acknowledged as a result.

We do so much in the forest... but most of it goes unnoticed and uncelebrated. The forest department needs the Mahila Mandal. We want to make decisions and give a village voice and a women's voice to these issues. It is sad that they [referring to the forest department] do not recognize the importance of including the Mahila Mandal in decision making.

Khakhnal, Mahila Mandal Pradan, 2014

The fact that the Mahila Mandal are not formally recognized in FM in JFM policies and forest manuals as having prescribed roles and responsibilities may also lead to them feeling unappreciated and under acknowledged as key players in FM. Chapter 7 addresses some JFM policy insights, from personal observation and participant interview responses, that help to address some of the concerns raised about public participation, policy and the inclusion of women in FM. Although there was misunderstanding for one of the responsibilities that the

Mahila Mandal members have amongst the interviewee groups, all of the other interviewee groups discussed the importance of the Mahila Mandal in FM.

The people who are mainly responsible for protecting and managing the jungles should be the FD but often I see the Mahila Mandal doing a lot of work in planting trees, telling people about the jungles, reporting illegal things happening in the jungles and looking over the jungles

Khakhnal, Forest User, 2014

The Mahila Mandal act as the mothers to our jungles. They make sure they are healthy, happy, strong and long living.

Solang, FD Official, Forest Guard, 2014

Many of the forest user groups, with the exception of NGO members and the FD officials, discussed that the role of the forest users is simply to carry out the management schemes and plans that the FD creates.

Once the FD gives the management schemes [referring to the management plans in terms of plantation area, what to plant] then the Mahila Mandal, the Yuvak Mandal and the panchayat work on it together to make it happen. Once the FD gives us the schemes there is little room for us to voice our concerns about what we think about it. The schemes mainly are made up of: the planning, the funding and the proposal of the project.

Khakhnal, Mahila Mandal member, 2014

Despite there being no prescribed or outlined roles for the Mahila Mandal by the State of HP (i.e., the FD), it is evident that the Mahila Mandal hold several responsibilities in the forest and play a multifaceted role in FM in Khakhnal and Solang.

5.6.3 Roles and Responsibilities of the Village Forest Committee

The village forest committees, according to JFM legislation, are responsible for actively maintaining and protecting the forest use areas with the FD (Ravindranath and Sudha, 2004). A more detailed overview of Village Forest Committee members' roles and responsibilities was outlined in the forest manual as,

The Mission on Green India⁴⁰ will be taken up on degraded forest land through direct action by communities, organized through Joint FM Committees and guided by the Departments of Forest in state governments. Committees are responsible for proper protection and management of forests. They are responsible for prevention against encroachment, fire, grazing, illegal felling, theft or any other damages in the forests. They also make the rules for collection of minor forest produce, ensures harvesting and distribution of income from sale among the members⁴¹.

(HPFD, 2014, pg. 22)

According to the responses gathered in Table 5, all of the interviewee groups, except the forest users, felt that the VFC members have some responsibility for monitoring the forest and educating others about FM.

The forest committees help the FD and they meet from time to time. They mostly just help with planting the trees, reporting felling or trees or trespassers to the FD and following the forest rules like the rest of us. I don't think they have any other special duties.

Khakhnal, Forest User, 2014

We work with the Forest Protection Committee here in Khakhnal. They help to spread the word on why we need to protect the forests to other people in the village and how we should take care of the forests. The Mahila Mandal also go into the forests with some people from the committee to check on it from time to time... They are quite helpful overall.

Khakhnal, Mahila Mandal member, 2014

Some of the village forest committee members (i.e., members of the FRC, JFMC or FPC) even remarked on their role in FM as being similar to that of teachers because they teach others in the

⁴⁰ The National Mission for Green India (GIM) is one of the eight Missions outlined under the National Action Plan on Climate Change (NAPCC). It aims at protecting; restoring and enhancing India's diminishing forest cover and responding to climate change by a combination of adaptation and mitigation measures. It envisages a holistic view of greening and focuses on multiple ecosystem services, especially, biodiversity, water, biomass, preserving mangroves, wetlands, critical habitats etc. along with carbon sequestration as a co-benefit. Some state programs and policies that are run through certain departments like the FD work to meet the national green India mission goals at the state level (MoEF, 2015)

⁴¹ Distribution of Income: Participants did not discuss distribution of income. The only benefit sharing that was discussed by the forest users, MM and VFC members was in relation to collection of NTFPs. Some members benefitted financially from the forests however that was only discussed from some participants and was in relation to helping boost tourism in Solang.

community why it is harmful to the environment and the village ecosystem to illegally fell trees or to over-collect certain forest products.

I see people in the village cutting evergreens and I continually tell them to stop cutting because they are cutting too much but those people never seem to listen to me. Instead of telling them just to stop it, I tell them why they need to stop and then they seem to listen because they end up caring more.

Khakhnal, FRC Member, 2014

I like to think that we are teachers in the forest. Our committee tries to explain about the forests, what benefits they give us and other people in the Himalayas and why we need to be very respectful and not overuse the forest. I think we [referring to the entire forest protection committee] help people listen and learn about the forests.

Khakhnal, FPC Member, 2014

Like the Mahila Mandal, the VFC members also felt that they had a responsibility for all aspects of effective FM including: monitoring, using, reporting, educating, rule abiding, maintaining the forest areas and enforcing the rules within the forest use areas.

The JFMC is responsible for helping with tree plantation, putting in check walls and putting out forest fires. Some of us members also go into the forest and check on it every week or so to make sure that the forests are healthy and nothing is out of place

Solang, JFMC Member, 2014

We have the upmost duty to protect the forests. Since we live in the forests it is our responsibility to protect the forests and make sure that they are well taken care of so that our children and their children can enjoy and live off of the forests in the future.

Khakhnal, FRC Member, 2014

All the people within the village have a duty to manage the forests. People who need to manage is not just the responsibility of the members within the panchayat committee but it is everyone's duty to take care of the forest and practice forest duties responsibly

Solang, JFMC Member, 2014

However, all of the other interviewee groups, NGO members, forest users, FD officials and Mahila Mandal members, responded that the VFC members do not have responsibility for enforcing rules within the forest use areas.

The feeling that the FD holds too much decision-making power was discussed by the both the VFC and the Mahila Mandal members. However, many of the VFC members discussed their frustration in needing the approval of FD officials in order to have any FM plan or activity legally recognized. For example, in Khakhnal the members within the village collectively decided not to graze, trespass or cut down trees in a certain area of the forest; however, in order for the area to be legally protected and to get it fenced in order to encourage protection, the FD officials in the area need to approve the action.

One time we wanted to protect more of the forest land in order to encourage more growth in the village forests. But in order to have the forests legally protected and fenced the FD needs to sign off on all of our actions. Even though protecting more forest is a good thing... it can take weeks or months for them to sign off on a simple task because they have large beats [forest areas] to monitor and watch. I don't like feeling like I can't help my forest without someone looking over me and telling me what I can and can't do. We all have the best intentions for the forest, why can't the forest department allow us to manage the forest without always stepping in.

Khakhnal, FPC Member, 2014

This creates lots of frustration among forest users and the VFC members because they feel that they have no autonomy in deciding how their village forests should be protected and managed. The responses from Table 5 indicate that the VFC members in Khakhnal and Solang have a well-established and understood role in managing and maintaining the forest use areas. Other aspects of FM including enforcing the rules in the forest and deciding what rules need to be followed in the forest may seem like a responsibility to the VFC members themselves; however, based on the other interviewee group members' responses, these responsibilities are seen as only residing with the FD.

5.6.4 Roles and Responsibilities of the FD

Within the FD there are at least nine different ranked positions⁴² (i.e., forest guard, deputy range officer, range forest officer, assistant conservator of forests). Many individuals hold the lower ranked positions and are directly responsible for the maintenance, management, protection and decision-making about the forests (Vasan, 2001, MoEF, 2014). The forest manual outlines some of the roles and responsibilities of the FD officials that pertain to FM:

To support the implementation of the forest sector policy and strategy the Forest Department as a nodal agency for FM will support other institutions (government and non-government) in FM through better coordination, new partnerships, clarification of roles and responsibilities and improved regulation. The FD shall be strengthened as a professional, technical and managerial body, providing support to Panchayati Raj Institutions, relevant government departments and other stakeholders for assisting them in fulfilling their roles and responsibilities for sustainable FM. The role of the FD shall further include:

Working collaboratively with the various stakeholders for preparing, implementing, monitoring and evaluating FM plans especially for community forests and ensuring coordination and synergy between various FM plans. Providing and protecting the livelihood security of forest resource dependent communities, particularly the poor and marginalized, through skills upgradation and convergence of financial resources for this sector. Protecting the Traditional Forest-related Knowledge (TFRK) through intellectual property rights regime. Developing strategies and implementing green accounting measures to ensure that the environmental values of forests and wildlife are recognized, accounted for and captured in state and national income. (HPFD, 2014, pg. 26-27)

All of the FD officials interviewed identified that they had a role and responsibility in monitoring forest areas, using forest products, reporting illegal activities, educating others about the forest, abiding by the rules in the forest, maintaining forest areas and enforcing the rules within forest use areas.

The state government have the final authority over the forest, how it is managed and who has access to the forest. They are the main owners of the forest.

Solang, FD Official, Forest Guard, 2014

⁴² Figure 3, in Chapter 2, illustrates the different positions and the number of employees who hold each positions

The FD is responsible for everything in the forest. We are the ones who make sure it is protected, managed, maintained and safe for others.

Kullu, FD Official, District Forest Officer, 2014

The FD controls all of the forest activity in terms of what goes in and what comes out.

Khakhnal, FD Official, Forest Guard, 2014

All of the interviewee groups indicated that they felt that the FD is responsible for all of the aforementioned responsibilities except using the forest areas for daily household and village purposes.

The FD is responsible for protecting the forest because they are employees of the state government.

Khakhnal, JAVS NGO Member, 2014

The FD needs to do everything in the forest to manage it. They don't take fuelwood or anything from the forest though because we live here and we use the forests. They shouldn't take things from our forest.

Khakhnal, Forest User, 2014

The role of FM is the responsibility of the government. They manage the forests through putting in fencing and cutting down unwanted shrubs in the area.

Solang, Forest User, 2014

Although all of the interviewee groups discussed the FD's responsibilities in managing the forests, many also voiced their displeasure with how the FD is executing their responsibilities in the forest areas. Many participants in the other groups also discussed their concerns with how the responsibilities in the forest are allocated and how the FD executes their responsibilities.

The FD is responsible for going into the forest regularly to check on it and make sure that everything is ok but I rarely see them go into the forest. I don't think they always do their job

Khakhnal, Forest User, 2014

The FD is not that strict they do not enforce the penalties when people are caught illegally cutting. They have the power to get people in trouble so they stop ruining the forest but they don't.

Khakhnal, FPC Member, 2014

The FD makes all the rules about how the forest is managed and they get

people in trouble if they aren't following the rules. I think we should be able to make some rules and enforce them too...we live here and we know what goes on in the forest more so than the FD does.

Solang, Forest User, 2014

There is an issue with the FM right now because during the day the forest department inspects the forest but during the nighttime who will inspect and take care of the forest? I think it is hard to monitor illegal activity in the forest when the forest department is not very present.

Khakhnal, Timber Depot Employee, 2014

The FD has a lot of duties in the forest but they don't do all that they are supposed to or what people expect them to do.

Khakhnal, Mahila Mandal member, 2014

It is clear that all of the interviewee groups share the same perspective that the FD has responsibilities in several aspects of FM. However, there are differing perspectives in relation to how the responsibilities and roles are practiced and if the FD are fulfilling their assigned duties.

5.6.5 Roles and Responsibilities of the Non-Governmental Organizations

According to Ramanathan (2012), local NGOs based in rural areas play an important role in improving sustainability in forestry and natural resource management. Moreover, as set out in the forest manual, the NGOs seem to play an influential role in FM in the villages,

The prescribed roles for Non-Government Organizations (NGOs) /Community Based Organizations (CBOs) /Civil Society Organizations (CSOs) [are] integral to the development of the Forest Sector. Their main role [is] capacity building, advocacy, research, monitoring and evaluation.

(HPFD, 2014, pg. 27)

Based on this, I was surprised to discover that the roles that NGOs play in FM seems to be either underutilized or misunderstood by various forest user groups in Khakhnal and Solang. I interviewed four NGOs in total (as shown in Table 1); however only three NGOs discussed their

role in FM and protection. The Dev Rishi Protection Group⁴³, the Human Welfare Society⁴⁴ and Jagram Avam Vikas Sanstcha (JAVS)⁴⁵ were the three NGOs that have helped and continue to help with educating the community on the importance of forest protection, and aid in forest plantation work.

In Khakhnal and Solang, NGOs were active in FM; though the perception of the roles and responsibilities of NGOs in FM differed between the NGO members themselves and the other interviewee groups. For example, the NGO members felt that they had responsibility for using the forest products, reporting illegal activity in the forest areas, educating others about the importance of forests, helping to maintain the forest use areas and abiding by the rules in the forest. However, the NGO members felt that they did not have a role in monitoring the forest areas as well as enforcing the rules in the forest. Below are responses from three individuals in three separate NGOs; JAVS, Human Welfare Society, and Dev Rishi, on the roles and responsibilities of their NGO in FM.

⁴³ Dev Rishi Protection Group: An environmentally based NGO with a strong faith affiliation. The main purpose of the NGO is to keep the environment and community sustained, healthy and prosperous for the people and local deities. This NGO is mainly in contact with individuals from Khakhnal, Jagatsukh and Nagger however they were trying to get funding to make it a state-wide NGO (personal communication with Dev Rishi President, 2014).

⁴⁴ Human Welfare Society: This is more of a social welfare-based NGO. The main work the HWS does includes; environmental education in schools, discussions on sanitation and health, poverty alleviation programming, and assisting in village clean ups and village tree planting. The HWS is mainly run out of Manali and works primarily with school-age children, educating them on a variety of topics (personal communication with HWS President, 2014).

⁴⁵ JAVS: An advocacy and awareness-driven NGO that informs forest dwellers of their forest rights and ensures that illegal forest activities are reported and the individuals are penalized. This NGO is comprised primarily of men who want to empower local forest users by informing them of their rights. This NGO also works in close conjunction with the Mahila Mandal at the village level. JAVS works primarily in villages around Khakhnal (personal communication with JAVS Vice President, 2014).

The NGO does help in FM and they help the members in the village to protect the forest by educating people on the importance of forests to the present and future users of the forest. We mainly tell people about the forests in certain festivals, programs and community outreach activities.

Khakhnal, Human Welfare Society NGO, 2014

Our NGO works to ensure that people's rights in the forests are protected, understood and practiced fairly... JAVS', role in FM is to:

- observe activities in the forest*
- report illegal felling to the FD*
- Talk to people and convince them to not cut down young trees*
- Convey the importance of the forests to the Mahila Mandal and other community run groups*
- Ensure that people who are caught illegally cutting trees are immediately penalized by the FD*
- Works with the village panchayat and Mahila Mandal heavily in tree planting and cleaning up the jungles*

Khakhnal, JAVS NGO Member, 2014

Our NGO does a lot to keep the forests healthy and happy. We use the forests, we tell the FD when we see illegal activity in the forest areas, we tell others why they need to protect the forest areas, we help with tree planting and we follow the rules in the forest areas. We manage and protect the forest to pay respect to devta. Our NGO is peaceful so we do not enforce the rules or make the rules about how to use the forest.

Jagatsukh, Dev Rishi NGO Member, 2014

All three NGO members felt that their primary role in FM was educating and helping to raise awareness about the importance of forests and how to best manage forest areas. All of the other interviewee groups saw the primary responsibilities of the NGO members as educating others about FM and abiding by the rules in forest areas. Interestingly, all of the interviewee groups saw abiding by the rules and maintaining the forest areas as a responsibility for everyone involved in FM (i.e., Mahila Mandal, forest users, VFC members, FD officials and NGO members). Most of the NGO members discussed that the FD makes most of the FM-related decisions, but felt that local forest users should have more decision-making power than they currently have. Most of NGO members told of wanting to be more involved in FM meetings within the village, so they are more informed about what decisions are being made about how to manage the forests.

Our NGO is not involved in decision-making and I don't know if it would make sense if we were... We would then play a dual role as NGO member and forest user in decision making. I think it is more important for the locals to voice their concerns and have power in making decisions. I think if the NGOs are involved in the more meetings [i.e., JFM meetings, panchayat meetings] then we would know what is happening and we could help out more with village tree planting or helping to educate others about forest protection.

Khakhnal, JAVS NGO Member, 2014

5.7 Chapter Summary

Community-based FM is a regime that is meant to foster local ownership, responsibility and control for the protection and sustainable management of forest resources (Balooni, 2002; Gupte, 2004). Based on the participant responses, it is evident that JFM in Khakhnal and Solang supports local responsibility in the forests in terms of recognizing local rights to forests. However, local forest users have little to no local control over the forests or its management. Through my participants' responses and the observations I made in the field, it seems appropriate to call the type of JFM practised in the Kullu District a participatory approach to FM, whereby local forest users are involved in some aspects of FM and protection as others have observed in regions across India (e.g., Bird, 1996; Agarwal, 2001b, Balooni, 2002; FAO, 2003; Matta and Chung, 2005). A number of the FM challenges at the two case study sites related to issues of understanding who is responsible for key forest activities and who is ultimately responsible for FM decision-making. Matta and Kerr (2007) found that JFM has not been successful⁴⁶ in Tamil Nadu primarily because there is no common understanding of the program's objectives or the methodologies needed to implement JFM among the various forest user groups (Matta and Kerr, 2007). This limitation closely parallels my research findings, as many of the forest users had

⁴⁶ Successfulness of JFM: In the study by Matta and Kerr (2006) success for JFM was defined by respondents as occurring when the FD and the local forest users came together on projects and worked as partners to manage the village forests (i.e., the primary purpose of JFM)

different perceptions on ownership of the forests, the roles and responsibilities in FM, and the ways that JFM should be implemented.

As other studies also discovered, I found that gender was an important consideration in local FM. Numerous studies have indicated that a key issue in JFM and other participatory approaches to community FM in India is a lack of women's participation (Agarwal, 1992, 1997, 2009, 2010; Leach, 1992; Dasgupta, Roy, & Chattopadhyaya, 2006). I also found an underrepresentation of women, with the main reasons given as:

1. Structural barriers at the local level, such as restrictive policies and the lack of clarification or recognition of women's roles in FM in current written policies;
2. Cultural barriers, which cause women to feel socially inhibited, especially when asked to express their opinions in front of male community and household members, and;
3. Social barriers, such as limited education and literacy levels amongst some women, as well as household and family responsibilities inhibiting their participation in meetings and other FM-related activities.

Each of these is discussed in relation to the key findings and relevant literature.

There are a number of policy barriers that inhibit women's inclusion in JFM in India (Maksimowski, 2011). For example, the National Forest Policy of 1988 clearly mentions that women should be involved in achieving JFM policy goals; however, it does not mention to what extent women should be involved and the types of the responsibilities that they could have. The Ministry of Environment and Forests (MoEF) also stated that one of the main objectives of JFM was in "creating a massive people's movement with the involvement of women" (as cited in Agarwal and Chatter, 2005, pg 152). However, the circular produced by the MoEF in 1990 gave

no mention of women and only refers to “beneficiaries” (Agarwal and Chattré, 2005). This uncertainty surrounding the role of women in JFM policy is made apparent in local institutions. In Khakhnal and Solang, it was clear that women are not represented in VFCs to the same extent as men, they do not hold executive positions within committees (with the exception of the Mahila Mandal) and there are few female FD officials. As previously mentioned, the low numbers of females in the VFCs is alarming considering that HP and many other states that practice JFM have “strict” gender stipulations for committee formation. Stipulating that female members be registered within local FM institutions clearly does not translate into their active involvement and participation in decision-making processes and outcomes.

Several researchers have found that gender stipulations for VFCs can also be misused and may not fully reflect the values, needs or concerns of certain women within the village (Agarwal and Chattré, 2005; Dasgupta, Roy and Chattopadhyay, 2006; Maksimowski, 2011). For example, often VFC reservations for women go towards the spouses or relatives of male members who are typically higher-caste women and who therefore may not fully understand the forest needs of the landless or poor women (Agarwal and Chattré, 2005; Dasgupta, Roy and Chattopadhyay, 2006; Maksimowski, 2011). In Khakhnal and Solang, I did observe that those women on VFCs or who were the pradans of the Mahila Mandal either had previous experience in local governance structures, had higher levels of education or had close family members on the committee. It could be perceived from this that female membership in the VFCs is more exclusive and is reserved for those with close connections and/or previous committee experience. Another frequent issue raised by researchers is that it is also common for women VFC members to be unable to attend meetings due to inconvenient timing, or to not be informed about meeting times (Agarwal and Chattré, 2005). Agarwal and Chattré (2005) found that women who were on

village forest committees often could not attend the meetings because they were held late at night or were held at inconvenient times when they had household chores and responsibilities to complete. This barrier closely parallels my findings because women in Khakhnal and Solang discussed that their household responsibilities and chores (e.g., cooking, cleaning, laundry, taking care of children, milking the cow(s) and collecting NTFPs) often left little to no time for actively participating in meetings. Additionally, some women noted, that they often do not know when the meetings are taking place or where they are held in the village. This leads to perceptions that women's participation in community forest institutions serves a merely cosmetic purpose (Leach, 1992; Maksimowski, 2011).

My research also found that social and cultural barriers exist that inhibit the full participation of women in FM as others have found (e.g., Agarwal, 1997; 2001b; 2007). Common social and cultural barriers that inhibited women's full participation in FM in my study included family and household responsibilities, a lack of critical mass of women already involved in VFC meetings and the FD (i.e., it is less encouraging to participate with few to no women already involved in the organization, institution or group⁴⁷), an undervalued appreciation of women's opinions and attitudes towards FM in general (i.e., commonly decision-making has been conducted by males) and lower literacy and education levels amongst women (i.e., making it harder to openly express concerns and issues in meetings with confidence). These barriers closely relate to those identified by Agarwal (1997).

⁴⁷ As Richardson et al (2011) stated "lack of critical mass of women often limited the active participation of the small number of women involved in committee activities" (pg. 524) (in reference to forestry advisory committees in Manitoba (Tembec) and Nova Scotia (NewPage)).

An often-cited reason for exclusion is that women feel socially inhibited when asked to express their opinions in front of the male community and household members (Leach, 1992; Agarwal, 1997; Maksimowski, 2011). According to Agarwal (1997), such “shyness” and gendered norms of behavior are conceived of as cultural barriers to women’s participation at meetings. Some of my interview participants discussed their “shyness” and/or hesitation to answer questions in an open setting where people would hear their responses. Interestingly, I did observe some hesitation and reservation from some female interview participants when they would respond to my questions if male community or/and household members were present. For example, when I conducted household interviews in Khakhnal and Solang (these were mainly to interview female forest users who were not in the forest at the time), I noticed that if a male was present (son, father, husband, uncle, etc.) during the interview, that often some responses would come from the males rather than from the female participants only. I also found that in general the men were much more vocal than the women in terms of their opinions, attitudes and roles surrounding JFM. In addition, when I sat in on Mahila Mandal meetings and observed the structure, conversation and organization of the group, I found that nearly all of the women spoke and most spoke with no hesitation or reservation. This observation matches Ostwald and Baral’s (2000) research, which found that male interview participants involved in community forestry in Orissa were far more vocal and openly expressed their opinions and views about JFM, as compared to their female interview participants. A commonly cited reason to explain this phenomenon is that women’s *perceived* roles are traditionally centered around the domestic sphere within the gendered division of labor in rural areas (Agarwal 1997; 2001; 2007). Consequently, gendered social norms have traditionally excluded women from participation in

public decision-making forums as well as from becoming further engaged in more formal FM activities.

The barriers that were discussed as restricting women's involvement in VFCs are not unique to HP alone. Research conducted by Reed and Varghese (2006) and Richardson et al (2011) also revealed that women are underrepresented in forest sector advisory committees in Canada (mainly Saskatchewan, Manitoba, British Columbia and Ontario). Their research revealed that the inherent gender order⁴⁸ that exists in the forestry advisory committees gives men greater opportunities for participation and appeared to provide them with more influence within the committees themselves (Reed and Varghese, 2006; Richardson et al, 2011).

According to Feeney (1998) there are several concerning effects that result from the low representation of women in VFCs in India, some of which include; little to no influence in decision-making for women in FM, the creation of an unbalanced FM structure that does not recognize marginalized group's concerns, and limiting the roles and responsibilities that women have in effectively managing the forests. Arora-Jonsson (2009;2010) found similar concerning effects in her research relating to the lack of female representation in forestry committees in India and Sweden. She found that forestry committees which neglected to include an equitable gender balance and inclusive decision making processes resulted in: female dissatisfaction (i.e. due to their misrepresentation or lack of representation), greater power differentials and tensions between men and women within the community, and decisions that did not consider or value all

⁴⁸ Gender Order: The social and cultural constructions of gender identities as well as institutionalized relations of power and privilege organized around gender difference. In Richardson et al's (2011) work, it was revealed that Canadian forestry continues to be dominated by a masculine gender order. This was also shown in my research whereby women were underrepresented on committees and in certain FM activities, likely due to the present gender order that persists in the community.

groups affected in FM (i.e., women, marginalized groups) (Arora-Jonsson 2009;2010). As a way to challenge the effects of low representation of women in forestry committees and respond to inherent questions of power within the communities, Arora Jonsson (2009;2010) found that the women in Sweden and India began to assemble their own governance structures of female-only membership. Similar to the Mahila Mandal in Khakhnal and Solang, this created an alternative space for women to openly express their views, concerns and opinions regarding forest and village-related and matters (Arora-Jonsson, 2009;2010).

Table 5 summarized the responsibilities that the five forest user groups (NGOs, VFC members, Mahila Mandal members, FD officials and forest users) felt that they have in the forest as well as the responsibilities they think other groups have in FM. Table 5 also revealed that among all interviewee groups, the FD officials were viewed as holding the most responsibility in FM while the NGO members were seen to hold the least amount of responsibility. The responses in regards to the limited responsibilities of NGOs in FM are not surprising considering that there are not a lot of documented JFM cases where there is strong NGO presence or intervention (Vemuri, 2008; Gupta, 2014). However, this is troubling considering recent research conducted by Baruah (2010) that showed the success of JFM in two villages in Rajasthan where NGOs were carefully integrated into JFM programming and activities.

Furthermore, although there are differences in the perceptions of the responsibilities in FM among interviewee groups, as illustrated in Table 5, all respondents indicated that each group holds at least three of the identified responsibilities for ensuring effective FM. For example, although the NGO members were seen to have the least responsibilities in FM compared to other interviewee groups, all of the interviewee groups identified that NGO members have a role in educating, maintaining the forest area and abiding by the rules in the

forests. A study by Singh and Pandey (2010), which included interviewing over 500 practitioners in the field over a four-year period, found a list of core enabling success factors for JFM in India that closely match the responses discussed above from participants in this research. Singh and Pandey (2010), found that open communication between forest user groups, frequent face-to-face interaction among the FD and forest users and clearly discussing roles and responsibilities in FM collectively all enable JFM to be more successful.

As previously outlined, there are some prescribed roles and responsibilities in FM for some forest user groups outlined in JFM literature and HP Forest Manuals. However, as revealed by the participant responses, there is a high level of variability between the prescribed roles outlined in JFM manuals and what the perceived roles and responsibilities are in practice. Most participants said either they were unaware of any prescribed roles if they do exist or that they do not think there are any prescribed roles in FM. These responses are unfortunate considering that there is a wide body of literature discussing the important role that Mahila Mandal members, forest users and VFC members can play in achieving the successful implementation of JFM at the village level (e.g., Jain and Reddy, 1979; Arora, 1994; Brodt, 2002; Agarwal, 2009). These responses and the differences between the prescribed roles and the perceived roles that are currently undertaken in FM highlight the miscommunication and misrepresentation of the responsibilities that certain user groups take on in FM. For example, in the forest manuals there is no mention of any prescribed roles and responsibilities for Mahila Mandal members in FM, but based on all of the participant responses it is clear that the Mahila Mandals do play a critical role in several aspects of FM (i.e., monitoring, maintaining, rule abiding, educating others). Since none of the participants were aware either of the existence of the prescribed roles and responsibilities, nor did not know what they entailed, it begs the question who decides what the

roles and responsibilities are for the various user groups in FM, and how local groups are consulted about the roles and responsibilities.

Despite JFM existing in the villages, the FD seems to be the primary decision maker at the village level for FM-related decisions. Within the JFM literature in HP there is no clear definition of “fair” or “effective”⁴⁹ in relation to decision-making; however, there are several points within the Forest Manual which indicate how decision-making should operate in regards to village forests (HP FD, 2014). Below are direct passages from the Forest Manual which indicate how decisions *are/should be* made and what the decision-making process *should* look like,

The decision-making process is progressively being opened up to allow increased public participation ... There is an increasing awareness and sensitivity about issues concerning local people [forest users] and their rights on forest and forest based resources. These issues are considered, acknowledged and incorporated in decision-making processes.... There is an evidenced a shift towards a more decentralized and people oriented forestry that incorporates their values, understanding, knowledge and concerns equally.

(HP FD, 2014, pg 10-11)

The FD’s acknowledgement of the decision-making process clearly indicates a space for local level knowledge, values and concerns in decision making. However, there is no indication about how the FD ensures that such things as values and concerns are incorporated equally, what decisions that local forest users help to make, and how forest users are consulted about decisions. Within the FD’s description of the decision-making process, the terms “progressively”, “increasing” and “shift” are used to denote a current changing trend in the levels of public

⁴⁹ Although the term fair and effective was defined in Chapter 2 in relation to decision making, it is not appropriate to reflect solely on those definitions for the case studies as they were from a “western” perspective. There are different localized and cultural understandings of fair and effective that need to be acknowledged and recognized (i.e., the understanding/definition of fair and effective from JFM literature).

participation and the recognition of public values, concerns and knowledge within decisions about FM and protection. Consequently, since the description of decision making is written in a presumptive manner with several key aspects of decision-making left unaddressed (e.g., to what extent are forest users involved, what decisions do they help with, etc.) it can be assumed that the decision-making process is understood and implemented differently at the village level. Despite the ambiguity within the description on decision making within the Forest Manual, it is clear that the JFM decision-making processes in Khakhnal and Solang do not incorporate local forest users' values, understanding, knowledge and concerns equally within the decisions made in FM.

The participant responses captured in Table 5 show that the forest users, Mahila Mandal Members, and VFC members are neglected in terms of being actively represented in formal decision making about FM, rule enforcing, and controlling certain daily FM activities.

Consequently, the way that JFM is currently operating in Khakhnal and Solang does not meet certain objectives of JFM, as outlined in the HP FD's Forest Manual:

to provide a visible role⁵⁰ to the local communities in planning, management and protection of forests and to give them a share in the benefits from these forests... JFM is a concept of developing partnership between FD and fringe forest user groups on the basis of jointly defined roles and responsibilities... the basic element in this concept is to establish grass-root community-based institutions for protection and management of the forests. The program aims at empowering local people for their active participation as partner in the management of forest resources and sharing the benefits derived from its protection and management

(HP FD, 2014)

This illustrates one of the cautions that is present in JFM which is that there is no guarantee of fairness or equity in resource sharing, decision-making or responsibility allocation (Agarwal, 2001). Consequently, the feelings and perceptions about decision-making power in FM-related

⁵⁰ Words and phrases underlined are referring to areas that have not been met or fulfilled in Solang and Khakhnal based on personal observation and participant responses.

activities shows that there is a strong desire for the local user groups to become more active and involved in voicing their concerns about FM. The responses also show that the local forest users (i.e., Mahila Mandal, VFC members and forest users) want to be recognized in helping to develop strategies to meet the concerns about FM activities and to work on plans to increase the sustainability/wellbeing of the village forests.

Lastly, the responses show that VFC and Mahila Mandal members want recognition for their informal decision making about preserving the health and wellbeing of the forests (i.e., not cutting fuelwood for funerals, weddings and feasts) without the approval of the FD. A study by Sarin, Singh, Sundar and Bhogal (2003)⁵¹, found similar results about how decision-making powers were allocated and the effects of the allocation within villages that practice JFM. Overall, they found that JFM involved an unbalanced power relationship between the FD and the local communities, with the FD retaining control over most FM decisions (Sarin et al, 2003). The local forest users in their case studies were not represented and their views or opinions were not considered in formal decision making. They also found the local forest users in Orissa were making decisions that positively impact the sustainability of the forests such as not over-grazing and working to protect more areas in the forest, and were trying to find ways to increase their autonomy in forest decision-making and management by working with civic bodies that facilitate local empowerment (Sarin et al, 2003). Although the forest users in my research were making decisions collectively that helped to increase the sustainability of the forests, they were not seeking external assistance to increase their autonomy in local forest decision making and management.

⁵¹ The research conducted by Sarin et al (2003) was conducted in three states in India that have a history of JFM implementation and programming. The states were: Orissa, Madhya Pradesh and Uttarakhand (region of Uttar Pradesh).

These challenges in misunderstanding and miscommunication of forest ownership and responsibility have been outlined by Stanz et al., (2007) in their Participatory FM in South Asia report. According to Stanz et al., (2007), it is increasingly being realized that the core problems of unsustainable resource use are often linked to poor governance, including unclear rights and responsibilities, centralized planning and management, and inadequate participation of local resource users in decision making. Stanz et al (2007) stated that, “it is largely recognized that the state, as the major stakeholder and custodian of natural resources, has not delivered effectively in relation to sustainable NRM” (pg. 11). According to Murnali et al (2003), it is important for all stakeholders involved in FM to understand their own roles and responsibilities as well as the responsibilities of other individuals in order to manage the forest areas effectively and fairly.

Chapter 6: Learning through FM, Sustainability and Protection

6.1 Introduction

This chapter explores the origins of participants' learning (where they first learned about FM and forest sustainability concepts), what participants learn about FM (the content of their learning) and the action outcomes that have been a result of both their individual and shared learning experiences.

Literature relating to collaborative governance and community forestry suggests that there could be opportunities for learning among interested or invested parties (often termed “stakeholders”), as they collaborate on managing natural resources, and that such learning is critical to SFM (see Chapter 2). According to Wals (2011), “the creation of a more sustainable world requires learning; not just any learning, but learning that leads to a new kind of thinking, alternative values and co-created, creative solutions, co-owned by more reflexive citizens, living in a more reflexive and resilient society” (pg. 181). Moreover, Keen and Mahanty (2006) state that, “learning between stakeholders is important at all stages of a project or community initiative - collaboratively defining learning needs can enhance ownership, relevance, and commitment to learning processes” (p.508). As established in the chapters above, individuals from the state FD, NGOs, forest users, and members on village forest committees are working on FM and protection issues collectively and this may be resulting in learning.

6.2 Learning about FM and Sustainability

In order to understand what individuals learn about FM and the impact that their learning has on carrying out FM activities (i.e., if the learning has an influence on carrying out SFM objectives or not), I wanted to first learn where participants first remembered learning about the

importance of forests as well as key aspects of FM and protection. When I asked participants “*when do you first remember learning about the forest?*” and/or “*what are your first memories about using and working in the forest?*”, most participants mainly discussed learning about FM and the benefits of forests through self-exploration and personal experience, or learning from outside sources/others. Although the specific content of what participants learned about FM will be discussed later in this chapter, it is important to briefly outline some of the common learning themes in relation to where participants learn. Table 6 outlines the different subcategories that were identified as either learning through self-exploration and personal experience, or learning from outside sources/others.

Table 6: Origins of learning

Learning through self-experience/exploration	Learning from others (outside sources)
<ul style="list-style-type: none"> • Personal observation 	<ul style="list-style-type: none"> • Family values
<ul style="list-style-type: none"> • Lived experience 	<ul style="list-style-type: none"> • Meetings/workshops
	<ul style="list-style-type: none"> • Participating in formal forest work/activities
	<ul style="list-style-type: none"> • Religious teachings
	<ul style="list-style-type: none"> • Talking with others
	<ul style="list-style-type: none"> • School subjects
	<ul style="list-style-type: none"> • Media

6.2.1 Origins of Learning: Learning through Self-Experience/Exploration

Most of the participants (i.e., the forest users) discussed that they first remember learning about the importance of the forests, benefits that the forests provide, and basic FM practices through self-experience and exploration. Many participants responded that since they were born in a

village with rich forest areas and have been heavily reliant on the forests for survival, the result has been a natural appreciation and respect for forests.

I think it is a shared common knowledge in the village that forests give us life here in Khakhnal and we need them in the village because it gives us so many materials and. I have always known that the forests are important and that we need to protect them.

Khakhnal, Forest User, 2014

I know about forests from a young age simply by living in the forests and always being around them

Solang, Mahila Mandal member, 2014

I was born into this kind of environment and have always had a deep appreciation for forests and all of the benefits that they provide to us in the village...I am a priest in the village, I value the trees and the forests. I feel and have always felt a strong connection to the forests because they link us to the Gods and to a higher spirit.

Khakhnal, Forest User, 2014

I think everyone in the village has basic knowledge about the forests since we all live in the forests and use the forests on a regular basis... My main learning about the forests has happened because of personal experience and always living near and around the forests.

Solang, Forest User, 2014

Many participants told of family members taking them into the forest as children in order to assist with NTFP collection or for grazing their household animals near the forest edge. This experience taught many of the participants about the importance of the forest and the strong dependence that people in the village have on it for survival.

I remember going into the forest with my mother as a young girl and collecting cones [referring to pine cones]. We would use the cones to help start the fires in our home for heating and cooking. I knew that we really need the forests and we need to respect the area since I was about four or five.

Solang, Forest User, 2014

Some participants remarked that they first remember learning about the importance of the forest to their village through personal observation. Participants mentioned that they noticed certain weather changes when the forests had fewer trees and that they were more prone to certain

natural hazards such as landslides and flooding when there were large empty patches in the forests.

I remember as a young boy that we would get really bad snowfalls much earlier if there were a lot of trees missing from the jungles. When our forests seemed fuller I noticed that the weather seemed to make more sense and was easier to predict. I thought from then on that the trees are important for our environment and weather in the village.

Solang, JFMC Member, 2014

When we had the bad landslide in the village over 12 years ago my kids said that there was too much emptiness in the jungle and not enough strong trees to stop the slide. I know they didn't learn that from school they are just very observant and smart. We notice the things the jungles do for us because we are surrounded by them each and every day.

Khakhnal, FRC Member, 2014

Others remarked that the apples in Khakhnal never tasted as fresh or delicious when the forests did not look healthy, and therefore made the connection that healthy forests provide better apples.

We need apples in Khakhnal...it is our livelihood. When there are less trees in the forest or they look sick I notice that our apple crop is either not as tasty or we get way less than we usually do when the forests are healthy. I think the forests give us good apples so I know that they are important to preserve.

Khakhnal, FPC Member, 2014

While most of the participants indicated that their first memories related to learning about the forest occurred through self-experience or exploration, some interviewee participants discussed that they first remember learning about the forests through outside sources. Additionally, many of the interviewee participants discussed that although they first remember learning about forests through self-exploration or experience they also learned about forests through outside sources.

6.2.2 Origins of Learning: “Outside” Learning

The data on outside learning was easily categorized as learning from; the media, school, family values, workshops or meetings, participating in formal forest work/activities, religious teachings,

and talking with others. The most common response from participants who identified that they remember learning about forests through outside sources related to learning through family values and teachings shared with them.

My ancestors and my parents advised me and my siblings from a young age to not cut the trees in the forest. I remember as a little girl that my family had me and my siblings stay in the forest the whole night with them to appreciate the trees and what they give to us. They also wanted to show us how hard it is to protect the forest and to learn to love this area from a young age. I learned about forest protection from my parents and staying out in the cold forest late at night made me never want to cut trees illegally here.

Solang, JFMC Member, 2014

I am now 60 years old and I have always been taught to protect the forests and to value the forests a lot. I grew up with my parents and grandparents and they would tell me stories about how they would use the forest and what they knew about why it is important to protect the forest.

Solang, JFMC Member, 2014

Some participants also discussed that either reading religious texts or following certain religious practices helped to instill a deep appreciation and understanding about the importance of the forest in their village.

Religious teachings have instilled to me that we need to protect, love, nurture and appreciate the forests. The trees are connected to the Gods.

Solang, Dev Rishi NGO Member, 2014

I read a lot of religious books and there is often lots of reference to the importance of life and trees in those religious books. I think I learned the most about the importance of forests and how to nurture the forests from those books.

Solang, Forest User, 2014

Additionally, some of the forest users discussed that FM concepts and the importance of forests have been taught in schools. The younger forest users mentioned that FM concepts (i.e., what

trees need in order to grow, ways to protect the forest⁵², NTFPs and forest benefits) were taught in their elementary schools all the way into their senior-level classes. Participants recalled having teachers lecture about concepts relating to geography, environmental science, and the interactions between people and nature. Some of the forest users also discussed that teachers now tell their students why it is important to protect and care for the forests by showing and teaching them about the benefits that the forests give to the village. Some benefits of forests that participants noted as being taught in class included the ability for forests to provide clean oxygen/breathing air, the ability for trees to “take in” (absorb) pollution, the ability of forests to protect against natural hazards (i.e., floods, landslides, rock falls) and the ability of forests to provide a home for different animals, people and plants.

I learned the importance of forests from my school...I really became interested and furthered my learning about the forests from studying geography in college. They teach you the benefits of the forests and why we need to look after it. The teachers would tell the students that forests give good air, take away some pollution, help to protect us and they act as the home for many living things.

Khakhnal, FPC Member, 2014

Now children are taught about forests formally in school but I learned the importance of forests from living and working in the forests from a very early age. Children now know more of the “why” it is important to protect the forests whereas when I was a child I observed why it was important to protect the forests simply because I saw and experienced what the forests gave to me, my family and the village

Khakhnal, FRC Member, 2014

While it was evident that forest users learned through school, some forest users also said that they learned about FM through the media. These forest users told of reading headlines in the

⁵² Ways to protect the forest as taught in schools included; not littering in the forest areas, helping with tree plantation work, avoiding the fenced areas within the forest and collecting the garbage that has been found in the forest.

newspaper discussing the effects of lopping and felling trees while others said they learned about tree planting and why it is important from watching the news on TV.

When I come home I usually read the newspaper. I see a lot about the jungles in the paper. They talk about what the FD is doing, which states are illegally felling, the fines people get for illegally felling and why it is important to not lop or fell trees in the village forest areas. I listen to what the newspapers have to say.

Khakhnal, Forest User, 2014

The TV shows when big groups go out and do plantation work. I never really understood why people do it or why it is important. Usually there are women's groups or different organizations from across Himachal planting trees. The programs on TV talk about how the trees need to be sustained for future generations so planting trees is always important.

Solang, Forest User, 2014

Some forest users, mainly Mahila Mandal members, also told of learning about FM while talking with each other, sharing stories about daily forest work with one another, and/or attending workshops or forest meetings.

When we meet as the whole Mahila Mandal group we talk and share stories and usually people talk about the work that they did in the forest that day or when they are going to the forest next. When we talk just as women and the forests seem to come up so much in conversation it really shows how much we need them but also how much we rely on them.

Khakhnal, Mahila Mandal member, 2014

When I attend the block meetings [similar to workshops] the FD talks to us about the forest benefits and how forests help to protect us against flooding and landslides. They teach us that having more forests in the village is better because it is good for the environment and it will help to give the village better crops and better overall health. I never went to school past the 5th standard [Canadian Equivalent of Grade 5/6] and my parents didn't take me into the forest when I was younger so I learned about the forests as a woman through working with the Mahila Mandal.

Khakhnal, Mahila Mandal member, 2014

Lastly, some forest users discussed that their learning occurred through participating in formal FM work such as 'tree plantation' and putting in 'check walls' with the FD. Although the forest users would have had previous experience using the forest, they discussed learning about the more technical aspects of FM and protection in this way.

I help out with the FD in planting trees and I learn about the forests and how to protect it when I get involved. I never knew how to plant a baby tree before but now I know.

Khakhnal, Forest User, 2014

The responses above indicate that forest users learned and continue to learn about FM, the benefits of the forests, and certain SFM concepts through several different sources. Most forest users commented that they first remember learning about aspects of FM or the importance of forests through “self-exploration”; however, it is evident that the learning is a continual process for many of the participants through outside sources as well.

6.3 Learning Outcomes Related to FM

From being engaged in both formal and informal FM activities (see Chapter 4 for a list of formal and informal FM activities) as well as through learned and personal experience of relying on the forests for daily needs, forest users understand a wide array of concepts related to forest ecology, FM, forest policies and regulations, and the value or benefits of forests. Table 7, below, illustrates both the individual and shared learning outcome themes established in the data that participants/forest users provided about what they learned about forests and FM. Of the 13 learning outcomes identified by the participants, five outcomes were identified as learning that occurred individually and eight outcomes were identified as resulting from shared learning. Additionally, the individual learning outcome is discussed in terms of individual learning through self-experience/exploration as well as through outside sources. This distinction is very important because although it was evident that learning takes place in formal settings (i.e., VFC meetings, JFM related workshops, helping the FD with FM activities) local forest users are aware of the importance of FM and protection as a result of their strong reliance on the forests for survival.

Table 7: Major Participant Learning Themes and Subthemes

Individual Learning outcomes through self-learning/exploration	Individual Learning outcomes through outside learning	Shared Learning
Importance of forest/jungle protection and management	Importance of forest/jungle protection and management	Importance of forest/jungle protection and management
Safe forest fire management responses and fire management strategies	Forest ecology (tree species etc.)	Process of maintaining forest use areas (i.e., how to plant tree saplings)
Forest benefits (For the village) 1. Environmental 2. Survival/ Subsistence 3. Economic 4. Mitigation	Process of maintaining the forest use areas (installing check walls, fences, planting trees)	Forest Rights
		How to work with multiple forest users
		Responsibilities of different user groups in FM
		Challenges of co-managing forest resources and forest areas
		Mitigation strategies against natural disasters in the jungle (i.e., installation of check walls, planting or maintaining deep-rooted trees to help against landslides)
		Forest Benefits (benefit sharing)

Some of these learning outcomes relate directly to how community-based FM is currently being practised in HP (i.e., roles and responsibilities of forest users, forest benefits, forest rights) which was addressed in Chapter 4.

6.3.1 Individual learning through “self-learning/exploration”

Most forest users in Khakhnal and Solang commented that through both lived experiences and becoming involved in informal opportunities to engage in FM activities (i.e., conscious care and advocacy) they learned about the importance of forest/jungle protection and management, basic fire management strategies, and the benefits that the forests give to the local forest users and dwellers. Below is the response of one forest user who discussed learning about the importance of the forest.

I always knew that I needed the forests and that I rely on the forests for my heating and feeding the animals but it took me some time to understand why it is so important to protect them. If we don't do our jobs in protecting them right now then there will be no forests for the future and that is not good. The forests need constant care and need to be appreciated.

Solang, Forest User, 2014

This response echoes those of the majority of forest users in terms of their learning about the importance of the forest/jungle. Respondents also indicated that they had learned about many of the benefits forests provide to their villages. For both villages, the benefits participants indicated they learned about included environmental, subsistence/survival, economic, and mitigation. Below, I discuss the benefits of the forest that forest users have learned, through their self-exploration and experience, in more detail. Many participants used the words “full”, “green”, “healthy”, and “big” to denote when the forests seem to provide the most benefits both environmentally and economically.

6.3.1.1 Environmental Benefits

Many participants discussed that forests which are full and healthy help to provide clean breathing air because they remove pollutants from the environment. Participants also noted that full and healthy forests result in better weather, making it easier to predict the weather patterns in the area.

The jungles are important because they keep the weather well maintained and balanced. The jungles help the weather stay in a happy place that is not too hot and not too cold.

Solang, Forest User, 2014

Participants also discussed that forests act as a home for many animals and plants which help to create a healthy working ecosystem.

The jungles are home to many different kinds of plants, birds, squirrel...even monkeys. If we had no forests then the monkeys would come into the village and eat all of our apples. The forests help to protect us from the monkeys so they don't come into the village and

destroy our apple crops or annoy our animals [cows, sheep etc.].

Khakhnal, Mahila Mandal member, 2014

With the forests everything and everyone works well together. The forests are our home and are a home to many other things. It makes our village a healthy place to live and it allows the animals, plants and mountains to be healthy as well.

Solang, Forest User, 2014

The responses, listed above, show the individual learning that has made forest users realize and understand the connection that forests have in providing environmental benefits and the important role that forests play in their local ecosystem.

6.3.1.2 Subsistence/ Survival Benefits

The benefits of forests in terms of meeting survival needs, and a discussion on how participants use the forest, are outlined in Chapter 4. Forest users said they had learned about the benefits through relying on the forests for survival. All participants interviewed spoke of the benefits in terms of NTFP collection and other forest products that they collect in order to heat their homes, cook their food, and provide shelter and food for their animals.

If there are forests then we have everything but if there are no forests then there is no life.

Khakhnal, Timber Depot Employee, 2014

We are completely dependent and reliant on the forests. My family needs fuelwood to \ heat our home and cook the food, hay and grasses for shelter and food for the animals and berries and medicines to keep us healthy.

Solang, Forest User, 2014

Participants also said that forests allow them to live in very harsh weather conditions such as the extremely cold temperatures and heavy snowfall in Solang.

My family and I can't live in the village if it were not for the forests. Sometimes there is so much snow that we cannot get to town safely. We gather all of the wood for heating before the snow hits so we can keep our homes nice and warm for the winter.

Solang, Forest User, 2014

The responses indicate that there is a strong reliance and dependency on the forest resources for survival by the forest dwellers/users.

6.3.1.3 Economic Benefits

In Solang, most participants/forest users commented that when forests seem to be healthy and are full of green trees it attracts a lot of tourists from all around the country. Many participants said that elsewhere in India, regions do not have such plentiful forests and therefore tourists will travel great distances to see HP's mountains and forests. Due to the high influx of tourists between May through October in HP, forest users related how they have learned that the forest helps to sustain their tourist jobs and earn extra money for their household.

When the forests are big, healthy and green it attracts a lot of people to Himachal. People from all over India will come to Solang to see the ski mountain and to take pictures of the beautiful scenery and mountains. The big forests and big mountains are new to many people from the south. The tourists usually come between May to October... during this time I am really busy working in the town and making money for my family.
Solang, Forest User, 2014

When the tourists come to Solang to ski, see our forests and enjoy the restaurants I am able to make more money then. If the trees weren't full during this time or if Solang didn't have beautiful mountains and forests I don't think people would come here from all over and then I would not have a job in the town. I own a tea stall and I have 2 horses... I give children horse rides along the ski hill... so when the tourists come the business is very good for me.

Solang, Forest User, 2014

Meanwhile, in Khakhnal the learning related to economic benefits from the forests was also discussed in relation to apple production.

Many people in Khakhnal rely heavily on apples as a means to support their families and we all know that the more we take care of our forests then the better our apples will turn out. In Khakhnal our apples are very big, delicious and really tasty so keeping our forests healthy really pays off for the apples.

Khakhnal, Forest User, 2014

Good forests provide a good growing environment for the apples.

Khakhnal, Mahila Mandal member, 2014

Khakhnal is one of the top apple producers in the Kullu District and as such the farmers are very aware of the quality of their apples each year (Dunne, 2013). Most forest users/participants in Khakhnal said that when the forests are healthy and there are no gaps in the forest (i.e., empty patches from felled trees) they notice that the apples always taste sweeter and are usually crunchier. Forest users also related that when the forests are healthy their apples are healthy as well and the amount of apples produced is usually higher too. Based on the forest users' lived experience, they have noticed that the forests in Khakhnal and Solang help the main economic sector in both villages (i.e., horticulture/agriculture and tourism).

6.3.1.4 Mitigation Benefits

As outlined in Chapter 4, Khakhnal and Solang have experienced natural calamities in the past. In 1999, Khakhnal was hit by a landslide which devastated the village causing one death and several homes to be destroyed. After the experience of living through such a tragedy many forest users said they have learned the important role that forests have in helping to mitigate against natural hazards such as landslides, rock falls and avalanches.

On July 11, 1999 there was a devastating landslide in Khakhnal and just a little bit before the slide the FD had issued an "OK" in cutting down rotten or old trees- just after this was approved the landslide occurred. There was not much awareness or education about where to cut trees, when to cut trees and how much to take away from the forest in order to protect our village from slides. After this horrible incident, I learned the importance of protecting the forests in order to protect ourselves and our families.

Khakhnal, Forest User, 2014

It is important to protect the forests because it helps give us our benefits. Forests protect us against landslides... The rocks, water or soil that would fall from the forests could hit trees first rather than the village. Because we live in a very sloped area we are all very prone to landslides... If there are more trees it will hold to the land more and keep us protected. The forests allow us to live easier because it provides our village and each

household with fuel, fodder, hay and grasses.

Khakhnal, Forest User, 2014

If we have good forests then there is less wearing away of the soil [referring to soil erosion] ... Previously when there was a landslide in the village I noticed that the soil in the jungle was breaking away so the forests help to keep the soil in place and strong to keep us safe from more landslides in the future.

Khakhnal, FRC Member, 2014

Forest users in Khakhnal discussed mitigation benefits from the forests more so than the forest users in Solang. However, the forest users in Solang commented that they had learned safe forest fire response strategies. Though they also learned about mitigation benefits, Solang area has experienced forest fires in the past and as a result the learning relating to safe forest fire response was more relevant.

I noticed one day that the forests were all smoky and it didn't seem right. I told my neighbour and we all gathered in the center of the village. From there we all rushed down to the town. People in the village called our forest guard right away. Some men stayed behind for a while and helped to carry down the sick and elderly. We learned how to handle ourselves when fires occur. After the fire people did not put cigarettes that were still hot in the forest, we bundled our hay and grasses differently and we went out to look for dry patches in the forest that may catch on fire... We want to prevent that from happening again.

Solang, JFMC Member, 2014

All of the responses listed above indicate that local forest users have a rich and in-depth knowledge base that has been formed in part through lived experience. Additionally, the responses are indicative of a continuing and strong reliance on the forested parts of the village use areas.

6.3.2 Individual Learning through “Outside Learning”

In documenting individual learning outcomes which were a direct result of being engaged in “outside learning”, the main ones identified by forest users included learning about forest

ecology and learning about the process of maintaining the forest use areas (Table 7). Many participants who were involved in plantation/tree planting work stated that they learned more about the various tree species and specific forest ecology concepts

6.3.2.1 Forest Ecology

Through participating in tree planting, many forest users commented that they learned more about the specific tree species that grow in the area as well as the variety of trees that are planted in the village forest. Through assisting in activities with the FD (i.e., helping in the medicinal plant nursery, and installing fences) some forest users also related that they learned more about where certain medicines grow in the forest as well as the importance of not grazing in newly planted patches/areas of the forest. Although many of the forest users indicated that they collected medicines in the past, some were unaware of all the different species that grow in their village forest.

I went out for tree planting last year with the FD and they told us that most of our trees are different types of fir or spruce trees... I didn't really know that before... I also use the trees here and go into the forest but I never knew what they were called and how many different types of trees there were.

Solang, Forest User, 2014

The FD taught me about medicinal plant species, how to plant trees, and why it is important to not graze in protected and fenced off areas.

Solang, Mahila Mandal member, 2014

Through helping with tree planting, many forest users also said that they learned more about the importance of the forest protection in order to have enough forest resources for future generations.

When I help the FD with plantation work they tell us about the importance of properly managing and taking care of the forests so that there is enough supply for the future. If we do not plant, or follow the rules about when and where to graze or fell the trees then there would not be enough for my kids and their children when I am gone. I know how

important it is to plant trees and use the area responsibly so we don't use up the forest [referring to forest degradation/depletion].

Khakhnal, FRC Member, 2014

Learning outcomes relating to understanding the importance of FM and protection were seen to be related more to forest benefits at the village and household level when forest users learned through self-experience/exploration. However, when individuals learned about the importance of FM through outside sources, the learning was more centered around the importance of protection in order to ensure a sustained supply of forest resources for the future.

6.3.2.2 Process of maintaining the forest areas

Some participants discussed that through helping with certain activities such as installing check walls, putting in fences to further protect certain areas of the forest, and helping with tree planting, they learned more about the process and importance of maintaining the forest use areas.

I always knew that we needed to protect the jungles because we need them in order to live here but I never knew what check walls do, how to properly put in fences, why we put in fences and how to safely plant baby trees or saplings. When I help with certain activities with the FD I learn more about how to properly and safely maintain the jungles for the future generations.

Khakhnal, FRC Member, 2014

6.3.3 Shared Learning Outcomes

Data on shared learning refers to learning outcomes that occurred when multiple forest user groups (i.e., forest users, FD officials, NGO members, Mahila Mandal members and VFCs members) worked together on FM activities in the past and present⁵³. Table 7 shows the eight shared learning outcomes.

⁵³ Past meetings and workshops: It was identified by many of the forest users as well as some of FD officials that there were workshops held in the past and meetings held in past that were not only more engaging but also included a more representative group (i.e., Mahila Mandal, Panchayat members, forest users, people of interest etc.). One of the reasons why there may have been more workshops and meetings in the past might be because of allocated funds or more

6.3.3.1 Importance of FM and Protection and How to Maintain Forest Area

The response below is from one forest user who discussed his learning about forest maintenance and the importance of FM. It reflects the responses of other participants who spoke of learning through attending meetings and workshops, and from working together on FM activities.

The FD has put on workshops in the past to help us understand things like what trees grow here in Solang and what conditions they need in order to grow big and strong. There are agricultural and horticulture professionals who sometimes come into the village and teach the importance of forests and why they need to protect it. The FD teaches us about tree plantation and how to protect the forest by not cutting too many trees and not grazing in fenced off areas.

Solang, Forest User, 2014

Some forest users in both Khakhnal and Solang said that in the past the FD has held village level workshops where there were engaging activities that taught concepts relating to tree planting, tree species, forest protection, and mitigation strategies. In Solang, it was mentioned that these workshops have not been held for at least five years and in Khakhnal it was indicated that these workshops have not been held since 2008⁵⁴. This was identified as a shared learning outcome because when these workshops were held, many forest users would be in attendance.

pressure from the state to follow JFM in the villages. There may have been more excitement about the initiative when it was a newly introduced strategy. (personal communication, 2014)

⁵⁴ The primary reasons that were identified by the forest users as reasons that the workshops are no longer running included; limited funds available (i.e., lack of funds to support the project), change in government therefore a change in priorities, and a change in FD staff who do not continue to do the same level of programming or activities (personal communication with forest users in Khakhnal and Solang, 2014).

6.3.3.2 Forest Rights and Forest Benefits

Additionally, interviewees said that through participating in medicinal plant nursery work in Solang, attending past village meetings or helping with tree planting, participants learned about their forest rights and the forest benefits.

The FD teaches that you will need everything from the forest and we need them in order to be protected from landslides and flooding in the area. The forest department also focusses on making sure that we know what the forest gives us and what we can take and use from the forest (referring to forest benefits).

Solang, Nursery Worker, Mahila Mandal member, 2014

When I have gone to the village meetings and the forest meetings in the past they talked about our rights in the forest. I always knew that we had rights but I didn't always know what we could and could not take from the jungles. They told us that we can take broken, dead, rotten trees. Trees for funerals, weddings and feasts, any medicines, berries, mushrooms and more. I think a lot of people realized that we [referring to forest dwellers] are allowed to take more than we thought.

Khakhnal, Forest User, 2014

6.3.3.3 Learning about Mitigation Strategies

Many forest users mentioned that through collectively participating in forest mitigation strategies, they learned about the importance of creating devices that help to mitigate the effects of natural disasters to which the area is prone. They also discussed learning the “hard skills” about how to properly wire a fence, how to safely put in check walls, and techniques to reduce the village’s risk of a forest fire. All forest users (including Mahila Mandal members and VFC members) who learned about mitigation strategies (i.e., installing check walls and fences) and the importance of these strategies, volunteered their time to learn about these techniques from the FD. They would then collectively help implement the strategies at the FD’s request. Below is a response from one forest user in Khakhnal that describes his learning about mitigation strategies and what he took away from his experience with the FD. The response reflects what I heard from others, particularly Mahila Mandal and VFC members.

I wanted to learn more about how to protect my village so I volunteered to help the forest department put in check walls and fences. I was surprised to see how many people from the village came and helped out. Together we learned about installing check walls, how to make wire fences and we were taught about what hazards are prone to this region and some things that help prevent avalanches, rock falls and slides. If the trees are big and have big root systems, then we are more protected against these disasters but putting in check walls further protects us.

Khakhnal, Forest User, 2014

6.3.3.4 Learning about Responsibilities of Different User Groups in FM

Participants working with multiple forest user groups in certain FM-related activities said they learned about certain roles and responsibilities that they have in FM, the difficulty in working with various user groups with different interests, and ways to work with multiple forest user groups. Many forest users (including Mahila Mandal, VFC members) told of becoming aware of their role in FM and protection through working together in certain activities, attending meetings and informally talking with one another.

For the Mahila Mandal we know our role in FM and we discuss it amongst our group quite often. Our group has a purpose and we all discuss how we want to meet the groups' purpose [referring to what actions they want to do or ways they want to contribute to the village]. We also talk with the FD, other committees and forest dwellers. We are very present in the village and the jungles so we think our presence is known and we know that people value the work we do for the village.

Khakhnal, Mahila Mandal member, 2014

People who live in the forest...we know what we have to do and what we should do to protect our jungles. They are our jungles but we do not have as much say in how they are managed as we would like to. We know that we need to protect, maintain, and manage the jungles as best as we can.

Solang, Forest User, 2014

6.3.3.5 Learning about Working with Multiple Forest Users and Related Challenges in FM

In Chapter 5, it was shown that the all the forest users groups (i.e., Mahila Mandal members, VFC members, forest users who are not Mahila Mandal or VFC members, NGO members, FD officials) are frustrated with some aspects of co-managing the forest resources. However, the NGO members and local forest users (including the Mahila Mandal and VFC members) all

voiced feelings of frustration about how the roles and responsibilities are allocated and practised. Participants also revealed additional learning outcomes related to the difficulties of working with different groups in FM activities.

Because we live in the jungles and we rely on them we have a certain understanding that people who do not live here would not understand. When we suggest to plant trees in certain areas or plant different tree species it is very frustrating when we are not heard. The FD does not live in our village forests...most of them live just outside or live in the town. They do not always know what is best for our forests like we do.

Solang, Forest User, 2014

The response, listed above, is also representative of the frustrations (for example, those who are making the decisions and who have ownership of the forests are not the ones who live and rely on the forests) as voiced in particular by members of the Mahila Mandal, VFC and NGOs. Some FD officials also expressed their frustration about how difficult it can be to encourage and incentivize local forest users to help out with certain FM projects. The District Forest Officer (DFO) discussed his understanding of the process and his conclusions, based on experience, as to why increasing public participation in certain projects is difficult.

When we would give out monies for helping with plantation work I noticed that there are more people who want to help out but when there is not that same incentive it is harder to get people interested. At times it is hard to get the local forest users encouraged to help... But we expect them to use less of the village forests in order to increase forest protection but there is no alternative or incentive for them to not graze or fell in the fenced areas. This puts an increased pressure on the forests because the same amount of people are expected to now use less of the forests for their same daily household needs. Right now we [referring to the state of Himachal] do not have the means to develop other energy sources in all of the villages nor can we always pay forest dwellers for helping with plantation work... this is an issue that we have learned is happening and I think that is why some villages are experiencing forest loss even with this program in place [referring to JFM].

Kullu, FD Official, DFO, 2014

This response reveals the conflicting dynamic that JFM introduces when increasing the forest area and furthering the protection of the forests comes at the potential expense of the livelihood

of the local forest users who are dependent on the area. The DFO stated that either providing in-term supplemental energy sources (i.e., gas) for the forest users while the FD continues to work on protecting more forested land and increasing the forest area (i.e., planting more trees), or providing access to other energy sources would reduce the pressure that JFM places on local forest users. The latter option/strategy seems more realistic and would achieve more sustainable outcomes considering that HP is extremely rich in hydroelectricity resources (Slariya, 2013). Additionally, because HP is heavily targeted for hydroelectric power generation under the Government of India's "Mission-2012: Power to All" strategy, it seems likely that access to renewable energy sources to more remote areas (i.e., Solang village) will become achievable (Slariya, 2013).

6.4 Action Outcomes of Participation in FM Activities

Participants associated some of the learning that has taken place among them or within the practice of forest protection and management at the village level with some noticeable changes in behaviour and actions by forest users and user groups. Based on the participant responses, there were three actions related to participant learning through JFM. These included decreases in illegal felling and lopping, decreases in the amount of illegally felled wood being purchased, and, greater overall community discussion about the community's/village's role in FM and protection.

6.4.1 Decreases in Illegal Felling and Lopping of Trees

In both Solang and Khakhnal, forest users indicated they have observed less illegal felling occurring in the village forests overall. Participants in Khakhnal indicated that the level of illegal or illicit felling has decreased overall in the past 10 years; however, it was also reported that the recent reopening of the TD entitlements resulted in some individuals taking advantage of this

entitlement and paying a baksheesh to the FD (as discussed earlier in Chapter 4) in order to take more wood than was allowed. In terms of the former point, the following captures the views of forest users.

The forest dwellers here really care and appreciate our forests, we try to get more of the forest land reserved and we all do our best to follow the laws and respect the forests. The Mahila Mandal reports if we see illegal felling and lopping but we have noticed that it has been reduced in the past 10 years in Khakhnal and Gorja. We try to manage and protect the forests as a community...we work together.

Khakhnal, Mahila Mandal member, 2014

Forest users in Solang discussed that there has been little to no illegal felling or lopping of trees in the village forests for several years. They attributed this to better knowledge of the benefits from the forest and being well informed about the potential penalties that an individual would incur if they were caught by the forest watchman. Additionally, forest users noted that a better awareness and understanding of the forest rules (i.e., where to fell, when to fell, what to legally take from the forest) has been one factor that has contributed to the lower levels of illegal felling in the village forest.

People don't tend to illegally fell the wood too much in Solang probably because we are so far away from the town and there are no roads here. If people took trees illegally, everyone in the village would notice and it would be too much work for them to bring the wood down into the town.

Solang, JFMC Member, 2014

Through attending some forest meetings and village meetings I now know more about what we can take from the forest, why we should not take certain things from the forest and where we should not go [referring to fenced areas]. Before I may have taken wood from areas I should not have and I know people have taken trees that they were not granted but overall I think people know the rules better and it is talked about. I think that [referring to awareness of the forest rules] has also helped to keep the levels of illegal felling low in Solang.

Solang, Mahila Mandal member, 2014

We all know what happens if we get caught illegally felling and I think that scares more people out of doing it in the first place. I can't afford a fine and I don't want to harm the

forest in any way. I respect the forest and I think the penalties are a good thing in order to ensure that everyone respects the forest as well.

Solang, Forest User, 2014

Forest users in Khakhnal and Solang discussed that illegally felling in the village forests has reduced in part due to local forest dwellers reporting illegal activity in the forests to the FD. However, some forest users also noted that reporting illegal forest activity can be challenging at times because of the fear that reporting locals could have negative effects on relationships within the village.

Sometimes reporting illegal felling and lopping in the forest can be really hard. I do not want to tell on my neighbor, family or friends if I knew they were doing something illegally but I know it is the right thing to do. I think a lot of people are scared that if or when we report activities that it could ruin friendships or make people think bad of us for reporting people in the village.

Khakhnal, Forest User, 2014

Many forest users in Khakhnal and Solang mentioned that people are also more aware of the importance of protecting and keeping the forests “alive and full” for the future generations in the village

I think people do not want to illegally cut the trees as much now as they did before because we all know how much we depend on the forests and our kids and grandkids will need the forests too so there is more awareness that we should only take what we need and to not cut illegally or else there will not be enough jungle for our kids.

Khakhnal, Forest User, 2014

Although forest users discussed that overall the amount of illegal felling and lopping of trees in the village forests has decreased over the past 10 years, they mentioned that there are still challenges in in this regard. Forest users in Khakhnal discussed that village road access and the tendency for some individuals who receive TD entitlements to take more wood than they are granted presents difficulties in eradicating illegal activity.

Even though we know that the forests are vital and we need to only take what we need and not to take advantage of our rights in the forests... there are still some people who abuse this. I think that because Khakhnal has good roads it makes it easy for people who want to illegally cut wood to transport it and then sell it in the market. Also, when people take more TD wood than they are allowed it is hard to always monitor it [referring to monitoring the levels of TD wood that was allotted by the FD] and they take advantage of it and do not use it properly.

Khakhnal, Forest User, 2014

Because there is road access here in Khakhnal we tend to see more illegal cutting than villages that do not have road access because it is easier and there is a clear way to transport the cut trees... The people in the village and within Kullu valley are more scared to lop because the committee will take action especially if that person is not from the village.

Khakhnal, FPC member, 2014

In Solang and Khakhnal, forest users also noted that the increased presence of chainsaws in the village makes it easier for individuals to illegally fell and lop trees in the village forests. In both villages, it was mentioned that the presence of chainsaws in order to fulfill daily NFTP collection needs and gather TD entitlement wood has increased within the past three years.

It is hard to stop all the illegal felling in the village because more people are using chainsaws. Within the last three years I have noticed more people using chainsaws for NFTP collection and daily forest activities...The chainsaws make taking the wood from the forest far easier and it also reduced the amount of manual work needed to be completed in the forest... The government should ban powered chainsaws in the forest in order to reduce the amount of illegal felling in the area.

Solang, Forest User, 2014

6.4.2 Decreases in the Amount of Illegally Felled Wood Being Purchased

After speaking with four employees at two Timber Depots⁵⁵ in Khakhnal and Solang, I learned that both areas have experienced an increase in locals purchasing depot wood. This was

⁵⁵ Himachal Pradesh Timber Depots: The Himachal Pradesh State Forest Development is running about 60 timber/fuelwood depots in non-tribal areas, spread throughout the State in various towns, townships and important villages to meet the timber, fuelwood and charcoal requirements of non-right-holders. There are also several fuelwood and timber depots across HP for right holders in tribal areas. The intention of both depots is to minimize the malpractices and

surprising because even though the TD has been reopened in HP, people are still getting wood from depots rather than applying for their TD entitlements. Some forest users who chose to purchase wood from the Timber Depot indicated that they had knowledge of the importance of preserving their village forests and using wood that is sustainably sourced and legal rather than choosing potentially cheaper, easier and illegal options. All participants who were vocal about their conscious choice in selecting wood from the depots also were forest users who were vehemently opposed to the TD entitlements because they believe that the system is abused and those in need are often not the ones who receive the entitlement.

Even though I could get wood from my forests or I could buy in the market for a cheap price from someone who felled it illegally I have chosen to get all my wood for my cow shed construction and house repairs from the timber depot because I want to purchase wood that is legal and taken safely. I could apply for TD but I do not agree with how the program is managed nor do I like how the system can be abused. I have learned about the importance to preserve and protect the forests through being in the forest committee and I want to set a positive example for others to follow... and maybe we will see even less illegal felling in Khakhnal soon.

Khakhnal, FPC Member, 2014

Some people in the area fell more trees than they are allowed with the TD and then they try to sell it off to people in the village for a cheap price. We know that this wood is not legal and that the person took the wood without permission. They try to sell the trees for profit but I understand that supporting illegally felled wood is not good because we need our forests for future generations.

Solang, Forest User, 2014

irregularities in the purchase of timber and fuelwood by providing legally felled wood that is sustainably sourced (Government of Himachal Pradesh, 2013; 2015)

6.4.3 Greater Discussion about the Role of Communities and Villages in FM

Forest users in Khakhnal and Solang said that since the advent of more organized FM programs and activities at the village level, there has been an increase in community awareness about the importance of the forests, benefits of the forests and the importance of FM.

People talk about the forests now more so than we did before. People talk about ways to protect it and there is more discussion about why it is important to protect and manage our forests for our children and their children. Before the conversations were more about what we need from the forests for today but now it is more about what we can do to make sure there is enough forests for years to come.

Khakhnal, Mahila Mandal member, 2014

In the village people are more aware about the forests and how we can protect them. Before we had JFM in Solang everyone knew that the forests were important because we rely on them but now we know what benefits the forests provide, how the forests protect us and why it is important to be responsible in the forests.

Solang, JFMC Member, 2014

The changing attitudes and perceptions towards the village forests were identified by forest users as being a direct result of participating in tree planting, attending village forest meetings, and helping with FM activities assigned by the FD. Many forest user participants also said that there has been an increased emphasis placed on teaching environmental concepts in the schools, which has resulted in the children becoming more aware at a younger age about the importance of the forests and ways to protect the forests.

I have noticed a change in the schools as of late. My daughter is taught environmental science and geography in the village school. When she comes to the forest with me she knows how the trees grow [referring to photosynthesis], what the forests provide and the importance of being respectful of nature. When I was her age I did not have this same awareness so I notice a change. I am hopeful that our forests will be sustained for my generations because people are caring and are very aware about the forests at a younger age it seems.

Khakhnal, Forest User, 2014

6.5 Chapter Summary

Where they Learn

The findings presented above show that the forest users have learned about FM concepts (i.e., the importance of the forests, forest benefits and benefit sharing and protection strategies) both from lived experience and through their participation in JFM-related activities. Forest users also indicated that they have learned about FM and protection through school, various media outlets (i.e., television, newspaper and online articles if internet was accessible) and through family values that have been passed on to them. Furthermore, most of the forest users remarked that their initial learning about forests occurred in childhood because they were raised in forest-dependent villages. Many forest users indicated that initial learning about the forest occurred through helping to collect NTFPs as a child with their parents or close family members. It was often remarked that children in the village would help to collect cones for kindling and help graze the goats and cows near the forest edge. It was through these initial experiences of using the forest and collecting forest products, which are needed for daily household use, that many forest users gained an appreciation and understanding of the value and benefits of their village forest.

Significance of Learning through Self-Experience/Exploration

The data also show that traditional forest knowledge of local forest users is intricately linked to the cultural and religious belief system centered on local deities. This has resulted in the conscious choice of forest users to preserve and maintain sacred groves (i.e., devban), temple forests, as well as species and landscapes that are found to be sacred (see Chapter 4). Forest users indicated that in both Khakhnal and Solang, they have made the conscious choice to no longer collect medicinal plants in the village forest because the local village deities have warned the

forest users that it damages the natural environment (e.g., caused soil erosion and vegetation depletion in the area). According to Vasan (2006b), the use and recognition of traditional forest knowledge has led to more SFM practices in certain communities within HP. Interestingly, the majority of the learning outcomes that have resulted from lived experience and relying on the forests for survival relate to learning about the importance of the forests and the benefits that the forests can provide.

Although not explicitly discussed by the forest users, some of the responses from participants can be extrapolated in order to understand locally identified indicators for sustainability. For example, a majority of forest users discussed that they get the most benefits from the forests (i.e., NTFP collection, a more profitable tourism industry in Solang, a larger harvest of bigger and tastier apples in Khakhnal) when the forests are big, full and green. These concepts can be related to more globally and nationally understood indicators for forest sustainability such as forest health and vitality (forest density, forest cover), forest production (i.e., amount of trees in the areas), and biodiversity (i.e., tree species diversity) (Castañeda, 2000; Brodt, 2002; ITTO, 2015). These responses about local knowledge derived through lived experience and its relation to understanding overall forest health and vitality (i.e., apples are tastier and bigger when the forests are fuller and green) are similar to the findings in Duffield et al.'s (1998) research.

What Forest Users Learn

While forest users gained knowledge through lived experience, they also discussed that concepts relating to forest ecology (i.e., particular tree species) and ways to maintain forests (i.e., how to plant trees) were primarily learned through becoming involved in more formal FM-related activities such as helping with tree planting, attending meetings, or taking part in

workshops. Forest users also remarked that through these activities, they learned skills related to understanding mitigation efforts in the village and how to implement certain mitigation strategies. These strategies include: installing check walls to reduce the negative impact of landslides, avalanches and rock falls, making and installing fences to protect the tree saplings, and safe forest fire response and mitigation plans⁵⁶. The participant learning that involved understanding mitigation strategies as well as working on implementing those strategies is often referred to as skill based learning (Boin et al, 2005; Keen and Mahanty; 2006).

In Khakhnal and Solang, the skill based learning and training occurred after a natural disaster took place in the village (e.g., landslide and village forest fire). According to Boin et al (2005), this implies that during and after the crisis (i.e., natural disaster) problem solving and development of ideas occurs in order to better handle a similar crisis in the future. According to Nazir and Pujeri (2014), there are several motivating factors for forest users to become engaged in skills based learning. They found that participants who are involved in skill based learning programs or who learned “set” skills through their participation in various resource-management activities were motivated to join and/or continue their involvement because they found it enjoyable, it strengthened the community cohesion in the area, and it provided participants with new opportunities to advance their skills (Nazir and Pujeri, 2014). The motivating factors addressed by Nazir and Pujeri (2014) closely parallel the findings in my research. In Chapter 4, I noted that forest users were motivated to participate in more formal FM activities (such as tree planting and helping to install check walls and fences) partly because they found it enjoyable, it

⁵⁶ Safe forest fire response and mitigation strategies: In Solang, forest users collectively learned safe forest fire response methods (i.e., ensuring safe evacuation procedures and developing strategies on how to communicate the fire danger to everyone). After the fire, the forest users and FD staff discussed ways to reduce the risk of fires (i.e., store hay and grasses in a secure area that is far away from open flames, gas or excessive heat).

enhanced their learning opportunities, and it created stronger community connections. This similarity between my research findings and Nazir and Pujeri's (2014) results is significant because it shows that participants can be more motivated to participate in learning activities when they are engaged in the process by learning new skills in a "hands-on" way.

The data also show that all research participants, including FD officials, have learned about the challenges related to trying to collaboratively manage forest resources. The learning outcomes that were shared among all user groups included learning about the difficulties and frustrations in managing resources with people of different interests/priorities, and learning about the roles and responsibilities of various user groups in FM. These results support Singhal and Rishi's (2012) research, which found that participants who live in areas that actively practise JFM learned through different forms of management and conflict. According to their findings, the conflict that was present in this research can be classified as dysfunctional conflict because it focuses on paying attention to the excluded stakeholders within the group and on neglected issues (Singhal and Rishi, 2012).

Outcomes related to Participant Learning through their Involvement in FM Activities

Forest users' learning outcomes also illustrated some notable action-related outcomes that have resulted from the introduction of JFM in Khakhnal and Solang. The three action-related outcomes identified were decreases in illegal felling and lopping of trees, decreases in the amount of illegally felled wood being purchased, and greater discussion about the role of the communities and villages in FM. These outcomes all support the popular assertion in social learning literature that through participatory approaches to resource management, participants are likely to learn and acquire new knowledge that leads to better management outcomes (e.g., Buck et al., 2001; Wollenburg et al, 2001; Rist et al, 2007).

One way of thinking about the social learning outcomes revealed in the data discussed above is through the single and double loop typology of learning presented in Chapter 2 (e.g., Singhal & Rishi, 2003; Rist et al, 2007; Pah-Wostl et al., 2008). Single loop learning involves finding alternative courses of action/strategies and knowledge to solve a problem and improve outcomes, which occurred when the FD and local users worked together to mitigate potential future impacts from fire and landslides, through:

- building check walls,
- preserving more areas of the forests,
- planning safe fire evacuation strategies and;
- learning how to extinguish forest fires

However, it is evident that there are areas where single-loop learning is still evolving in both communities in order to solve inherent problems (i.e., clarifying roles and responsibilities, discussing benefit sharing) within the JFM structure in the villages and enable improved outcomes. Chapter 7 provides some policy insights that have been devised based on personal observation and participant responses in order to address some of the frustrations and concerns that are present in Khakhnal and Solang.

The data also revealed evidence of double loop learning as described in Chapter 2. Forest users are consciously engaging in certain activities and are choosing to change or adapt their behavior in order to protect more areas of their village forests. For example, it was shown that in both villages forest users are changing their cultural tradition of cutting wood for funerals, weddings and feasts in order to ensure that the forests are not being over used. Some forest users are also choosing to no longer collect fuelwood from the forests because they are choosing to prune their apple trees and repurpose the wood to make kindling. In both villages, forest users

also discussed that they do not collect medicines from the forest in an effort to preserve the forest lands and to honor the village deities. All of these examples show that forest users are questioning their actions in the forests and are developing more sustainable and practical strategies/solutions that help preserve the village forest areas. Learning about the best way to protect these culturally valuable areas (i.e., devban) and understanding ways to adapt cultural traditions in order sustain the forests are examples of double loop learning in both villages.

Chapter 7: Conclusions, JFM Policy Insights & Final Thoughts

7.1 Introduction

The overall purpose of the research was to examine local forest governance institutions in HP with a view to understanding the impact they have on the social dimensions of SFM, particularly the role of women in decision-making and the learning outcomes for all participants as a result of their involvement. The research objectives included considering how community-based FM is currently being practiced, the contributions of women and men to community FM institutions, the learning outcomes of people involved in community forestry and how such learning facilitates SFM, and whether perceptions of, and actions related to, forest sustainability and local governance systems have changed based on their involvement in community-based FM activities/programs.

In order to address the objectives, I selected two villages within the Kullu District in HP that satisfied the site selection criteria as established in Chapter 3. The two case study sites selected were Solang and Khakhnal. The data were collected through interviewing over 100 participants using a semi-structured style, going on six forest walks with local forest users/dwellers, personally observing FM activities, and completing an in-depth literature review prior to going into the field. Themes were generated from the information provided through interviews and analyzed in line with objectives of the study and were supported through constructs from the relevant literature outlined in Chapter 2.

7.2 Limitations

As I reflected on the conclusions and policy reflections presented below, I better understood some of the limitations of my research, which I wish to explain before going on to

my conclusions. Doing research in remote northern India meant that I had to adjust to the different pace of life and research rhythm in India, which took some time. However, soon it became less of a limitation and more about adapting to a new way of life for a limited time. Since the research was cross-cultural, certain challenges were also experienced. Some challenges were contextual. A limited understanding of religion and the subtleties of the caste system, both of which pervade daily life in India, made it inevitable that I would be oblivious to some of the cues and unspoken customs.

7.2.1 Language and Culture

Language was perhaps my most significant limitation. Culture is embedded in language and without an understanding of the local language it is a challenge to grasp a sense of the local reality. Non-verbal communication is informative, and a capable interpreter helps a great deal, but there are always nuances such as humor that are unintelligible and details that are lost when one does not speak the language. Despite learning and understanding more than a few words of Hindi, I found myself heavily reliant on my interpreter. As well, I could not obtain the informal data (conversation) between the translator and the participant as easily as someone who speaks the same language as the participants. The use of an interpreter in itself also places limitations on research. Information and stories are filtered through the interpreter's selective translation, and then the researcher's perspective (even though I tried to take verbatim notes for every interview). An interpreter means one additional level of interpretation and another built-in bias to what is finally recorded and attributed to the person being interviewed. Although my interpreter was an invaluable and excellent resource and facilitated access to people I would not have been able to speak to without him, I found I had to be careful not to make explicit the questions I was asking and the comments I felt were important. My interpreter was a local in the area and very familiar

with working with graduate students, and often facilitated the opportunities and circumstances in which I was able to make use of both 'participant observation' and becoming involved in more direct participation activities. Fulfilling this role, which extended over and above simply interpreting interviews, provided unique opportunities. At the same time, these opportunities were defined in some situations by his contacts, resources, perspective, and social position. It is important to recognize that the interpreter's reality and experience to a certain extent then becomes incorporated into the research process. I should note that many local people in the region do speak English, in part because of the school system and in part due to tourism, so I was able to communicate myself with locals on a daily basis.

7.2.2 Interviewing Women

Another important consideration was gaining the participation of women in the research. Although I managed to achieve a nearly equal gender balance in my interviews, some interviews included a male voice within the interview that involved a female. An example would be the household interviews in Khakhnal and Solang which I conducted in order to gain the views of female forest users not in the forest at the time. I noticed that if a male was present (son, father, husband, uncle, etc.) during the interview that often times some responses would come from the males rather than from the female participants only. During the transcription of the interviews, I did my best to use the female participant response only and when males would comment or respond I would write those responses separately. I did this to ensure the authenticity of the participant's response, as well as to ensure that my interviews represented both male and female experiences, learning, and involvement in FM-related activities fairly. These factors led me to interview more participants in order to ensure an equal representation (or near equal) of both genders in FM-related activities.

The following sections capture my conclusions in relation to each of the objectives set, JFM policy insights, and some final thoughts.

7.3 Local Perspectives on Community-based FM

As outlined in the results (see Chapter 4), forest users who live in Solang and Khakhnal are actively involved in daily informal FM-related activities (i.e., conscious care, advocacy work for continued protection of forest areas, and daily forest collection work) as well as formal FM activities (i.e., those governed by an outside body). However, despite the local participation in FM there are challenges that exist in both villages that can impact participation (both formal and informal). The main challenges the data revealed include:

- Miscommunication and misunderstanding about roles, responsibility and ownership rights;
- An unwelcoming FM structure;
- Inherent barriers that discourage forest users from informally participating in certain FM activities (i.e., distance to the forests, age/mobility/physical ability restrictions that inhibit individual's accessing the forests);
- A change in personal priority or lifestyle that impacts dependency on the forest resources; and,
- Lack of local level decision making, rule enforcing and autonomy in FM planning for forest users.

The barriers to participating in JFM-related activities that were found in this study closely parallel the barriers found in Vasan's 2001 and 2006b studies in HP. Vasan found that the hierarchical FD structure, the lack of communication between forest user groups, and the confusion revolving around ownership, forest rights, and responsibilities in FM have all

negatively impacted local level participation in FM activities (Vasan, 2001;2006b). The physical barriers and changes in lifestyle were also found to be barriers to participating in FM activities in Walia's (2005) study. Walia (2005) found that the physical barriers (e.g., distance to the forest, uphill climb to the forest, and the rocky/unpaved route to the forests) in accessing the forests in HP often resulted in older or less physically capable forest users stopping their daily NTFP collection. Additionally, Walia (2005) also found that there were some forest users, particularly younger individuals, who are actively choosing to move to the cities in an effort to transition to a lifestyle that relies less heavily on forests.

7.3.1 Perceptions of Roles, Responsibilities and Management Activities

JFM is considered a participatory approach to forestry whereby local community institutions (i.e., the forest users) and the state FD work collaboratively on sustainably managing the forests (Vasan 2001; 2006b). The data revealed that many conflicts and barriers exist in the current structure that ultimately impede the successful implementation of JFM in Khakhnal and Solang. For example, it was shown that those directly affected by FM activities and decisions are not the ones who have any control in making or contributing to the decisions themselves. It was shown that the perceptions of the roles and responsibilities of various forest user groups is often miscommunicated or misunderstood among the groups. This created frustration within certain forest user groups and made others feel misrepresented or unacknowledged in their role in managing the forests. There is abundant research that illustrates these challenges in several states across India including, but not limited to, Orissa, Madhya Pradesh, West Bengal, Haryana, Tamil Nadu and Andhra Pradesh (Arora, 1994; Balooni, 2002; Agarwal, 2010; Singh and Pandey, 2010; 2012). Overall, this shows that although JFM is a participatory approach to FM, there are several structural barriers and conflicts that need to be addressed, both at the village and state

level, in order to ensure that the FD and local forest users can work together to effectively manage the village forests.

7.4 Contributions of Women and Men to FM

The data reveal the important role that both men and women as local users of the forest play in its management and protection. However, despite the importance of these roles, there is an evident disparity between men and women in their involvement and responsibilities. For example, women in Khakhnal and Solang are underrepresented in JFM in terms of being members of village forest committees, being active participants in forest decision-making processes or/and being employees within the FD. It was established that there were four main local barriers that inhibit women from participating in certain FM-related activities:

- Personal time constraints (women remarked that the VFC meetings were held at inconvenient times that conflicted with daily household responsibilities),
- Lack of knowledge about when and where the meetings take place (women faced is a lack of information about the meetings and they often did not know about the meeting until it had already occurred),
- Feeling insecure about their education and literacy levels (women discussed that because they have not received high educations that they may feel judged for comments they make during the meetings) and;
- Feeling unwelcomed being the only woman in a committee made up of men (since there is no critical mass of women in VFCs or in the FD, women often remarked that they did not want to feel singled out or uncomfortable because they were the only female at the meeting).

Despite the political, structural, social and cultural barriers that continue to restrict women's involvement and meaningful participation in FM activities, there are some avenues that exist where women can contribute to FM in an environment that is supportive and fosters collaboration between members (Davidson- Hunt, 1995a; Maksimowski, 2011). For example, in this research it was identified that the Mahila Mandal is a space where women feel comfortable enough to express their viewpoints and share ideas in an environment that does not have a controlling male bias or dominance. In both study sites, it seemed as though at least one woman from every household was a member within the Mahila Mandal. Women mentioned that there were many motivating factors which encourage participation and membership in the Mahila Mandal. Some of the motivating factors included the desire to learn more about FM and how to help out the village (because of limited opportunities to learn these concepts formally in school), the safe and non-judgmental environment that the Mahila Mandal fosters, the ability to connect and relate to the members on a personal level, and the sensitive timing around meetings in order to accommodate women's household and personal responsibilities.

7.4.1 Gendered Work and Decision-making Power in FM

My results pertaining to the important gender contributions that women have in the forest despite being poorly represented in VFCs, decision-making bodies and as paid staff in the FD closely align with similar studies conducted in HP (Davidson- Hunt, 1995a; Vasan 2001;2006b; Bingeman, 2003; Agarwal 2009;2010). Davidson-Hunt (1995a), Bingeman (2003) and Vasan (2001) all discussed that the Mahila Mandal in HP play a critical role as both a decision-making

forum (in de facto⁵⁷ processes) and as active participants in conserving, protecting and managing village forest areas. Bingeman (2003) discussed that the Mahila Mandal in Manali make decisions and implement rules that determine who has access to forests and what kinds of activities are permitted in these areas. While, the Mahila Mandal in Khakhnal and Solang were not found to hold much decision-making power or authority, they were active in making informal village level decisions, monitoring the forests and reporting illegal forest activities. My results also align with the Bingeman (2003) and Vasani (2006) research finding that the Mahila Mandal is a group where women are comfortable in being active members and freely express their opinions, values and concerns. Both Bingeman (2003) and Vasani (2006) noted that the Mahila Mandal is effective in ensuring that women are participating in local level governance structures where FM issues can be discussed. As previously addressed in Chapter 5, the barriers that women face to effective participation in FM are not isolated to HP; in fact these barriers have been documented in several JFM-practising states (Agarwal, 2009;2010; Maksimowski, 2011), in other countries that practice JFM⁵⁸ (e.g., Sarin 1993; SWDW, 1993; Saigal et al., 1996; Shah 1996; Moss and Swan 2013), in countries that practise alternative approaches to FM (e.g. community-based FM, and social forestry etc.,) and even in forest advisory committees in Canada (Reed and McIlveen, 2006; Reed and Varghese, 2007) .

⁵⁷ De facto: De facto means a state of affairs that is true in fact, but that is not officially sanctioned. In contrast, de jure means a state of affairs that is in accordance with law (i.e. that is officially sanctioned).

⁵⁸ Other countries that practice JFM: It has been shown that the following countries have adopted a FM approach which is similar to JFM (state-owned forests with local user groups working to collaboratively manage the forest areas): Nepal, Pakistan, Indonesia, Philippines, Cambodia and Vietnam (Bhattacharya et al., 2010). All of the forest approaches in these various countries have documented gender inequity and/or barriers to female participation within the JFM structure.

7.5 Learning Outcomes Related to FM and Sustainability

Forest users indicated that they learned about a variety of things that are related to FM including forest ecology, forest maintenance, and working with multiple user groups in managing forest resources. Broadly, there were thirteen areas where participants identified learning outcomes. I categorized five of these areas as individual learning and eight as social or shared learning (see Table 7). The areas of learning (individual and social) described by participants included issues such as understanding the importance of forest/jungle protection and management, forest maintenance, and forest benefits. It was also shown that forest user groups mainly shared learning that related to working with multiple people, understanding the inherent challenges in co-managing resources, and understanding individual and shared roles and responsibilities in FM.

These learning outcomes clearly show evidence of single loop and double loop learning. Single loop learning is concerned with finding solutions to problems and improving outcomes (Pahl-Wostl et al., 2008). This was supported by the local forest users and the FD collectively working together to devise solutions to help mitigate the negative effects of natural disasters that Khakhnal and Solang are prone to. The single loop learning was shown in two ways; 1) forest users understanding the benefits that forests provide in reducing landslide⁵⁹, avalanche and rock fall risk, and therefore consciously choosing to not graze or fell in those areas and 2) forest users

⁵⁹Reducing risk of landslide, rock fall and avalanche: Trees and forests play important roles in reducing landslide risk through various mechanisms. Tree roots reinforce soil layers, anchor the soil to bedrock and form buttresses against soil movement. Trees also reduce landslide risk by lowering soil moisture levels, primarily through interception, evaporation and transpiration. These mechanisms, and others, also make trees valuable in land reclamation following landslides. Furthermore, trees help to reduce soil erosion and can form an effective barrier against rock, debris and soil slips, as well as limiting landslide run-out distances (FAO, 2005).

actively assisting the FD in mitigation efforts and informing the FD where they think more fences and check walls should be placed.

Furthermore, double loop learning was evidenced in the changing behaviors, attitudes and practices of the local forest users that have resulted from forest users questioning their activities in the forest, the consequences of their current actions in the forest and their shared forest values (i.e., meeting survival needs, environmental benefits and economic benefits). The two types of social learning - single and double loop - discussed in the literature by authors such as Cundill and Rodella, 2012 and others (e.g., Maarleveld & Dangbégnon, 1999; Pahl-Wostl et al., 2008) are supported by this study. However, I did not find any learning outcomes related to triple loop learning, which is concerned with stakeholders learning how to learn when managing resources (Maarleveld & Dangbégnon, 1999). Lastly, it was found that there have been three noticeable action-related outcomes: a decrease in illegal felling and lopping of trees, a decrease in the amount of illegally felled wood being purchased, and a greater discussion about the roles of communities and villages in FM, that participants attributed to being involved in JFM activities and learning FM concepts.

7.5.1 Participant Learning

While some forms of single loop learning were present within this study, it was revealed that forest users in Khakhnal and Solang lack decision-making power and responsibility in planning and monitoring FM activities. Therefore, the learning that is present lacks an equal representation of all forest user groups' insights, opinions and values. The lack of decision-making power and responsibility in planning and monitoring FM activities limits the impact that forest users have on FM and can potentially affect the different loops of learning in an organizational setting. Rist et al (2007) also discovered similar power dynamics and the impact it

had on FM and the organizational learning environment in rural villages in India, Bolivia and Mali. Rist et al (2007) found that when they held a meeting where all forest user groups were present and could openly discuss issues, frustrations, and ideas in regards to FM, the tension and pressures were extinguished and more cross collaboration of ideas could occur. Incorporating more single loop learning opportunities in JFM could allow forest users and the FD to work together to find ways of doing things differently in order to increase forest health and resiliency. These are the ecological outcomes many expect from community-based approaches to FM (Charnley and Poe, 2007).

In this study there were no triple loop learning outcomes identified. Some reasons that could explain the lack of triple loop learning could be that JFM is practiced differently, not only across states but in the villages as well. Therefore, there is a lack of unified goals, objectives and activities that are practiced and understood between villages and regions, not only within Kullu or HP but across states in India. As outlined in Chapter 5, the varying perceptions of the roles and responsibilities that the forest user groups have in FM can also impede collaboration, effective participation, and shared decision-making. Although JFM has been present in India since the early 90's, the level to which it has been practiced in Khakhnal and Solang is variable. Consequently, JFM in Khakhnal and Solang could be considered as an approach to FM that is still reasonably young. Getting to this level of learning would take time, particularly when the committees, forest users, FD, NGO all seem to have varying ideas of which FM activities should be priorities. The limited FD intervention within the village forest committees in Khakhnal and the inconsistent participation from the FD in the Solang JFMC could also inhibit the potential for triple loop learning to occur.

7.6 Forest Sustainability and Local Governance Systems

It was assumed that local-level participation under JFM would enhance conservation measures and ensure that poorer and disadvantaged groups who are dependent on forests for their livelihoods would not be “worse, and preferably better off” (Hildyard et al., 2001, 66). However, despite the introduction of JFM at the studied sites, the approach to FM being used in both villages was still very much directed by the FD in a top-down way. As previously mentioned, the top-down approach documented in Khakhnal and Solang has been witnessed in several other areas that practice JFM in India (Matta et al, 2005; Matta & Kerr, 2007; Singhal & Rishi, 2012). For example, in Matta et al’s (2005) research, which examined forest officers’ perceptions of JFM in Tamil Nadu, they found numerous challenges in transforming the FD from a regulatory agency to one that facilitates local management.

In order to address local-level concerns, the central government created guidelines for all state governments in implementing JFM systems. The guidelines recognized that the transfer of daily forest use and management rights belongs to the communities, while the state FD maintains legal control and rights over forests (HPFD, 2014; MoEF, 2014). One way in which this was implemented was through the creation and use of local level governance systems called VFCs (known in Solang as JFMC and in Khakhnal as FPC and FRC). Despite the motivations for implementing more structured local governance systems within JFM, there have been varying degrees of success. In relation to my research findings, I found that the main challenges within the implemented VFCs in Solang and Khakhnal included:

- An unequal representation of females on VFCs and a dominant male presence within the committee structure. (i.e., there were no females who held executive positions on the

VFCs and females who were involved in VFCs had previous political experience or familial connections with the committee, creating a sense of “elite” female membership that was witnessed)

- Miscommunication and misunderstanding about roles, responsibilities of the VFCs (i.e., as Table 5 showed there are several differences in what the FD states are VFC responsibilities compared to what VFC members believe are their responsibilities as well as what they believe *should* be the responsibility of the VFCs)

These challenges were also echoed in Singhal and Rishi’s (2012) research that examined conflicts and barriers that arose in villages that practiced JFM in Madhya Pradesh and Chattisgarh. They found that the VFCs in both states experienced different types of conflict and challenges that were based on:

- the pattern of resource ownership and management decisions, such as access and control over forest resources (i.e., determining the roles and responsibilities of the FD and the VFCs);
- management of other resources; and,
- institutional functioning (i.e., gender representation on committees, and the social and organizational structure of the committees).

These conclusions have shown that JFM, whereby the FD and local communities come together as partners to manage forests, can be characterized as a discontinuous step in the evolution of Indian forest policy (Vira, 1999; Vemuri, 2008; Singhal & Rishi, 2012). The success of this transition to joint management is principally determined by how the FD and local forest users collaborate. Various bureaucratic and political factors and processes have been shown to effect

the level of local involvement, the level of collaboration and sharing of responsibilities between stakeholders, and the overall success of JFM.

7.7 Joint Forest Management Policy Insights

Given the conclusions made in section 7.6 about the role of local people in the governance of their forests, a number of policy implications emerge based on the broader findings of my study and suggestions made by some participants. The insights are grouped under three main themes as they presented themselves in the data: public participation, SFM and learning

7.7.1 Public Participation

The FD and VFC's need to test new ways of encouraging local participation in JFM. A big step to achieving this will be more formally acknowledging and recognizing the important role that local forest users already have in managing and protecting village forests. Below are the five main policy-related issues that were discussed by forest users as ways to increase local participation in FM related activities

- **Recognize and acknowledge the decisions that forest users are currently making collectively to improve village FM and protection**

In Khakhnal and Solang, there were actions (i.e., collectively choosing not to graze or collect NTFPs in additional areas of the forests and not collecting wood for funerals, feasts or weddings) that the local forest users were consciously doing in order to protect the forest. However, needing the official approval of the FD often took time and was a frustrating process. Many forest users mentioned that they wish that they had more autonomy around certain FM activities and could either protect certain areas of the forest or/and plant additional tree saplings in certain areas

without the approval of the FD. This would also recognize the informal ways that forest users are actively taking part in forest protection without the direct facilitation of the FD.

- **Look for ways of initiating meetings among FD officials, Mahila Mandal members, VFC members, forest users, and NGO members to discuss shared and individual roles and responsibilities in FM**

Based on the responses shown in Table 6, there are clearly different understandings of the roles and responsibilities that each forest user group has in FM and protection. Even though there are prescribed roles and responsibilities for four of the forest user groups (VFC members, forest users, NGOs, and the FD) in the Forest Manuals and JFM literature for HP, data show that the user groups are not informed of their prescribed responsibilities. It can be assumed that the level of personal input that each user group has in choosing their responsibilities in FM is likely minimal, as the prescribed roles often differed from the roles which are currently practised and fulfilled by the various user groups (e.g., there is no mention of the Mahila Mandal responsibilities in FM in JFM literature for HP or in the Forest Manuals; however, it is clear that they have several FM duties in Khakhnal and Solang). Additionally, there is frustration with how responsibilities are allocated in managing village forests. To alleviate the miscommunication and frustration with the responsibilities, there should be open meetings with all the forest user groups to collectively decide each forest user group's roles and responsibilities in FM and protection. Openly discussing the roles and responsibilities would give the users (i.e., the forest dwellers) a larger stake in the role of planning and managing the forests in order to achieve more sustainable outcomes.

- **Establish approaches to improving communications about when and where meetings (particularly those of the VFC), tree plantings, and other FM activities are occurring**

Two barriers preventing women from actively participating in village forest committees are the sometimes inconvenient timing of the meetings and not letting people know when they are being held. Some forest users, primarily Mahila Mandal members, noted that they would like to see more messaging in terms of when and where the meetings are occurring in order to increase the female attendance. They also said that it would be helpful if meeting minutes were circulated to each household or available at the local dhaba shops, so the forest users can stay informed and aware of what was discussed in the meeting. Because the meetings sometimes occur at inconvenient times for women who have household commitments, some women suggested that there should be a “comment and question box” where individuals could drop-off questions or comments. These would then be read during the meeting in their absence. In this way their suggestions and questions would still be heard and acknowledged in the meetings and hopefully follow-up actions could occur based on the comments generated in the meeting.

- **Recognize NGOs and other civic bodies as equal partners, not just facilitators**

Although a sizeable literature exists on JFM, little attention has been paid to understanding the role of non-governmental organizations in strengthening JFM as an institution for common-pool resource (CPR) management. It has been shown by Vemuri (2008), Baruah (2010) and Gupta (2014) that when NGOs are more involved in JFM and FM activities, there can be very successful outcomes. NGOs in Khakhnal and Solang should be more involved in JFM and be treated as equal partners because they can act as a bridge between the State and the forest users.

- **All forest users should work to affirm the roles of women in FM, in order to increase meaningful participation**

From participant responses and personal observation within the field, it is evident that there is a need for alternative, culturally appropriate strategies to meaningfully involve women in decision-making processes related to the forests, whether it is within a model such as JFM or in any other initiative. There is also a need to involve more women in formal FM-related activities such as holding positions within the FD (i.e., forest guard, block office, range officer) and holding executive positions within the VFCs. Forest policy needs to balance conservation goals with livelihood needs and secure the sustainability of both through the extension of secured rights and benefits and participation in environmental management activities. In order to increase women's meaningful participation in FM, India's JFM policies should contain clear gender guidelines that create spaces for women and marginalized groups to participate in decision-making forums beyond the mere acts of attending meetings and voting. Women's participation in monitoring and evaluation of project activities should also be detailed in forest policy and appropriate benefit-sharing mechanisms should be more clearly outlined in communication between community user groups and the state FD.

7.7.2 Sustainable FM

If the sustainable management of the village forests is to be achieved, all forest users need to work toward sharing information and learning together. Below are the two main policy insights regarding SFM locally that were revealed in the data.

- **Create an accessible and user-friendly annual forest sustainability report to increase understanding and awareness of annual FM activities and provide updates on those activities**

Forest users in Khakhnal and Solang responded that they would appreciate knowing the forest activities that have occurred each year, in a report that is user friendly and easy to read. In the past, the FD has released annual forest reports that are upwards of 150 pages long and are only available in the block offices or on the FD website, even though most villagers do not have internet access. Creating a concise manual that highlights the main FM activities carried out during the year would increase awareness and understanding among local forest users.

- **Work together to build capacity among forest users on the indicators of forest health and diversity in order to improve local monitoring of the forest use areas**

Many forest users in Khakhnal and Solang mentioned that they would like to be more involved in maintaining and monitoring the village forests. If forest users had some training in identifying ways to consider forest health, tree species diversity and other forest sustainability indicators, it would empower them to monitor the forests independently. Building the capacity to identify sustainability indicators among forest users would create a range of forest users who understand what is going on in the forest, making its protection a shared responsibility and not one that is fulfilled by the FD alone.

7.7.3 Learning

Learning through the sharing of knowledge and wisdom is central to SFM. All forest users should look for ways to create opportunities that encourage learning among forest users and user groups, including themselves. In this way, knowledge and understanding about FM and protection can be shared and celebrated. Participants felt that this might be best achieved by:

- **Promoting collaboration through meetings and other activities with regional forest user groups to enhance and broaden learning**

In Khakhnal and Solang, there were various committees that could work with the VFCs to broaden learning on different issues. The committees that I identified as being potential learning collaborators include the watershed committee, the wildlife management committee, and the medicinal plant committee. Although the extent to which these committees meet and the exact nature of what the committees do was not fully explored during the research, I believe that there is a great opportunity for shared learning between these committees. Moreover, if the committees meet together and share what each does, there is potential for cross collaboration on activities (i.e., tree planting, environmental education programming) as well as potential to strengthen local governance in both villages.

- **Implementing informal village-level workshops that share traditional forest knowledge among local users**

Some forest users are the holders of unique traditional forest knowledge that has been derived through lived experience. As such, many forest users indicated that they would like to be recognized for their traditional knowledge and share their knowledge with the FD and other forest user groups. Recognizing the knowledge that each user group has learned through their involvement in FM and living in the forests would facilitate deeper understanding between groups and allow for shared learning to occur.

7.8 Concluding Remarks

Joint Forest Management is understood and promoted as a participatory approach to FM between the state (e.g., the HP FD) and local forest users, with NGOs acting as the interface when they are available. The premise behind JFM in India is that the responsibility for managing, protecting and making decisions about publically owned forests should be made in

collaboration with local user groups (the right holders). Despite its successes in expanding to over 75% of the forested area in the state⁶⁰, challenges in managing the forest jointly exist between the unequal partners. Results from the study indicate that a number of factors such as hierarchical governance structures (the FD), ownership rights, sharing FM responsibilities and under-representation of women within village forest committees greatly influence collaboration and the effective management of the village forests among the forest-dependent communities, NGO's and the FD.

My data align with the literature in showing that social learning can result from working together with various user groups on locally managing resources such as the forest. In this case, the data show that through learning, forest user groups deepened their understanding of forestry operations (i.e., how to maintain the forest and mitigation techniques to reduce the negative impact from natural disasters), and were introduced to other aspects of FM about which they had little to no previous knowledge (i.e., challenges in trying to collaboratively manage forest resources). My data also show that although learning has taken place when forest user groups work together on certain FM-related activities, there is a vast level of knowledge that has been gained from the local forest users through lived experience

There is not overwhelming evidence in the literature to suggest that participatory approaches to FM such as JFM in Northern India or social learning yields more sustainable outcomes. Yet it is clear that providing and enhancing social learning opportunities through FM

⁶⁰ Even though the FD operates and owns 98% of the forest area in Himachal, JFM is actively practiced in only 75% of the forested areas within the state. In total, JFM operates in one third of the total forest area in the country.

that fully and meaningfully integrates the community will have positive outcomes in terms of achieving the goals of SFM and, more broadly, sustainability.

References

- Agrawal, A. (2001a). Common property institutions and sustainable governance of resources. *World Development*, 29(10): 1649-1672.
- Agarwal, B. (2001b). Participatory Exclusions, Community Forestry, and Gender: An Analysis for South Asia and a Conceptual Framework. *Journal of World Development*, 29 (10); 1623-1649.
- Agarwal, A., and Chatter, A. (2005). Explaining Success on the Commons: Community Forest Governance in the Indian Himalaya. *Journal of World Development*. 34(1); 149-166.
- Agarwal, B. (1992). The gender and environment debate: lessons from India. *Feminist Studies*. 18: 119-158.
- Agarwal, B. (1997). Environmental Action, Gender Equity and Women's Participation. *Development and Change*. 28 (1); 1-43.
- Agarwal, B. (2009). Gender and forest conservation: The impact of women's participation in community forest governance. *Ecological Economics* 68: 2785-2799.
- Agarwal, B. (2010). Gender and Green Governance: The Political Economy of Women's Presence within and Beyond Community Forestry. Oxford University Press, New Delhi.
- Allendorf, T.D., Daus, R., Bose, A., Ray, B., Chaudhuri, K.D., Brock, S. and Horwich, R.H. (2013). Motivations of the community forest protection forces of the Manas Biosphere Reserve in Assam, India. *International Journal of Sustainable Development & World Ecology*. 20(5); 426-432.
- Anderson, A. (1886). *Report on the Demarcation and Settlement of Kullu Forests*. Reproduced in 1975. HP FD, Shimla, India.
- Argyris, C., and Schon, D.A. (1978). *Organizational Learning: A theory of Action Perspective*, Addison-Wesley Publishing Company, Reading MA.
- Armitage, D.R., Plummer, R., Berkes, F., Arthur, R.I., Charles, A.T., Davidson-Hunt, I.J., Diduck, A.P., Doubleday, N.C., Johnson, D.S., Marschke, M., McConney, P., Pinkerton, E.W., and Wollenberg, E.K. (2009). Adaptive co-management for social-ecological complexity. *Social Ecological Complexity* 7(2): 95-102.
- Arora- Jonsson, S. (2009). Discordant Connections: Discourses on Gender and Grassroots Activism in Two Forest Communities in India and Sweden. *Journal of Women in Culture and Society*. 35(1); 213-235.
- Arora- Jonsson, S. (2010). Particular and wider interests in natural resource management: Organizing together but separately. *Scandinavian Journal of Forest Research*. 25(1); 33-

44.

- Arora, D. (1994). From State Regulation to People's Participation: Case of Joint Forest Management in India. *Economic and Political Weekly*. March 19: 619-97.
- Assauh, A. (2015). *Learning for Sustainability through Community FM*. Unpublished Master's Thesis, University of Manitoba, Winnipeg, Manitoba.
- Bahuguna, V.K. (1992). *Decentralized Planning in Forestry Sector for People's Participation*. Paper presented at the National Seminar on Forestry Sector Administration Development. New Delhi.
- Balooni, K. (2002). Participatory FM in India: An Analysis of Policy Trends amid "Management Change". LEAD. *Indian Institute of Management Kozhikode*. Policy Trend Report: 88-113.
- Baruah, M. (2010). Joint FM (JFM) and role of NGOs: Cases from Rajasthan India. Unpublished Masters of Science Thesis. State University of New York College of Environmental Science and Forestry. Retrieved from: <http://search.proquest.com/docview/757872055>
- Baxter, P., & Jack, S. (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report*. 13 (4); 544-559.
- Behera, B. (2009). Explaining the performance of state-community joint FM in India. *Ecological Economics*. 69; 177-185.
- Bennett, C.J., and Howlett, M. (1992). The lessons of learning: Reconciling theories of policy learning and policy change. *Policy Science* 25(3): 275-294.
- Berg, B.L. (2004). *Qualitative Research Methods for the Social Sciences*. Fifth Edition. Pearson Publications.
- Berkes, F., Davidson-Hunt, I., Davidson-Hunt, K. (1998). *Diversity of Common Property Resource Use and Diversity of Social Interests in the Western Indian Himalaya*. Mountain Research and Development, 18, 19-33.
- Berkes, F., Gardner, J.S., Sinclair, A.J. (2000). *Comparative Aspects of Mountain Land Resources Management and Sustainability: Case Studies from India and Canada*. International Journal of Sustainable Development and World Ecology, 7 (4), 375-390.
- Berkes, F. (2009). Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management*. 90; 1692-1702.
- Bhattacharya, P., Pradhan, L., and Yadav, G. (2010), Joint FM in India: Experiences of two decades. *Resources, Conservation and Recycling*. 54; 469-480.

- Billgreen, C., & Holmen, H. (2008). Approaching Reality: Comparing stakeholder analysis and cultural theory in the context of natural resource management. *Land Use Policy*. 25: 550-562.
- Bingeman, K., Gardner, J., and Sinclair, A.J. (2000). Resilience and the Village Forests Commons in the Context of Economic and Urban Growth, Manali, H.P, India. IASCP Conference, Indiana University. Draft Paper.
- Bingeman, K. (2001). *Policy, Gender and Institutions: A Journey Through FM Issues in the Kullu Valley, HP, India*. Unpublished Master's Thesis, University of Manitoba, Winnipeg, Manitoba.
- Bingeman, K. (2003). Women's Participation in FM Decisions in the Upper Kullu Valley, HP, India. *Himalayan Research Bulletin XXI* (2).
- Bingeman, K., Berkes, F., and Gardner, J. (2004). Institutional responses to development pressures: Resilience of social-ecological systems in HP, India. *International Journal of Sustainable Development and World Ecology*. 11; 99-115.
- Bird, P. (1996). ODA's Review of Participatory FM: Synthesis of Findings'. Review Working Paper No 6. London: ODA.
- Bizikova, L., Nijnik, M., and Oravska-Kluskova, T. (2012). Sustaining Multifunctional Forestry through the Developing of Social Capital and Promoting Participation: A Case of Multiethnic Mountain Communities. *Small- Scale Forestry*. 11; 301-319.
- Blomley, T and Ramadhani, H. (2004). Going to Scale with Participatory FM: Early Lessons from Tanzania. Tanzania National Resource Forum. Occasional Paper No.4.
- Boin, A., Hart, P., Stern, E., and Sundelius, B (2005). The Politics of Crisis Management. Public Leadership under Pressure. Cambridge: Cambridge University Press.
- Brodth, S. (2002). Learning about Tree Management in Rural Central India: A Local- Global Continuum. *Journal of Human Organization*. 61 (1); 58-66.
- Buck, L., Wollenberg, E. & Edmunds, D. (2001). Social learning in the collaborative management of community forests: Lessons from the field. In E. Wollenberg, D. Buck, J. Fox, & S. Brodt (Eds.), *Social Learning in community FM* (pp. 1-20). CIFOR and the East-West Center, Bogor Barat, Indonesia.
- Burns, R. (1990). *Introduction to Research Methods*. Melbourne: Longmans. In Print.
- Canadian Council of Forest Ministers: CCFM. (1997). Criteria and indicators of sustainable FM in Canada. Technical report. Ottawa, ON: CCFM.

- Castañeda, F. (2000). Criteria and indicators for sustainable FM: international processes, current status and the way ahead. *Unasylva*. 51; 34-40.
- Chambers, R. (1992). The Self Deceiving State. *IDA Bulletin* 23: 31-42.
- Charnley, S. & Poe, R.P. (2007). Community forestry in theory and practice: Where are we now? *Annual Review of Anthropology*, 36, 301–336
- Chhatre A. (2000). Forest Co-Management As If History Mattered - The Case of Western Himalayan Forests in India. Presented at the *International Association for the Study of Common Property Conference*. Bloomington, Indiana.
- Chopra, K., Kadekodi, G.K., Murty, M.N. (1990). *Participatory Development, People and Common Property Resources*. Sage, New Delhi.
- Centre for International Forestry Research (CIFOR). (1995). Environment, Development and Poverty: A Report of the International Workshop on India's FM and Ecological Revival. Occasional Paper No. 3. ISSN 0854-9818.
- Climate Data. (2015). Climate: Kullu. Retrieved from: <http://en.climate-data.org/location/29366/>.
- Cohen, R. L. (1985). Procedural justice and participation. *Journal of Human Relations*. 38(7):643-663.
- Colfer, C.J.P. (2005). *The Complex Forest: Communities, Uncertainty, and Adaptive Collaborative Management*. Washington, DC: Resources for the Future.
- Collaborative Partnership on Forests: CPF. (2012). SFM and Gender. SFM Fact Sheet. Retrieved from: www.cpfweb.org. 1(1); 1-5.
- Correa, M. (1999). The Need for Emancipatory Research: Experiences from JFPM in Uttara Kannada. In R. Jeffrey & N. Sundar (Eds.), *A New Moral Economy for India's Forests?* (216-234). Thousand Oaks, California: SAGE Publications.
- Creswell, J.W. (2003). *Research Design- Quantitative, Qualitative and Mixed Methods Approaches*. Second Edition. Sage Publication, Thousand Oaks, CA.
- Creswell, J.W. (2005). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (2nd ed.). Upper Saddle River, NJ: Pearson
- Creswell, J.W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Second Edition. Sage Publications, Thousand Oaks, CA.
- Creswell, J.W. (2009). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Sage Publications, Thousand Oaks, CA.
- Creswell, J.W. (2014). *Educational Research: Planning, Conducting, and Evaluating*

Quantitative and Qualitative Research. Fifth Edition. Pearson Publishing, New York City, New York.

- Cundill, G., and Fabricius, C. (2010). Monitoring the Governance Dimension of Natural Resource Co-Management. *Ecology and Society*. 15 (1); 1-17.
- Cundill, G. and Rodela, R. (2012). A review of assertions about the processes and outcomes of social learning in natural resource management. *Journal of Environmental Management* 113; 7 -14.
- Dankelman, L and Davidson, J. (1988). *Women and Environment in the Third World; Alliance for the Future*, London: Earthscan.
- Dasgupta, T., Roy, A.K., and Chattopadhyya, R.N. (2006). Gender Justice in the Frame of Joint FM in Indian Context: A Case- Study from Nayagram Block of West Mindapore, West Bengal. *Anthropologist*. 8(3); 161-166.
- Davidson- Hunt, K. (1995a). *Engendering the Commons: A Case Study in Gender, Difference and Common Property in HP, India*. Unpublished Master's Thesis. Winnipeg, Manitoba. Natural Resources Institute, University of Manitoba.
- Davidson-Hunt, I. (1995b). *Negotiating the Commons: Land Use, Property Rights and Pastoralists of the Western Indian Himalayas*. Unpublished Practicum. Winnipeg, Manitoba. Natural Resources Institute, University of Manitoba.
- Dearden, P., Sarin, M., and Shyam Sundar, S. (1995). *HP Forestry Project Training Needs Assessment*. West Midlands (UK): CRDT (Center for Rural Development and Training), University of Wolverhampton.
- Dedeurwaerdere, T. (2009). Social Learning as a Basis for Cooperative Small-Scale Forest Management. *Small- Scale Forestry*. 8; 193-209.
- Denzin, N. K., & Lincoln, Y. S. (eds). (1994). Introduction: Entering the field of qualitative research. In N. K. Denzin N K & Y. S. Lincoln (eds), *Handbook of Qualitative Research*, pp. 1-17. London: Sage.
- De Zeeuw, H. and Wilbers, J. (2004). PRA tools for studying urban agriculture and gender. *Center on Urban Agriculture and Forestry (RUAF)*. Retrieved from: http://www.ruag.org/ruafpublications/gender_tools.pdf.
- Diack, A.H. 1898. Final Report on the Revised Settlement of the Kullu Subdivision of the Kangra District. The Civil and Military Gazette Press, Lahore. 44 pp.
- Di Cicco- Bloom, B. and Crabtree, B.F. (2006). Making sense of Qualitative Research: The Qualitative Research Interview. *Journal of Medical Education*. 40; 314-321.
- Diduck, A.P., Sinclair, A.J., Hostetler, G., and Fitzpatrick, P. (2012). Transformative learning

- theory, public involvement, and natural resource and environmental management. *Journal of Environmental Planning and Management*, 55 (10), 1311-1330.
- Dietz, T, Ostrom, E., and Stern, P.C. (2003). The struggle to govern the commons. *Science* 302: 1907-1912.
- Duffield, C., Gardner, J.S., Berkes, F and Singh, R.B. (1998). Local Knowledge in the Assessment of Resource Sustainability: Case Studies in HP, India, and British Columbia, Canada. *Mountain Research and Development*, 18(1): 35-49.
- Dunne, L. (2013). *Food Security in the Kullu District, India: Perspectives, Policies and Learning in the Transition to Commercial Agriculture*. Unpublished Master's Thesis, University of Manitoba, Winnipeg, Manitoba.
- Dyer, W.G., Wilkins, A.L. (1991). *Better Stories, Not Better Constructs, to Generate Better Theory: A Rejoinder to Eisenhardt*. *Academy of Management Review*, 16 (3), 613-619.
- Egunyu, F. (May, 2012). The Contribution of Social Learning to Collaborative Forest Governance in Canada and Uganda: A Comparative Case Study of Collaborative Governance Arrangements With Forest Based Communities. University of Saskatchewan. Doctor of Philosophy Proposal in Environment and Sustainability.
- Egunyu, F. (September, 2015). *The Contributions of Social Learning to Collaborative Forest Governance in Canada and Uganda: Lessons from Forest-Based Communities*. Unpublished Doctoral Dissertation, University of Saskatchewan, Saskatoon, Saskatchewan.
- Eisenhardt, K.M. (1989). Building Theories from Case Study Research. *Academy of Management Review*. 14 (4); 532-550.
- FAO. (2001). Global Forest Resources Assessment 2000, Food and Agriculture Organization of the United Nations, Rome. Retrieved from: <http://www.fao.org/forestry/fo/fro/index.jsp>.
- FAO. (2005). The Forest Manager's Guide to Participatory FM: Module 3. The Participatory Process in FM. Forestry Policy and Institutions Branch, Forestry Department. http://www.fcghana.com/pfma_fao/archive_docs/ref_docs/pfm_manager_guide_module3.pdf.
- Fernandes, W. and S. Kulkarni. (eds.). (1983). *Towards a New Forest Policy. Peoples' Rights and Environmental Needs*. Indian Social Institute. New Delhi.
- Fischer, H.W and Chhatre, A. (2012). Environmental Citizenship, gender and the emergence of a new conservation politics. *Geoforum*. 50:10-19.

- Folk, C. (2006). Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change* 16:253-267.
- Gadgil, M and Guha, R. (1992). *This Fissured Land. An Ecological History of India*. Oxford University Press, New Delhi.
- Gardner, S.J., Sinclair, A.J., and Berkes, F. (2000). Comparative Analysis of Mountain Land use Sustainability: Case Studies from India and Canada. *International Journal of Sustainable Development and World Ecology* 7:375-390
- Gardner, J.S. (2002). Changing Risk from Natural Hazards in the Kullu District, Himachal Pradesh, India. *Geographical View*. 92; 282-306
- Gibson, C.C., McKean, M.A., and Ostrom, E. (Eds.). (2000). *People and Forests: Communities, Institutions and Governance*. Cambridge, Massachusetts: The MIT Press.
- Gibson, C. C., Williams, J.T and Ostrom, E. (2005). "Local enforcement and better forests." *World Development*, 33(2): 273-284
- Goldbole, G. (2002). Joint FM and Gender. Working Paper No 4. *Engendering Eden Project*. 1-25. Retrieved from: http://r4d.dfid.gov.uk/pdf/outputs/mis_spc/r7640-fm-gender.pdf/.
- Government of Himachal Pradesh. (1993). No. FD 3-4/80-V, Subject: Participatory FM. Dated Shimla-2, the 12.5.1993.
- Government of Himachal Pradesh. (2013). Notification: Forest Rights, TD Entitlement and Forest Usage. Working Document. FFE-B-E(3)-43/2006-VolIII. Constitution of India: Article 348.
- Government of Himachal Pradesh. (2015). *HP FD: Legal Classification of Forests*. Retrieved from: <http://hpforest.nic.in/pages/display/NXNkNGZpi2ZhNTZz-legal-classification> on July 27, 2015.
- Guha, R. (1983). Forestry in British and Post-British India: A Historical Analysis, Economic and Political Weekly. 29 October and 5-12 November.
- Gujit, I and Shah, M. K. (eds.). (1998). *The Myth of Community - Gender issues in participatory development*. London: Intermediate Technology Publications
- Gupta, S. (2014). From demanding to delivering development: Challenges of NGO- led Development in Rural Rajasthan, India. *Journal of South Asian Development*. 9(2); 121-145.

- Gupte, M. (2004). Participation in a Gendered Environment: The Case Study of Community Forests in India. *Human Ecology*. 32 (3); 365-382.
- Harn, L. (1995). Pathways to Sustainable Livelihoods: Coping and Adapting in Two Himalayan Villages, HP, India. Unpublished Practicum. Winnipeg: Natural Resources Institute
- Hewitt, F. (1991). Women in the Landscape: A Karakoram Village before "Development". Ph.D. Dissertation. Waterloo, Ontario: University of Waterloo.
- Hildyard, N., Pandurang, H., Wolvekamp, P and Smasekhare, R. "Pluralism, Participation and Power: Joint Forest Management in India" in Cooke, Bill and Uma Kothari (ed.s) *Participation: The New Tyranny?* 2001. Zed Books: New York.
- Himachal Pradesh Forest Department. (2006). HP Forestry Sector Medicinal Plants Policy. *Government of HP*. Retrieved from: <http://hpforest.nic.in/files/HP%20Medicinal%20Plants%20Policy%202006.pdf>.
- Himachal Pradesh Forest Department (HPFD). (2014). Forest Manual. Volume 1 (Acts and Rules). 1(1); 1-795. *Government of HP*. Retrieved from: <http://hpforestForest%20Manual%20%20Volume%20I.pdf>
- Hobley, M. (1992). Policy, Rights, and Local FM: The Case of Himachal Pradesh, India. *Rural Development Forestry Network*. Network Paper, 13b.
- Holloway, I. (1997). *Basic Concepts for Qualitative Research*. London: Blackwell Science.
- Hunt, L., and Haider, W. (2001). Fair and Effective Decision-making in FM Planning. *Society and Natural Resources*. 14: 873-887.
- Institute for Global Environmental Strategies. (IGES). (2007). Decentralization and state-sponsored community forestry in Asia. Eds. Scheyvens, H., Hyakumuram K., and Seki, Y. Retrieved from <http://decentralization%20and%20state%20sponsored%20commutiry%20forests.pdf>. 1-204.
- Indian Planning Commission. (2005). *HP Development Report*. Government of India. Academic Foundation Publishing. New Delhi, India. In Print.
- International Institute of Environment and Development (IIED). (2000). *HP Forest Sector Review*. Shimla: HP FD.
- International Tropical Timber Organization (ITTO). (2015). Voluntary guidelines for the sustainable management of natural tropical forests. Policy development series 20. Retrieved from: http://www.itto.int/policypapers_guidelines/.

- Jain, S.P and Reddy, V.K. (1979). Role of Women in Rural Development: A Study of Mahila Mandals. Hyderabad: National Institute of Rural Development.
- Jeffrey, R and Sundar, N. (eds). (2000). A New Moral Economy for India's Forests?: Discourse of Community and Participation. SAGE Publications, Thousand Oaks, CA.
- Jewitt, S. (2000). Mothering earth? Gender and environmental protection in the Jharkhand, India. *The Journal of Peasant Studies*. 27(2): 94-131.
- Kapta, S. (2006). Making Money through herbs in Himachal. HP Forest Reforms Project. Retrieved from: <http://www.downtoearth.org.in/coverage/making-money-through-herbs-in-himachal-8288>.
- Keen, M., V.A. Brown, and R. Dyball. (2005). Social learning: a new approach to environmental management. Pages 2-22 in M. Keen, V.A. Brown, and R. Dyball editors. Social learning in environmental management: towards a sustainable future. Earthscan, London, The United Kingdom
- Keen, M. and Mahanty, S. (2006). Learning in Sustainable Natural Resource Management: Challenges and Opportunities in the Pacific. *Society & Natural Resources: An International Journal*, 19:6, 497-513.
- King, C. and Jiggins, J. (2002). A systematic model and theory for facilitating social learning. In: Leeuwis, C., Pyburn, R. (Eds.), *Wheelbarrows Full of Frogs*. Koninklijke Van Gorcum, Assen, The Netherlands, pp. 85–105.
- Kitzinger J. (1994). The methodology of focus groups: the importance of interactions between research participants. *Journal of Sociology of Health and Illness*. 16;103-21.
- Kitzinger, J. (1995). Qualitative Research: Focus Groups. *BMJ: British Medical Journal*. 311 (29); 299-302.
- Kothari, A., Anuradha, R.V., Pathak, N. (1998). Community-based conservation: issues and prospects. In Kothari, A., Anuradha, R.V., Pathak, N., Taneja, B., ed., *Communities and conservation: natural resource management in South and Central Asia*. Sage Publications, New Delhi, India.
- Krishna, S. (ed). (2004). *Livelihood and Gender: Equity in Community Resource Management*. Sage Publications, Thousand Oaks, London.
- Kuperus, S. (1987). *Participation in Forestry. People's Participation in Social forestry Projects*, Wageningen.
- Lachapelle, P.R., Smith, P.D., and McCool, S.F. (2004). Access to power or genuine

- empowerment? An analysis of three community forest groups in Nepal. *Human Ecology Review*. 11(1); 1-12.
- Lal, J.B. (1997). Community FM in Southern Asia: A Survival Issue. *Journal of Sustainable Forestry*. 4; 73-88.
- Larson, A.M., and Soto, F. (2008). Decentralization of natural resource governance regimes. *Annual Review of Environmental Resources* 33: 213-239.
- Larson, A. M. (2012). Tenure rights and access to forests: A training manual for research. Part 1: A guide to key issues. Centre for International Forestry Research: CIFOR. Retrieved from: http://www.cifor.org/publications/pdf_files/Books/BLarson1201.pdf.
- Lauber, T. B., and B. A. Knuth. (1997). Fairness in moose management decision-making: The citizens' perspective. *Wildlife Society Bulletin*. 25(4):776-787
- Leach, M. (1992). Gender and the environment: Traps and Opportunities. *Development in Practice*. 2(1); 12-22.
- Legry, R.A. (1985). Interaction Theory in Forest Ecology and Management. Mortinus Nijhoff, Dordrecht/ Boston, the Netherlands/USA.
- Leung, K., and Li, W. K. (1990). Psychological mechanisms of process-control effects. *Journal of Application Psychology*. 75(6):613-620.
- Liamputtong, P. (2009). Qualitative Research Methods: Third Edition. Oxford University Press.
- Lincoln, YS. & Guba, EG. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.
- Lise, W. (2000). Factors influencing people's participation in FM in India. *Ecological Economics*. 34; 379-392.
- Locke, C. (1999a). Constructing a Gender Policy for Joint FM in India. *Development and Change*. 30: 265-285.
- Locke, C. (1999b). Women's Representation and Roles in "Gender" Policy in Joint Forest Management. In R. Jeffrey & N. Sundar (Eds.), *A New Moral Economy for India's Forests?* (235-253). Thousand Oaks, California: SAGE Publications.
- Maarleveld, M. & Dangbégnon, C. (1999). Managing natural resources: a social learning perspective. *Journal of Agriculture and Human Values*, 16, 267-280.
- Maksimowski, S. (2011). Joint FM in India: implications and opportunities for women's participation in community resource management. *Studies by Undergraduate Researchers at Guelph*. 4(2); 23-37. University of Guelph.

- Mani, M.S. (1994). The Himalaya, its Ecology and Biogeography - A review. In Y.P.S. Pangtey and R.S. Rawal (Eds) High Altitudes of the Himalaya. Gyanodaya Prakashan, Nainital: 1-10.
- Matta, R.J., Kerr, J., and Chung, K. (2005). From Forest Regulation to Participatory Facilitation: Forest Employee Perspectives on Organizational Change and Transformation in India. *Journal of Environmental Planning and Management*. 48 (4); 475-490.
- Matta, R.J., and Kerr, J. (2007). Barriers beyond the partners: Bureaucratic and political constraints to implementing joint forest management in Tamil Nadu, India. *Environment, Development and Sustainability*. 9; 465-479.
- McDougall, C.L., Leeuwis, C., Bhattarai, T., Mahajan, M.R., and Jiggins, J. (2013). Engaging women and the poor: adaptive collaborative governance of community forests in Nepal. *Journal of Agriculture and Human Values*. 30; 569-585.
- Mezirow, J. (1997). Transformative learning: Theory to Practice. *New Directions for Adult and Continuing Education* 74:5-12.
- Ministry of Environment and Forests (MoEF). (2014). A Handbook: Joint FM- For front line staff of FD and JFMC Members. JICA funded project “Capacity Development for FM & Training of Personnel”, ID-P199. Retrieved from: http://rtmoef.nic.in/Docs/JFM_Booklet.pdf
- Ministry of Environment and Forests (MoEF). (2015). National Mission for a Green India (GIM). *Government of India*. Retrieved from: <http://www.envfor.nic.in/major-initiatives/national-mission-green-india-gim>.
- Ministry of Panchayati Raj. (2015). Ministry of Panchayati Raj Overview: Purpose, Meetings, Role of Sarpanch. Retrieved from: <http://www.panchayat.gov.in/>.
- Moore, J. (2005). Is higher education ready for Transformative Learning?: A Question Explored in the Study of Sustainability. *Journal of Transformative Education*. 3;76-91.
- Morgan, D.L. (1997). Focus Groups as Qualitative Research: Planning and Research Design for Focus Groups. *SAGE Research Methods*. 1(1); 1-18.
- Moss, C. and Swan, A. (March, 2013). Gender Analysis in Forestry Research: What Policy Makers Should Know. *Center for International Forestry Research (CIFOR)*. Retrieved from: <http://blog.cifor.org/14176/gender-analysis-in-forestry-research-what-policymakers-should-know>.
- Murnali, K.S., Jagannatha, R., Rao, P., Sudha, G., Sangeetha, I., Murthy, K., and Ravindranath, N.H. (2003). Evaluation studies of Joint FM in India: social and institutional implications. *International Journal of Environment and Sustainable Development*. 2 (1); 19-35.

- Mwangi, E., Meinzen-Dick, R., and Sun, Y. (2011). Gender and sustainable FM in East Africa and Latin America. *Ecology and Society* 16 (1): [online]: URL: <http://www.ecologyandsociety.org/vol16/iss1/art17/>
- Mwangi, E and Mai, Y.H. (2011). Introduction to the Special Issue on Forests and Gender. *International Forestry Review*. 13(2); 119-122.
- Naidu, S.C. (2005). Heterogeneity and Common Pool Resources: Collective Management of Forests in HP, India. *Department of Resource Economics*. Working Paper No. 2005-08. <http://www.umass.edu/resec/workingpapers>.
- Naidu, S.C. (2011). Gendered Effects of Work and Participation in Collective Forest Management. *Munich Personal RePEc Archive*. MPRA Paper No. 31091. Retrieved from: https://mpra.ub.uni-muenchen.de/31091/1/MPRA_paper_31091.pdf.
- Nazir, J.M., & Pujeri, R.V. (2014). Factors Influencing the Skill Development in the Skill based Training Program Learning Environments: A Literature Study. *International Journal of Computer Information Technology*. 3(3); 579-587.
- Neuman, W. (2000). "The Meanings of Methodology". In *Social research methods: qualitative and quantitative Approaches*, Fourth Edition. Allyn and Bacon, Boston, 66-88.
- Nesheim, I., Reidsma, P., Bezlepkina, I., Verburg, R., Abdeladhim, A.M., Bursztyn, M... Sghaier, M. (2014). Causal chains, policy tradeoffs and sustainability: Analyzing land (mis)use in seven countries in the South. *Journal of Land Use Policy*. 37; 60-70.
- ODA. (1994). HP Forestry Project. Volume One. Project Proposal Document. Overseas Development Administration, UK.
- Ostrom, E. (1990). *Governing the Commons: The evolution of institutions for collective action*. Cambridge University Press; 1-220.
- Ostwald, M., and Baral, R. (2000). Local forest protection: Gender and caste- Dhani Hill- Orissa, India. *Geografiska Annaler*. 82 B (3): 115–128.
- Pahl-Wostl, C., Tàbara, D., Bouwen, R., Craps, M., Dewulf, A., Mostert, E., Ridder, D., & Taillieu, T. (2008). The importance of social learning and culture for sustainable water management. *Journal of Ecological Economics*, 64, 484-495
- Palit, S. (1993). *The Future of Indian FM: Into the Twenty-first Century*. Ford Foundation, New Delhi.
- Paul, S., and Chakrabarti, S. (2011). Socio-economic issues in FM in India. *Forest Policy and Economics*. 13; 55-60.
- Poffenberger, M. and B. McGean. (1996). *Village Voices- Forest Choices*. Oxford University Press, Delhi.

- Poffenberger, M. (Ed.). (2000). *Communities and FM in South Asia: A regional profile of the working group on community involvement in FM*. The International Union for Conservation of Nature: IUCN.
- Potters, J., Reeb, D., Crollius, M.R. (2002). The progress of participatory forestry in Africa. In: *The Proceedings of the Second International Workshop of Participatory Forestry in Africa. Defining the way forward: sustainable livelihoods and sustainable forest management through participatory forestry held at 2002 Arusha, United Republic of Tanzania on 18-22 February 2002*, pp 69-79.
- Qu, S. and Dumay, J. (2011). The Qualitative Research Interview. *Qualitative Research in Accounting and Management*. 8 (3); 238-264.
- Ramakrishnan, P.S. (2002). Linking natural resource management with sustainable development of traditional mountain societies. *Journal of Tropical Ecology*. 44: 43-54.
- Ramanathan, T.R. (2012). Institutional strengthening of local NGOs involved in forestry: a challenge in innovation. *FAO: Forestry Department*. Retrieved from: <http://www.fao.org/docrep/u7760e/u7760e0a.htm>
- Ravindranath, N.H and Sudha, P. (2004). *Joint FM in India: Spread, Performance and Impact*. University Press, India, New Delhi.
- Rawat, V.S. (2010). Problems of animal grazing in Uttarakhand Himalaya. *Science Journal: The Researcher*. 2(5); 81-85.
- Regional Community Forestry Training Centre (RECOFTC). 2003. Innovations, persistence and change: Reflections on the state of community forestry. In *Community forestry: Current innovations and experiences*. Bangkok: RECOFTC and FAO Regional Office for Asia and the Pacific.
- Reed, M.G., and McIlveen, K. (2006). Towards a pluralistic civic science? *Assessing Community Forestry, Society and Natural Resources*. 19, 591-607.
- Reed, M.G., and Varghese, J. (2007). Gender Representation on Canadian forest sector advisory committees. *The Forestry Chronicle*. 83 (4); 515-525.
- Reed, M.G. (2010). Guess who's (not) coming for dinner: Expanding the terms of public involvement in sustainable FM. *Scandinavian Journal of Forest Research* 25 (9); 45-54.
- Resurreccion, B.P., & Elmhirst, R. (Eds.). (2008). *Gender, Environment and Natural Resource Management: New Dimensions, New Debates*. UK, Earthscan Publications.
- Richardson, K., Sinclair, A.J., Reed, M and Parkins, J.R. (2011). Constraints to participation in Canadian forestry advisory committees: a gendered perspective. *Canadian Journal of Forest Research*. 41 (3); 524-532.

- Richie, J. and Lewis, J. (Eds.). (2003). *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. SAGE Publications, Thousand Oaks, California. In Print.
- Rishi, P. (2007). Joint FM in India: An attitudinal analysis of stakeholders. *Journal of Resources, Conservation and Recycling*. 51(2); 345-354.
- Rist, S., Chidambaranathan, M., Escobar, C., Wiesmann, U. (2006). "It was Hard to Come to Mutual Understanding ..." The Multidimensionality of Social Learning Processes Concerned with Sustainable Natural Resource Use in India, Africa and Latin America. *Journal of Systemic Practice and Action Research*. 19; 219-237.
- Rist, S., Chidambaranathan, M., Escobar, C., Wiesmann, U., Zimmermann, A. (2007). Moving from sustainable management to sustainable governance of natural resources: The role of social learning processes in rural India, Bolivia, and Mali. *Journal of Rural Studies* 23:23-37.
- Robson, M. & Hunt, L.M. (2010). Evaluating local multi-stakeholder platforms in forest management in Ontario. *The Forestry Chronicle*, 86(6), 742 – 752
- Rodela, R. (2011). Social learning and natural resource management: The emergence of three research perspectives, *Ecology and Society* 16(4): 30 [online]
URL:<http://www.ecologyandsociety.org/vol16/iss4/art30/>
- Rynes, S. and Gephart, R. P. (2004). Qualitative Research. *Academy of Management Journal*. 47(4); 454-462.
- Saigal, S., Agarwal, C. and Campbell, J.Y. (1996). Sustaining joint FM: the role of non-timber forest products. Working paper; *Society for Promotion of Wasteland Development*. New Delhi: India.
- Sarin, M. (1996). Joint FM. The Haryana Experience. Centre for Environment Education, Ahmedabad.
- Sarin, M., Singh, N.M., Sundar, N., Bhogal, R.K. (2003). Devolution as a Threat to Democratic Decision-making in Forestry? Findings from Three States in India. *Overseas Development Institute*. Working Paper, No 197. Retrieved from:
<http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2436.pdf>.
- Saxena, N. (1997). The Saga of Participatory FM in India. *Center for International Forestry Research (CIFOR)*. Retrieved from:
http://www.cifor.org/publications/pdf_files/Books/SP-Saga.pdf.

- Schusler, T.M., Decker, D., Pfeffer, M.J. 2003. Social learning for collaborative natural resource management. *Society and Natural Resources* 16(4):309-326.
- Shah, S.A. (1996). The status of Indian Forestry. *Wasteland News*, Nov 1995-January 1996, 14-31.
- Shanker Singh, V., Pandey, D., and Prakesh, N.P. (2011). What determines the success of joint FM? Science-based lesson on sustainable governance forests in India. *Resources, Conservation and Recycling*. 56; 126-133.
- Sharma, D.D. (2005). *Forests Economy and Environment*. New Delhi: Kilaso Books.
- Shingi, P.M., Patel, M.S., and Wadwalkar, S. (1986). *Development of Social Forestry in India*. Oxford and IBH, New Delhi.
- Shiva, V. (1989). *Staying Alive: Women, Ecology and Development*, London: Zed Press.
- Sims, L., and Sinclair, A.J. (2008). Learning through participatory resource management programs: case studies from Costa Rica. *Adult Education Quarterly* 58:151-168
- Singh, S. (1996). Joint FM in India. In Lutz, E. & Caldecott, J. (eds.), *Decentralization and biodiversity conservation*. The World Bank, Washington, DC.
- Singh, G. S. (1999). Utility of non-timber forest products in a small watershed in the Indian Himalayas: the threat of its degradation. *Natural Resources Forum*. 23; 65-77.
- Singh, V.S., & Pandey, D.N. (2010). What Makes Joint FM Successful? Science Based Policy Lessons on Sustainable Governance of Forests in India. *RSPCB Occasional Paper*. No 3; 1-36.
- Singal, R., and Rishi, P. (2010). Indicators of Participation in Joint FM- An empirical analysis. FAO. Retrieved from: <http://www.fao.org/docrep/ARTICLE/WFC/XII/0511-B4.HTM>.
- Singhal, R., and Rishi, P. (2012). Conflicts in Institutional Development: Implications for Joint FM. *Forest, Trees and Livelihoods*. 13(3); 261-270.
- Siry J.P., Cabbage, F.W and Ahmed, M.R. (2005). Sustainable FM: global trends and opportunities. *Forest Policy and Economics*. 7;551-561.
- Slariya, M.K. (2013). Hydroelectric Power Generation: HP's Perspective. *International Journal of Multidisciplinary Management Studies*. 3 (5); 192-205.
- SPWD (Society for Promotion of Wasteland Development). (1993). Joint FM update 1993. SPWD; New Delhi: India.
- Stake, R. (1995). *The Art of the Case Study Research*. Thousand Oaks, CA: Sage Publications.

- Stanz, J., Kotru, R., Buekeboom, H., Rasul, G., Kerkhoff, E., and Karki, M. (2007). Advances in Participatory FM in South Asia Learning from Field Experience in Bhutan, India and Nepal. *International Centre for Integrated Mountain Development (ICIMOD)*. 1(1); 1-82
- Sun, Y., Mwangi, E., and Meinzen- Dick, R. (2011). Is gender an important factor influencing user groups' property rights and forestry governance? Empirical analysis from East Africa to Latin America. *International Forestry Review*. 13 (2); 205-219.
- Sun, Y., Mwangi, E., and Meinzen- Dick, R. and Suseela, R. (2011). Gender, institutions and sustainability in the context of forest decentralization reforms in Latin America and East Africa. *IDEAS Working Paper Series from RePEc*. St Louis, Missouri: Federal Reserve Bank of St Louis.
- Sundar, N. (2000). Unpacking the "Joint" in Joint FM. *Journal of Development and Change*. 31; 255-279.
- Sutton, P.W. (2005). Nature, Environment and Society. In *Environment, Policy and Governance*. *European Environment*. 15 (3); 2002-204.
- Tole, L. (2010). Reforms from the ground up: A review of community-based FM in tropical developing countries. *Environmental Management* 45:1312-1331.
- Tucker, C. M. (2010). "Learning on governance in forest ecosystems: Lessons from recent research." *International Journal of the Commons* 4(2): 687–706.
- Turyahabwe, N., and Banana, A.Y. (2008). An overview of history and development of forest policy and legislation in Uganda. *International Forestry Review* 10(4): 641-656.
- USAID. (2009). Field Exercise: Transect Walk. USAID Staff Environmental Training. *Pretoria*. Retrieved from:
http://www.encapafrika.org/Pretoria/5_Transect_Walk_Pretoria_20Apr09.pdf.
- United States Environmental Protection Agency (USEPA). (2012). A framework for Sustainability Indicators at EPA. Office of Research and Development, National Risk Management Research Laboratory. Retrieved from:
<http://www.epa.gov/sustainability/docs/framework-for-sustainability-indicators-at-epa.pdf>.
- Uniyal, B. (2003). Utilization of Medicinal Plants by the rural women of Kullu, HP. *Indian Journal of Traditional Knowledge*. 2(4); 366-370.
- Uttarakhand Bamboo and Fiber Development Board. (2015). *Natural Fibers: Bhabar*. Retrieved from

http://ubfdb.org/index.php?option=com_content&view=article&id=50:species&catid=38:species&Itemid=54 on July 27, 2015.

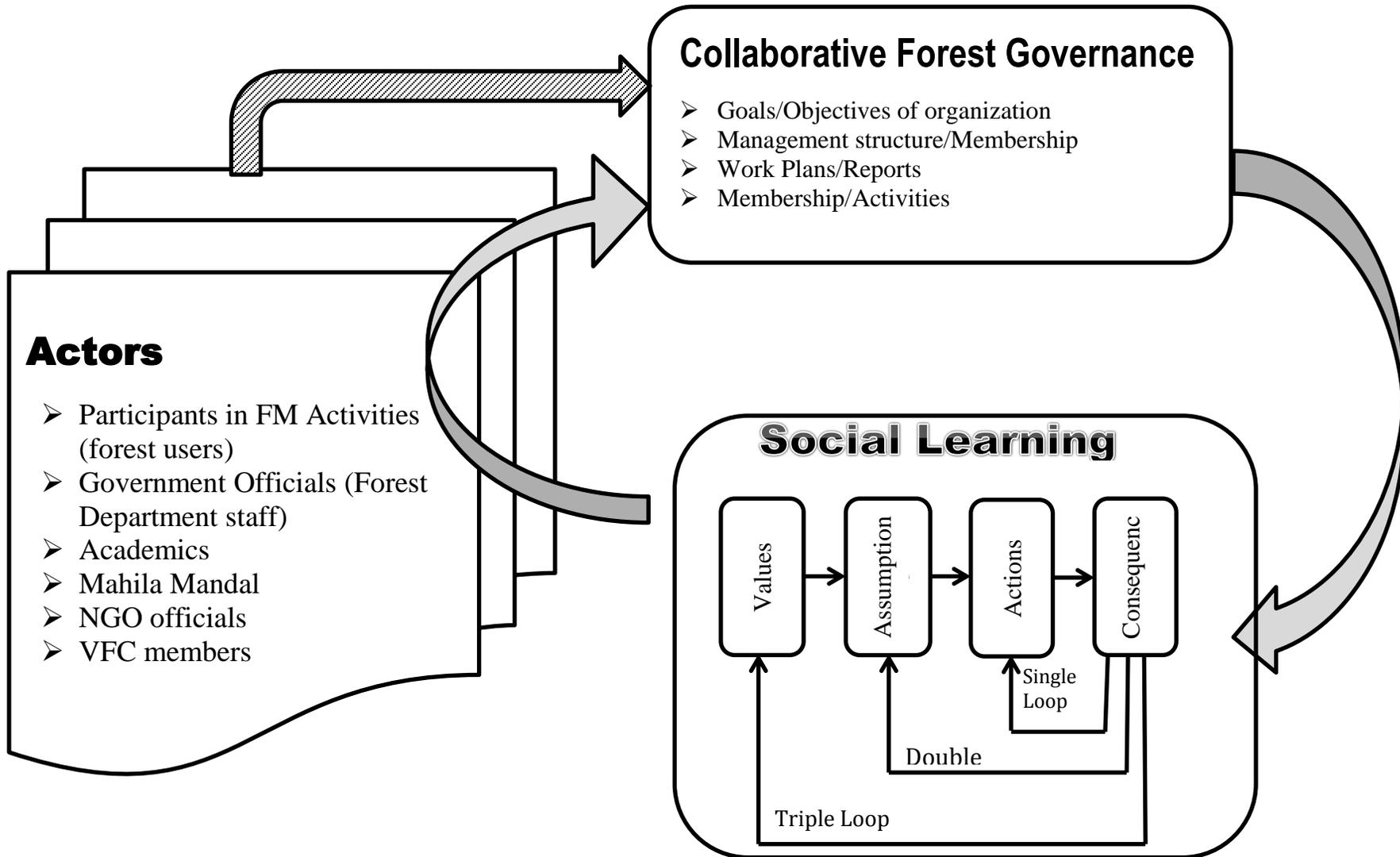
- Varghese, J. and Reed, M.G. (2011). Theorizing the Implications of Gender order for Sustainable FM. *International Journal of Forestry Research*. 1; 1-11.
- Vasan, S. (n.d). Political Ecology of Timber Rights in the Western Himalayas. *IGES: International Workshop*. Workshop conducted from Yale School of Forestry and Environmental Studies, USA.
- Vasan, S. (2001). Community Forestry: Historical Legacy of HP. *The Journal of the Association for Nepal and Himalayan Studies*. Himalayan Research Bulletin: No 2/ Article 8. 21; 36-45.
- Vasan, S. (2006a). *Living with Diversity: Forestry Institutions in the Western Himalaya*. Indian Institute of Advanced Study, Shimla.
- Vasan, S. (2006b). Situating Conserving Communities in their Place: Political Economy of Kullu Devban. *Conservation and Society*. 4 (2); 325-346.
- Vasan, S. and Kumar, S. (2006). Situating Conserving Communities in their Place: Political Economy of Kullu Devban. *Journal of Conservation and Society*. 4(2); 325-346.
- Vemuri, A. (2008). Joint FM in India: An Unavoidable and Conflicting Common Property Regime in Natural Resource Management. *Journal of Development and Social Transformation*. 5;81-90.
- Verma, M. (2000). *Economic Valuation of Forests of HP*. Consultant Report in HP Forest Sector Review (Annexes). Shimla: HP Forest Department.
- Vira, B. (1999). Implementing Joint Forest Management in the field: towards an understanding of the community – bureaucracy interface, in R Jeffery and N. Sundar (eds.), *A New Moral Economy for India's Forests?* New Delhi, Sage.
- Walia, J.S. (2005). Sustainable FM in HP: Balancing conservation, production and use of forest goods and services for livelihood options and poverty alleviation. *World Forestry Institute*. Retrieved from: http://wfi.worldforestry.org/media/publications/specialreports/SFM_Himachal_Walia.pdf
- Wals, A.E. (2011). Learning our Way to Sustainability. *Journal of Education for Sustainable Development*. Vol 5(2); 177-186.
- WAVES: Wealth Accounting and the Valuation of Ecosystem Services. (2015). *Accounting for Forests in HP Feasibility and Planning Study Technical Report*. Retrieved from: www.wavespartnership.org on July 27, 2015.

- Wenger, E. 1998. *Communities of Practice: Learning, Meaning and Identity*. Cambridge: Cambridge University Press.
- Women in Informal Employment: Globalizing and Organizing (WIEGO). (2015). Forest Workers in India. Retrieved from: http://wiego.org/informal_economy_law/forest-workers-india. Unpublished.
- Wijewardana, D., Caswell, S. J. & Palmberg-Lerche, C. (1997). Criteria and indicators for sustainable FM. Topic 37: Taking stock of the various sustainable forest management processes. XI World Forestry Congress, Antalya, Turkey, 1997.
- Wilkie, M.L., Holmgren, P., and Castaneda, F. (2003). Sustainable FM and the Ecosystem Approach: Two Concepts, One Goal. Forestry Department: *Food and Agriculture Organization of the United Nations*. Working Paper FM 25; 1-30.
- Wollenburg, E., Edmunds, D., Buck, L., Fox, F., Brodt, S. (2001). *Social Learning in Community Forests*. Center for International Forestry Research. SMK Grafika Desa Putera, Indonesia.
- Woodhill, J., and N.G. Röling. (1998). The second wing of the eagle: the human dimensions in learning our way to more sustainable futures. Pages 46-69 in N.G. Röling and M.A.E. Wagemakers editors. *Facilitating sustainable agriculture: participatory learning and adaptive management in times of environmental uncertainty*. Cambridge University Press, Cambridge, The United Kingdom.
- World Bank. (2013). *Transect Walk*. Retrieved from: http://www.siteresources.worldbank.org/EXTTOPPPSISOU/Resources/1424002-11853047942784026035-1185375653056/4028835-1185375678936/1_Transect_walk.pdf.
- World Commission on Environment and Development: WCED. (1987). *Our Common Future*. *United Nations*. Retrieved from: http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf
- Yin, R.K. (2003). *Case Study Research: Design and Methods*. Third Edition. Sage Publications. Thousand Oaks, CA.

Appendix A

Social Learning Chart

Source: Adapted from Egunyru (2012) and reorganized based on Egunyru's (2015) finalized results.



Appendix B: Semi Structured Interview Guides

B.1: Local people involved in FM activities and/or JFM within Kullu Valley (adult men and women)

Please note: I realize I have lots of questions below and that I may not be able to ask all of them – or at least all of them at one time.

I tried to be inclusive at this stage to give you a clear sense of what I hope to find and the questions I will use to do that

Introduction:

- What was your motivation for participating in FM activities within your community?
- How long have you been involved with FM? i.e. Do you help to manage the forest in any way (e.g. collecting NTPs, guarding etc.)
- What is your role in FM? (i.e. how are you involved?)
- Have you noticed any changes in your role in FM since you started?

Learning:

- How do you or your family use the forest?
- What do you see as the main benefits of forests?
- Do people from villages still lop trees as often as before?
- Are there any programs in place to stop the lopping of trees?
- Has there been any attempt to change the behavior of lopping trees or has this change occurred over a number of years?
- How important are medicinal plants in the forest? Are there areas of the forest that are protect for this purpose?
- Are people using NTFPs? Does anyone monitor or manage this?
- How often are trees cut down? Who decides which ones are cut down?
- Are more trees being cut down than in the past?
- Have you been told anything about conserving the forest?
- What steps (if any) are being used to conserve the forests?
- What needs to be looked after or taken care of in the village in order to predict a good future?
- Is making sure that there are forests for your kids and grandchildren important to you? If so why? If not, why?
- What do you see as key activities that need to be done or need to continue in order to keep the forests around for the future?
- Do you play a role in forest conservation? If so, what is your role? If not, would you like to be more involved in conserving the forests?
- What do you value about the forests? Do people in your community share these same values?
- What are some of the things you have learned through being involved in FM activities?
- Which were the most influential events or activities that impacted your learning?
- Has your understanding of sustainability and local governance institutions changed based on your involvement within the FM activities?
- In which ways has what you learned impacted your everyday thinking and decisions about the forest (if not captured above)? Can you tell me some of these?
- Would you say what you have learned has caused you to question practices, norms, etc. that

you held about SFM/JFM before being part of the FM activities? If so, can you give examples of this?

- How easy or difficult was it for you to accept these new practices, ideas, etc.?

Governance Collaboration/ Motivation

Main Questions: I want to understand: What is the extent and nature of devolution of FM authority from the FD to the community institution? What is the level of participation: who participates, what effect this has, and what factors constrain participation? How are equity issues across scales dealt with?

Introductory Questions

- What has been the level of interest from the community to become involved in (using- taking care of the forest) FM activities?

- Who are the main people involved from the community in making decisions about the forest?

- What are the major barriers for people to get involved in FM? I.e: Is it easy for others to get involved? Are there meetings that people can attend freely?

Additional Questions pertaining to the governance and structure:

- How has JFM been working here over the years?

- How do FD and forest institutions share power, authority and accountability?

- How do FD and forest institutions share power, authority and accountability?

- Would you say there is fair representation of community interests on the Board/Committees?

- Has there been significant transfer of power and authority to the community institution?

- Are there ever any conflicts between the locals and the FD? If so, how are the conflicts dealt with?

Additional Questions for local Women from involved institutions e.g., MM, ENGO (Gendered Dimension of SFM/JFM):

- Is your role in FM role different than your husbands or other men in the community in FM activities?

- What are some challenges that you face in the forest activities that you are involved in? (i.e. time, level of involvement, access to training programs etc.) How do you overcome those challenges?

- Do you feel like there are incentives for women to become involved in FM activities?

- Are there better ways to enhance or facilitate local peoples' participation in FM?

- Have you seen that you/your group has influenced FM activities and decisions?

- How is the MM involved in FM? How long has the MM been involved in FM within this community? How do women in the MM participate in FM?

- What do you feel (if any) are barriers to women participating in FM?

- What have been some of the key lessons you have learned from being involved in this organization/ collective group?

- What have been some challenges that you/your organization have faced in FM? How have you overcome these challenges?

B.2: Individuals in position of power in FM activities (i.e: forest guards, deputy rangers, forest ranger, deputy/assistant conservator of forests, divisional forest officer etc)

Introduction:

- What was your motivation for participating in FM activities within your community?
- How long have you been involved with FM?
- What is your role in FM? (i.e. how are you involved?)

FM:

- What is your role in FM?
- Have you seen many changes in the structure of FM or in the department over the years?
- Have you seen any changes in how the FD works with local communities over the course of your involvement?
- How is JFM or like community-based forest programs working?
- Have they improved relationships between the FD and the local communities?
- Have there been conflicts between the local communities and the FD? If so, what are some of the strategies to resolve the conflict?
- Have these programs improved forest sustainability – if so how so?
- Are there better ways to enhance or facilitate local peoples’ participation in FM?
- What are some of the equity concerns, how are they being managed and what are some of the effective ways to resolve them?
- What mechanisms have been created under participatory FM/community forestry? What are the responsibilities of each of these mechanisms? What are the accountability mechanisms?

Learning:

- Has your understanding of the term sustainability and local governance institutions changed based of your role in FM activities?
- In which ways has what you learned impacted your everyday thinking and decisions about the forest (if not captured above)? Can you tell me some of these?
- Would you say what you have learned has caused you to question practices, norms, etc. that you held about SFM/JFM before being part of the FM activities? If so, can you give examples of this?
- How easy or difficult was it for you to accept these new practices, ideas, etc.?

B.3 Academics of GB Pant Institute, University of HP and Government Officials

Introduction:

- What kinds of work/ research are you doing in relation to FM?
- How long have you been involved with FM (from a research perspective)?
- What is your role in FM? (i.e. how are you involved?)
- What have been some of the key changes you have seen in FM over the years?
- What have been some of the key barriers to participation and being involved in the decision-making process that you have witnessed/ documented from your research?

Appendix C: Forest Transect Walk Questions

Introduction:

Hello, my name is Allison and I am doing research on FM in the Kullu Valley. I am here today with my interpreter Mehru from Goshal. Would it be OK with you if we join you on your walk to the forest so I can better understand what people do in the forest, what they collect and what they value about the jungle? (see Appendix C for full consent).

Questions to ask or touch on during the walk:

- How often do you go into the forest?
- What do you collect from the forest?
- What do you value about the forest/ jungle?
- What kind of medicines do you collect from the jungle?
- Do you sell any products from the forest/jungle for money?
- What do you collect most from jungles/forests and what do you collect least?

Things to remember during the walk (notes for the researcher)

- Take pictures of the forest products, NTFPs and forest work while on the walk as points of conversation once the forest walk is completed
- Take notes on the path taken to the forest, the time it takes to get to the forest and the frequency of visits to the forest that people take

Appendix D: Consent Form



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Interview Consent Form

Research Project Title:

Local forest governance in Northern India: The of impact of the social dimensions of Sustainable FM

Researcher: Allison LF Birch

Sponsors: Social Science and Humanities Research Council of Canada (GETS) and University of Manitoba Graduate Fellowship

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, please feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Project Description

The purpose of this research is to examine local forest governance institutions in Northern India (specifically mountainous communities in HP) to consider their impact on the social dimensions of SFM, particularly the role of women in decision-making and the learning outcomes for all participants as a result of their involvement.

Many researchers have documented that there is a growing need to further investigate the contribution of local forest governance structures in achieving sustainable FM. This research will pay particular attention to the social dimensions of sustainable FM including: local, gendered approaches to governance and the learning outcomes of such approaches, in particular. This research will add to the growing body of literature pertaining our understanding of how groups learn through natural resource management. It is important to understand what people learn when involved in FM activities in order to achieve more equitable, sustainable and collaborative outcomes. This research aims to shed light on people's perceptions and understandings on local forest governance, examine the role of both men and women in forestry institutions and determine the learning outcome of individuals involved in FM activities.

Participant Involvement

You are invited to participate in an interview that will last between 30 to 60 minutes. These interviews will explore your experience with local forest governance and forest activities, your perception of sustainability and local governance systems, and learning experiences that have arisen your involvement within FM activities. Written notes will be taken during the interview, and they will also be audio-recorded if you agree.

www.umanitoba.ca/institutes/natural_resources

Anticipated Risk

I do not anticipate that your participation in this research should expose you to any risks beyond those you experience in the course of your work and daily life.

Confidentiality

To protect your identity, you will be given the opportunity to choose a pseudonym. This name will be used in all research reports, presentations and publications. Your true identity and raw research materials (such as interview tapes, transcripts and my research notes) will only be available to me and my thesis supervisor. You may, however, choose to have your real name used if you prefer.

Feedback

This type of research is an interactive process. I plan to share my ongoing analyses and conclusions with you, by giving you copies of interview transcripts and written narratives for your comment, and through a final focus group in which I will present my ideas to you for comment. A briefing note summarizing the research results and providing recommendations will be produced for your organization.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Questions or concerns can be directed to:

Allison Birch (principal researcher): [REDACTED]

Umbirch3@myumanitoba.ca [REDACTED]

John Sinclair (thesis supervisor): 1-204-474-8374

jsincla@ad.umanitoba.ca

This research has been approved by the Joint-Faculty Research Ethics Board of the University of Manitoba. If you have any concerns or complaints about this project, you may contact any of the above-named persons or the Human Ethics Secretariat at 1-204-474-7122 or e-mail Margaret_Bowman@umanitoba.ca. A copy of this consent form will be given to you to keep for your records and reference.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved

institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation. The University of Manitoba may look at your research records to see that the research is being done in a safe and proper way. This research has been approved by the Joint-Faculty Ethics Review Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 474-7122. A copy of this consent form has been given to you to keep for your records and reference.

I, _____, consent to participate in this research:

Participant's Name (printed)

Participant's Signature

Date

Or

Verbal consent sought and received:

I consent to be audio recorded:

Participant's Signature

Date

Please check one of the following:

I consent to the use of the following pseudonym in the thesis report, publications and presentations:

Pseudonym

Signature

Date

OR

I consent to the use of my real name in the thesis report, publications and presentations:

Participant's Signature

Date

Witnessed by:

Researcher and/or Delegate's Signature

Date

Appendix E: Confidentiality Oath



Natural Resources Institute
Clayton H. Riddell Faculty of
Environment, Earth, and Resources

303 Sinnott Building
70 Dysart Road
Winnipeg, Manitoba
Canada R3T 2M6
Telephone (204) 474-8373
Fax (204) 261-0038

Research Assistant/ Interpreter Agreement

Oath of Confidentiality

Mehar Chand Thakur

(Print name)

I understand that all of the information I have access to related to the study entitled: "*Local forest governance in Northern India: The of impact of the social dimensions of Sustainable forest Management*" must be kept confidential. In order to ensure participant privacy and confidentiality of information I agree that I will not disclose or discuss any information disclosed by study participants. My signature below indicates my pledge to maintain the confidentiality of all information revealed to me through the interviews and/or transcription of participant interviews.

A black rectangular box used to redact the signature of the respondent.

(Signature)

Sept 5 / 2014

(Date)

Appendix F: Ethics Approval Form



Human Ethics
208-194 Dafoe Road
Winnipeg, MB
Canada R3T 2N2
Phone +204-474-7122
Fax +204-269-7173

APPROVAL CERTIFICATE

September 15, 2014

SSHRC/UMGF
scholarship and 36820

TO: Allison Louise Froese Birch (Advisor J. Sinclair)
Principal Investigator [Redacted]

FROM: Susan Frohlick, Chair
Joint-Faculty Research Ethics Board (JFREB)

Re: Protocol #J2014:130
"Managing Local Forests in Northern India: The role of community-based forest management"

Please be advised that your above-referenced protocol has received human ethics approval by the **Joint-Faculty Research Ethics Board**, which is organized and operates according to the Tri-Council Policy Statement (2). **This approval is valid for one year only.**

Any significant changes of the protocol and/or informed consent form should be reported to the Human Ethics Secretariat in advance of implementation of such changes.

Please note:

- If you have funds pending human ethics approval, please mail/e-mail/fax (261-0325) a copy of this Approval (identifying the related UM Project Number) to the Research Grants Officer in ORS in order to initiate fund setup. (How to find your UM Project Number: <http://umanitoba.ca/research/ors/mrt-faq.html#pr0>)
- if you have received multi-year funding for this research, responsibility lies with you to apply for and obtain Renewal Approval at the expiry of the initial one-year approval; otherwise the account will be locked.

The Research Quality Management Office may request to review research documentation from this project to demonstrate compliance with this approved protocol and the University of Manitoba *Ethics of Research Involving Humans*.

The Research Ethics Board requests a final report for your study (available at: http://umanitoba.ca/research/orec/ethics/human_ethics_REB_forms_guidelines.html) in order to be in compliance with Tri-Council Guidelines.

umanitoba.ca/research

Appendix G: Certificate of Completion CORE Ethics



Appendix H: Kullu Local Forest Rights in Demarcated Forest

User Rights Permitted in Demarcated Forests in the Kullu District

1. to graze cattle (except buffaloes), sheep and goats at the times given in the record when any limit in time has been imposed;

2. to take trees—

- for agricultural implements and domestic utensils;
- for the construction and repair of dwelling-houses, cattle and grass sheds, and other agricultural buildings;
- for the construction and repair of temples and of dwellings attached to temples;
- for the ark of the deotas/devta/deities (village Gods) and other such purposes;
- for the bier and the cremation of the dead;
- for fuel and charcoal for smithy purposes;
- for tanning;

3. and to take the following articles of forest produce—

- grass of all kinds for fodder, thatching, rope-making and other domestic and agricultural purposes;
- flowers, ferns, plants for medicinal, domestic and agricultural purposes;
- brushwood for fencing and other purposes;
- branches of trees of certain kinds for fodder, manure, hedges, and for making charcoal and ropes at the times given in the record when any limit in time has been imposed;
- fallen leaves for manure at the times given in the record when any time in limit has been imposed;
- leaves and bark of certain trees and shrubs for tanning, incense, rope-making, medicinal and other such purposes;
- splinters of stumps of trees of certain kinds for torches and the manufacture of oil;
- bamboos for basket-making and other purposes; stones, slates, earth, clay, limestone for building, plastering, for the manufacturing of earthen vessels, mill-stones and other purposes;
- wild honey.

Appendix I: Women's Access to Local Institution Membership in JFM Orders.

State	Eligibility for General Body Membership	Women's Representation in Managing Committee (MC)*
Andhra Pradesh	1 F, 1 M/household	One third out of 10 to 15 village members. 5 nominated non-village members additional. Quorum for meeting - 50% members.
Bihar	1 rep/household	Minimum 3, max.5 women out of 15 to 18 total members. Quorum for MC meeting 10.
Gujarat	'Any interested person' can become a member	Not specified. Min.2 women on 'working committee' for preparing JFM plan.
Haryana	All F & M adults	Minimum 2 women on the committee
HP	1 F, 1 M/household	Minimum 5 village reps out of 9 to 12 total members. Out of village reps, 50% to be women. Mahila Mandal rep to be on M.C. (i.e. 3 to 4 women out of 9 to 12 total members)
Jammu and Kashmir	1 F or M/household	Minimum 2 women out of 11 total members.
Karnataka	1 rep/'interested' household with automatic membership of spouse	Minimum 2 women out of 15 total members.
Madhya Pradesh	1 F, 1 M/household	Minimum 2 women. 1 MC member per 10 families. Total members will depend on size of village.
Maharashtra	Unspecified	Minimum 2 women out of 11 members.
Orissa (1993 order)	1 F, 1 M/household	Minimum .3 women out of 11 to 13 members
Punjab	No provision for a general body	The committee needs to have one woman (no minimum for female membership and no set number for the committee)
Rajasthan	1 rep/ household	Nothing specified
Tripura	1 rep/ household	Nothing specified
West Bengal	Joint membership of husband & wife	Nothing specified
Tamil Nadu	1 F, 1 M/household	Min.2, max.5 out of total of 5 to 11 villagers. Nominated members additional.
Uttar Pradesh	1 rep/household (F or M). No minimum membership of women specified.	One third out of elected members plus 5 nominated members.

* In all states, even in A.P. and U.P. with one third of total village MC members being women, the M.C. meetings can be legitimately held with none of the women members present unless a proportionate presence of women is made mandatory to complete the quorum.

Source: Godbole, 2002