

**Livelihood Change and Resilience Building:
A Village Study from the Darjeeling Hills, Eastern Himalaya, India**

by

Julie Dekens

Thesis submitted to the Faculty of Graduate Studies in partial fulfillment of the
requirements for the degree of Master of Natural Resources Management

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A Village Study from the Darjeeling Hills, Eastern Himalaya, India**

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Julie Dekens

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of
Manitoba in partial fulfillment of the requirement of the degree**

Master of Natural Resources Management

Julie Dekens © 2005

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ABSTRACT

This study investigated ways in which communities may or may not increase their ability to deal with change and create sustainable livelihoods. Resilience is an important aspect of the dynamics of livelihood change and responses. Resilience building refers to *increasing* the ability of a social-ecological system to absorb perturbations, and, in response, to adjust, learn, self-organize and re-organize for sustainable livelihoods. Resilience building in a particular social-ecological system was investigated through documentation of livelihoods change over a 50-year period in the village of Yangkhoo, Darjeeling District, India. The objectives of the study were: (1) to describe and understand a livelihood system, (2) to identify key drivers of change and evaluate the impacts of these changes on a livelihood system, including institutional responses; and, (3) to derive policy lessons for managing resource-based livelihoods with regards to power relations, cross-scale linkages and resilience building.

The village was selected by considering: the occurrence of past crises, shocks, and stresses to enable the study of change, the land ownership in order to examine the complexity of livelihood options and responses, and the openness of the village in order to examine the role of cross-scale institutional linkages. Field data were collected from September 2004 to mid-January 2005, using Rapid Rural Appraisal and semi-structured interviews. In the village, a sample size of 36 households (53%) was obtained from a total of 68 households. Key informants outside the village (NGOs, governmental agencies and private sector) were also interviewed ($n = 13$).

The villagers have faced a series of changes and demonstrated a profound capacity to adjust. Faced with the closure of a local tea estate closure followed by external interventions, political unrest, and infrastructure development, the post-1965 subsistence economy has progressively evolved into a diversified market economy, a shift that has increased agrobiodiversity in the village, as compared to the pre-1965 tea monoculture period, and has resulted in resilience building. In Yangkhoo, as in many other places in the Himalaya, livelihood changes and adjustments provide the villagers with new opportunities and vulnerabilities. At the scale of the household and the village, the people, who have access to land, have been able to build resilience into their livelihood systems mainly by ecological and economic diversification. Within the village, some households have more control over their ability to benefit from landownership. This ability depends on their access to other assets (e.g., social, economic). However, the villagers do not have direct control over a number of external factors influencing

on their livelihoods (e.g., rugged topography, historical legacies, regional politico-economic context), and these factors were identified as barriers to resilience building. Interventions from development NGOs that combine short-term and long-term livelihood supports, account for community histories, internal dynamics and priorities in a context of multiple and cross-scale changes, and that put emphasis on monitoring and project evaluation could increase the ability of communities to adjust to change.

ACKNOWLEDGEMENTS

This is a real learning experience for someone who will probably spend the rest of your life in western surroundings, which when you have tasted the East, may be pleasant but somewhat fruitless. *Here the real challenges of life face you every day and require decision making about the worth of your attitudes and actions; in the milieu you find yourself in.* “Are they of any help to others?” is a question one has to battle with and answer. (Correspondence with Fr. Van, St Joseph School, February 2005, added emphasis)

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DEDICATION

The journey of change continues for me, a change where I can change myself only and hopefully offer an environment of change for others. (Roshan Rai, Program Officer, NGO DLR Prerna, Darjeeling, Personal Communication, June 2005)

Thesis dedicated to people who try to bring about change and create bridges between research and other realities.

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Our history is not destiny. Whatever is written is not for a long time. What is true today will not be tomorrow because human determinisms are short-term. Our pains compel us to metamorphosis and we always hope to change our way of life. This is why an early deficiency creates a momentary vulnerability, which our social and affective interactions will restore or aggravate. In that sense, resilience constitutes a natural process wherein what we are at a precise time knits with the ecological, affective, and verbal environments. If one environment changes, everything changes. If there is something to lean on, the construction will start again.

Boris Cyrulnik, *Un merveilleux malheur*, Odile Jacob, 2002: 13, translated from French

CHAPTER 1.

INTRODUCTION



PLATE 1.1: Valley from Yangkhoo looking north towards Sikkim.

PURPOSE AND PROBLEM STATEMENT

How can resource-dependent communities increase their ability to deal with shocks, stresses, and crises? The purpose of this study is to document the dynamics of livelihoods change that support and/or hinder resilience building in a mountain social-ecological system. Social-ecological systems are integrated systems of people (i.e., resource-use practices, technological and institutional arrangements) within their natural environments. Mountain communities have always faced change but they now have to face it at a rate that has never been encountered before.

What is new is not change *per se* but rather the rate of change. For instance, one of the main driving forces of rapid change is the process of "globalization" which increases external control over local resources, and may disenfranchise mountain communities from their assets (environmental, socio-cultural, and economical assets). The process of globalization is not new. What is new is the faster rate of data flow, and cultural and financial exchanges at an international level. In this context, most community traditional arrangements are being eroded (Jodha 2002: 8). Key exogenous factors of change in these communities may include economic processes of liberalization, commodification, and marketization leading to the development of the rural non-farm economy, the decline of the terms of trade and the decrease of access to common property resources (see ODI 2001: 2; Beck 2001: 123).

Studying how resource-dependent communities make a living is central to the understanding of social-ecological systems dynamics. What lies behind the concept of "livelihood" encompasses complex mechanisms, and goes far beyond the simple notion of having a job to ensure a living. Indeed, Ellis (2000: 10) describes a livelihood as the "*combination* of assets (natural, human, physical, financial and social capital), activities and access to these (mediated by institutions and social relations) that together determine how an individual or a household make a living". Further, a sustainable livelihood can be defined as one that:

can cope with and recover from stress and shocks, maintain and enhance its capabilities and assets and provide [...] opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term (Chambers and Conway 1991: 1).

This study focuses on the livelihood approach less as an analytical tool and more as an underlying method to explore pathways for sustainable livelihoods in the face of change. In the last decades, various studies, especially in the "development" field showed that the livelihood approach is useful to: "(1) help focus attention on people and their livelihoods instead of simply resources and their depletion; (2) help focus on opportunities and not constraints; (3) make possible integrated and explicit analyses of the various conditioning factors, both exogenous and endogenous, which catalyses or impinges upon mountain livelihood development" (Rasmussen et al. 2002: 16).

To capture change at the interface between social and ecological systems, particular attention needs to be paid to the institutional dimensions of livelihoods change and cross-scale linkages. The term "institution" is used in a very broad sense as negotiated agreements over a *complex overlap* of formal and informal rules, norms, practices etc., which define who is allowed to use what kind of resources (e.g., environmental, financial) at what time and under what circumstances. Two major reasons justify a focus on the institutional dimensions of livelihoods. First, research and development agencies have not yet fully explored the institutional dimension of the sustainable livelihood approach (Bingen 2001). Second, institutions as key factors for encouraging or discouraging the pursuit of sustainable livelihoods (Craig 1997), seems to be a consensus among scholars in resources management. However, Agrawal and Yadama (1997: 457) warn us "to say [...] that institutions are important in shaping resource management outcomes is not enough. The greater need is to specify the types of practices and sets of rules that are more important in a given context".

Mountain communities *are adjusting* to change. The term "adjustment" refers to both coping strategies (i.e., short-term) and adapting strategies (i.e., long-term). In fact, the distinction between coping and adapting strategies might be blurred since what some perceive as coping mechanisms might be seen as adapting strategies by those located at a different point in time and space and/or by those with more information (Ashley et al. 2003: 2.2). One key issue is that not all adjustments are sustainable. As Batterbury and Forsyth (1999:9) put it:

Although there are many examples of successful adaptations, their role in avoiding environmental degradation is still unclear. Critics have suggested that at some point local strategies may be weakened or even reversed by social

and economic changes. [...] Some adaptations may only protect certain resources or benefit only some members of a community. One must be wary, therefore, of saying that adaptations are successful just because particular adaptive practices have certain positive effects.

Implicit here, is also the assumption that it is difficult *to isolate* the effects of external drivers from the internal dynamics because these processes are interacting and influencing each other constantly. Rather, the interest lies in understanding how external drivers *interact* with internal dynamics (or *vice-versa*) to create a certain type of response or non-response.

Further, a key aspect of sustainable livelihoods, which influences the general approach of this study, is the process of resilience building. Since 1999, an international and multidisciplinary consortium of researchers, part of the Resilience Alliance, has been trying to operationalize sustainability in social-ecological systems. The Resilience Alliance (2003) defines the term resilience, as used in this paper, as (i) the amount of change a system can undergo and still retain the same controls on function and structure; (ii) the degree to which a system is capable of self-organization; and (iii) the ability to build and increase the capacity for learning and adaptation. Resilience thinking generates insight for the livelihoods approach because it focuses on the process of capacity building to change, where change is considered as an essential force in social-ecological systems together with continuity. Also and consequently, it enables us to analyze livelihoods in a dynamic way, assuming complexity and no simple cause-and-effect relationships. Importantly, this study focuses on resilience building. It does not (cannot) attempt to measure the resilience of a particular social-ecological system because resilience is a dynamic *process* rather than a particular *characteristic* at a certain point in time and space.

OBJECTIVES

The purpose of this study is to investigate how resource-dependent communities can increase their ability to deal with change. This is approached through documentation of the dynamics of livelihoods change that support and/or hinder resilience building in a village case study wherein the objectives are:

- (1) To describe the livelihood system;
- (2) To identify key drivers of change and evaluate the impacts of these changes on the livelihood system, including institutional responses; and,
- (3) To derive policy lessons for managing resource-based livelihoods in regards to power relations, cross-scale institutional linkages and resilience building.

For clarification purposes, I define the following terms:

- **“Change”** refers to any kind of perturbations (environmental, political, economic, socio-cultural) creating stresses, shocks, and/or crises in the social-ecological system under investigation. A stress refers to “a continuous or slowly increasing pressure (e.g., soil degradation), commonly within the range of normal variability” of the system under investigation (Turner II et al. 2003: 8074). A shock refers to an abrupt and rapid event, which perturbs the range of normal variability of the system under investigation. A crisis results from a combination of stresses and/or shocks creating a state of disorganization that change the system.
- **“Livelihood change”** refers to change in economic, political, social, environmental assets that influence how people make a living.
- **“Livelihood system”** refers to a combination of modes of livelihood at one time - e.g., farming, migrant labor, and informal activities (Murray 2001: 2).
- **“Drivers of change”** refers to any natural or human-induced factors that directly or indirectly cause a change – *and therefore a response* -- in a social-ecological system.
- **“Institutions”**, used in a broad sense, refers to rules in use. They are negotiated agreements with a complex overlap of formal and informal rules,

norms, practices, etc., which define who is allowed to use what kind of resources (or assets) at what time and under what circumstances.

- **“Responses”** “refer to human actions, including policies, strategies, interventions, to address specific issues, needs or problems in various domains, i.e., society, economy and the environment. [...] A “response” can be individual or collective and may be designed to answer one or many needs at different scales of time and space. In the context of ecosystem management, responses may be of a legal, technical, institutional, economic and behavioral nature and may operate at local/micro, regional, national or international levels in a time scale of days to hundred of years” (Millennium Ecosystem Assessment 2002: 42).
- **“Cross-scale linkages”** refer to “linking institutions both horizontally (across scale) and vertically (across level of organization). [...] [It] means something more than management at several scales, isolated from one another. Issues need to be considered simultaneously at several scales when there is coupling or interaction between scales” (Berkes 2003: 293). Cross-scale analysis is important because “events or phenomena at one scale influence phenomena at other scales” (Cash and Moser 2000) in complex ways and with positive and/or negative effects on the different scales (Young 2000: 4). Cross-scale analysis is also challenging since “data requirements are huge and applicable theories at each level may be quite different” (Berkes et al. 2003: 13).
- **“Power relations”** refer to the exercise of control. The nature of control can come from a diverse spectrum of factors (e.g., socio-cultural, economic, political, ecological) take various forms (e.g., direct /indirect, formal/informal, discursive/non discursive, symbolic), and have various degrees of influence across time and space. Most of the time, the factors influencing power relations are interrelated. However, one factor may become preponderant at a certain point in time and space.

- **“Resilience building”** refers to the capacity of a social-ecological system to increase its ability to adjust (i.e., cope and adapt) to change for sustainable livelihoods.

APPROACHES AND METHODS

These objectives led to specific approaches and methods being identified:

1. **Village case study.** In order to understand communities' adjustment to change, local research is crucial. I used a case study approach involving fieldwork activities in the Darjeeling Hills of West Bengal, India. The case study focused on one village, given the limited time and funding constraints.
2. **Key changes and drivers of change in a social-ecological system.** The baseline to assess change was established from the identification of a key event in collaboration with key informants, the villagers, and the availability of previous study to enable longitudinal analysis. The study focused on a politico-economic change (perceived locally as a crisis) that already happened, the closure of a local tea estate in 1965.
3. **Cascade effects and responses to change.** Following Vayda and Walters' (1999: 169) approach of event ecology, I worked backward in time and outward in space so as to enable the construction of a model of causes and effects leading to the closure of the tea estate. Event ecology prevents the researcher from privileging factors in advance. I then focused on the cascade effects (direct and indirect effects) the tea estate closure had on the village with specific reference to the livelihood systems (i.e., how it has impacted the combination of assets, activities and access to these that together determine how individuals and households make a living?), including institutional relationships. For instance, some of the livelihood responses were the process of livelihood diversification, the intervention of external institutions, and socio-cultural changes.

4. Factors mediating those responses and supporting or hindering resilience building for sustainable livelihoods. I evaluated internal and external factors mediating those responses and supporting or hindering the capacity of some to adapt, learn and recover from change up to the time of the study (i.e., from 1965 to 2004). The resilience analyses draw specific reference to the role of power relations, local institutions and cross-scale linkages in explaining livelihoods responses to change.

The study privileged place-based models (i.e., community-based assessment of change) from a community/household point of view (i.e., what are the perceived changes from the community/household point of view?). The unit of analysis focused on the village and household levels to take into account the disparities (e.g., gender, casts, and classes) inherent to the village organization. However, the interest was on focusing on cross-scale interactions between households, communities, regional, national and international levels rather than on focusing on one particular level of analysis. Indeed, "to better understand how crises [and change in general] affect socially excluded groups, it is important to assess how bonds and relationships are recreated in the face of economic stress, rather than focusing on single units of analysis such as the individual or the household" (Shipton 1990 cited in Davies and Hossain 1997: 25).

The initial approach to the study of change was inductive to avoid forming hypotheses that would pre-determine ways of approaching the village. To do so, I consulted key informants and organized focus groups on different topics (i.e., village history, livelihood change) to encourage the villagers' feedback and inputs. The study mainly draws on qualitative data, and to a lesser extent on quantitative data (i.e., "structured interviews" to get general information on households such as gender, age, caste, education). The research methods were essentially participatory (e.g., interviews of key informants, participant observation, direct participation, group discussion and mapping exercises) – see Chapter 3. Following Ashley et al.'s (2003) recommendations, livelihood change assessments draw from the following: household and key informants semi-structured interviews, and data gathered from governments and local NGOs. Oral (hi)stories also constituted a substantial source of information since little written records of events, change processes and their impacts were

available due to the oral traditions of the hills societies. Times spent for survival needs together with illiteracy had also constrained them in documenting historical and social processes.

SIGNIFICANCE OF THE STUDY

The study initially comes from an interest in testing resilience thinking in mountain environments. At a conceptual level, it contributes to the literature on sustainable livelihoods and resilience in disciplines that try to make a bridge and understand human-nature relationships. Development agencies, especially in the UK, have a well-developed livelihoods research agenda (see Chapter 2). From the case studies undertaken in the last decades, a number of research gaps have been identified. Some of these gaps are: (1) the role of institutional arrangements (both formal and informal) in encouraging and/or discouraging the pursuit of sustainable livelihoods (Bingen 2001); (2) the role of power relations influencing peoples' assets (e.g., the control over resources, the access to resources and benefits from resources influencing peoples' livelihoods) (Hobley 2001: 5); and (3) the relations between sustainable livelihoods and the study of cross-scale changes in order "to examine [the kind of responses that households and communities make in the face of perturbations] in terms of *building capacity* to deal with future change" (Berkes et al. 2004: 5).

Further, the way resilience of social systems relates to the ecological resilience on which these systems depend remains undefined. In the last decade, this problem appears to have stimulated interest among various research communities (e.g., research on food security (Global Environmental Change and Food systems 2002), climate change (Thompkins and Adger 2003)). As related studies emerge, comparative studies could provide an opportunity to understand to what extent different integrated social-ecological systems present common determinants of resilience and vulnerability.

At a practical level, the significance of the study also comes from its attempts to operationalize the concepts in a village of the Darjeeling Hills. It is a useful analysis at a local level as many tea estates are still closing down, at least temporarily, in the Darjeeling District. How can people cope with the closures, how can they find other

livelihood alternatives? What is their future? More generally, what is the future of the Darjeeling District, facing among other politico-economic problems the lack of employment opportunities with the tea estate closures and the decrease of the tourism industry? The village studied is part of the first organic tea cooperative in the Darjeeling District. It is important to learn from this experience to create new alternatives for the region. The significance of the study also comes at a broader scale. Although, the region is unique within the Indian context in many ways (i.e., historical, socio-cultural, political, economic, physical, and administrative characteristics), it also encapsulates characteristics common to many socio-ecological systems in the hills undergoing rapid socio-economic changes (e.g., road construction, rise of HIV, increase of service sector etc.). Further, the village also allows comparisons with other places in the world that rely or used to rely on monoculture type plantation systems (e.g., tea, coffee, banana plantations).

LIMITATIONS AND PLAN OF THE STUDY

The project faced several challenges (described in detail in Chapter 3). First, the study depended on a limited amount of fieldwork (four months and a half) and on the willingness of the village and key informants to participate. Second and consequently, the study did not allow for in-depth comparisons with other sites. Third, I was working with the help of a translator. Language and cultural barriers in communication were a major challenge. Fourth, it was difficult to isolate key internal/external drivers of change, as these aspects tend to be inter-related in complex ways. However, the isolation of a perturbation *per se* was not the primary objective of this project. It made more sense to identify how the *combination* of perturbations with a particular -and inherent- socio-economic context led to a range of possible outcomes. Therefore, the main interest lay in investigating ways of building resilience of the particular social-ecological system studied. Fifth, "community"-based methods constituted another constraint. First, they rely on the participation of the subjects. I selected the subjects according to their availability and various other factors (e.g., age, sex, activities, position). I was also attentive and accounted for power relations inside the village. Overall, subjects were only recruited on a voluntary basis. Second, community-based methods do not grant decision-making authority to local communities, or guarantee their input into project management. Also, the relationship between western science

and local knowledge is still controversial. In this context, the explanation and justification of the methodology used is stated with as much detail as possible (see Chapter 3).

This thesis is organized into seven chapters. Following this introductory chapter, a review of the literature on sustainable livelihoods and resilience outlines the main analytical lessons that are important in the context of this study (Chapter 2). Then, I provide a critical description of the specific field research methods employed (Chapter 3), and present the village study area of Yangkhoo, Darjeeling District, India and its current livelihoods (Chapter 4). Further, I describe the dynamics of livelihood change in Yangkhoo over a 50-year period after the closure of a local tea estate (Chapter 5) and analyze the role of internal village dynamics, external institutional linkages and cross-scale issues in the face of change in promoting (or not) resilience building (Chapter 6). I conclude by deriving some lessons for resource-based livelihoods in regards to power relations, cross-scale linkages and resilience (Chapter 7). A glossary of local terms, places and acronyms can be found at the end of this thesis.

CHAPTER 2.

LIVELIHOODS AND RESILIENCE IN SOCIAL-ECOLOGICAL SYSTEMS



PLATE 2.1: Indoor kitchen in Yangkhoo with fireplace. Women are preparing “roti”, a flat Indian bread made out of wheat, which is bought at the local market in Lebong.

This literature review is searching for analytical lenses and lessons from previous work in livelihoods and resilience research especially in the field of resources management. Specifically, it is asking what are the existing analytical tools to help us (1) describe and understand rural livelihoods; and (2) build sustainable livelihoods in the face of uncertainty and rapid cross-scale changes (i.e., internal and external changes to the system under investigation)? One of the key entry points of analysis of this study is the livelihoods perspective. Aside from the literature on sustainable rural livelihoods, the main considerations and influential bodies of thought that are going to inform the approach of this study are the literature on change and on resilience in the context of social-ecological systems.

Overall, this section tries to answer the following questions: what range of theoretical approaches in the social sciences focus on livelihoods? How does this range of approaches understand livelihoods? Why are these bodies of thought important in the context of this study? What is it that these concepts tend to clarify? What is the issue (e.g., why sustainable livelihoods are an issue)? What are the major assumptions behind these concepts? What can be learned so far from those different lines of inquiry? How can we use those findings in the context of this study? Where are the challenges and gaps? How do those concepts (i.e., livelihoods and resilience) relate to and complement each other? Why is resilience building important for sustainable livelihoods? In order to answer those questions, this section proposes to put each analytical tool into context (i.e., definition, origin, justification, assumptions, and lessons), and draw some links among the concepts.

RURAL LIVELIHOODS SYSTEMS

“Livelihoods analysis helps to improve our understanding of what is really happening in people’s lives, what enables some, but not others, to escape from poverty, and how people are affected by policy.” (Ashley et al. 2003)

Following Ellis (2000: 10), a livelihood can be defined as “a *combination* of assets (e.g., natural, physical, financial, human, social, political, symbolic capital), activities and access to these (mediated by institutions and social relations) that together determine how an individual or a household make a living” (Added emphasis). This

study uses livelihoods as an entry point to analyze and understand change occurring in social-ecological systems. What can livelihood analysis teach us about human-nature relationships and why is it important, in general, and for the purpose of this study in particular? Research undertaken under the livelihoods perspective reveals that: (1) rural livelihood systems have been understudied until recently (mid 1980s-early 1990s), (2) rural livelihood systems are often oversimplified and misrepresented, (3) the livelihood framework constitutes a basic model of adjustment to change and (4) understanding the contexts of livelihoods are important in building sustainable livelihoods pathways. I expand on each of these four points:

- **Rural livelihoods systems have been understudied until the mid 1980s –early 1990s**

“The inadequate knowledge about what marginalized people (women, minority, ethnic groups, etc.) normally (or currently) do in terms of their livelihoods, and the capacity for corruption in the state system, mean that very often the institutions which formerly governed resource use are replaced with ones which are even less equitable or sustainable.”
(Davies and Hussain 1997: 43)

The analyses of poverty-environment relations, the entitlement approach (see Sen 1981, Leach et al. 1997), the vulnerability approach and the human well-being perspective (see Millennium Ecosystem Assessment - <http://www.millenniumassessment.org/>), among others, have been focusing to various extents on livelihoods. Since the 1990s, international “development” agencies especially have reframed and refined those approaches in order to address poverty issues.¹ Each “development” agency has a different interpretation and use of the livelihood perspective mainly due to different understanding of sustainability (Carney et al. 2001: 60). The UNDP (noted in Thompson 2001: 105) points out that the spectrum

¹ For instance, OXFAM adopted the livelihood framework in 1993, CARE in 1994, United Nations Development Programme in 1995, and Department of International Development (UK) in 1998 (Carney et al. 61-2). See various “development” agencies’ programs on sustainable livelihoods, for example and among others: Department of International Development (DFID) Livelihood connect URL: <http://www.livelihoods.org/>, Food and Agriculture Organization (FAO) on Sustainable Livelihoods website. URL: http://www.fao.org/sd/PE4_en.htm; Institute of Development Studies (IDS) website, University of Sussex. URL: <http://www.ids.ac.uk/ids/>; Oxfam website. URL: <http://www.oxfam.org.uk>; SD Gateway Search for sustainable livelihoods website. URL: <http://sdgateway.net/livelihoods/default.htm>; United Nations Development Programme. Sustainable Livelihoods website. URL: <http://www.undp.org/sl/>; Andhra Pradesh Rural Livelihoods Project website. [online] URL: <http://www.aplivelihoods.org/faqs.html>

of interpretation of the livelihood perspective can vary from “at one end, a people-focused integrative way of addressing poverty issues, and at the other a perception of a society as a dynamic and adaptive complex system that has to be analyzed holistically”. But most importantly, they also converge around common organizing principles, as this section will further underline.

Interestingly, the approach constitutes a shift in perspective initiated in large part by the limits of the food security approach. Indeed, in the 1970s, the oil crisis and alarmist predictions of population growth dominated the international political arena. At that time, famines occurred in Asia and Africa. Many “developing” countries had started to face difficulties in meeting an ever-growing food demand. In this context, many government and “development” agencies had “encouraged” the adoption of high yield varieties (HYV) to intensify the food production under the slogan of the “green revolution”. However, and among other backlashes of this food program policy, many development practitioners started to realize in the 1980s that national food security did not automatically translate into household/individual food security (Frankenberger et al. 2001: 67). In fact, the issue was not one of food production *per se* (i.e., availability of resources), but rather one of entitlements (i.e., access, control and management of resources). Therefore, the focus on food security needed to be broadened. As Frankenberger et al. put it (2001: 68):

It was found that food security was but one subset of objectives for poor households, and only one of a whole range of factors that determined how the poor made decisions and spread risk [...] People may choose to go hungry to preserve their assets and future livelihoods. Therefore it is misleading to treat food security as a fundamental need, independent of wider livelihood considerations.

The analysis shifted to different levels: (1) at the scale of analysis, from regional and national food security to household and individual food security, (2) at the objective of analysis, from a “food-first” perspective to a livelihood perspective focusing on people’s access and control over resources, and (3) at the subject of analysis, from a materialist to a social perspective, which puts people (i.e., people’s assets, priorities, aspirations etc.) instead of resources, at the forefront (Frankenberger et al. 2001: 68). It may well be, that power relations partly explain why livelihood systems have been understudied until the 1990s. Indeed, the focus on “environmental issues” is often being used in the

political arena as a Trojan horse to mask the “real” issues (i.e., “environmental issues” as a downstream manifestation of political-economic issues). As Davies and Hossain (1997: 29) state:

Traditionally, livelihoods have not been the point of departure for public action to support long-term livelihood adaptation. It is environmental degradation, which has driven policy-makers’ agendas, leading to a wide range of policy initiatives to conserve key resources [...].

Ideally, the livelihood approach therefore marks an interesting shift from a resource- to a people-centered approach (i.e., a shift from physical and biological *criteria* to normal *values*). For instance, Chambers and Conway (1991:19) explain how from a livelihood perspective, a secondary forest can score better than primary forest because “it generally has higher primary productivity and also higher livelihood intensity (e.g. farmbrush versus forest in West Africa)”. This is important because the search for “public” benefits in natural resources management objectives might not translate in benefits for the marginalized groups (DFID and FAO 2001: 153). Also, this perspective means “what might be seen as non-sustainable from a technical angle might be sustainable from a livelihood angle” (Chambers and Conway 1991: 19).

This background partly justifies the importance of tackling poverty alleviation and resources management from a livelihood perspective. However, it is not arguing that the local scale is the only scale of analysis! The literature on community-based resources management shows that certain things can be done better at a local scale whereas other things can be done better at a larger scale at a certain point in time and space depending on the context. Importantly, starting the analysis at the individual/household level enables one to capture the “multi-positionalities” of individuals, which influence decision-making processes, revealing the complexity of how people are embedded in vested roles. For instance, by only starting the analysis with an institutional analysis the risk is to analyze peoples’ roles in a more hierarchic and static way thereby missing other platforms of action wherein individuals are involved. This is why the livelihoods approach refers to a systemic approach more than to a defined level of analysis *per se*.

- **Rural livelihood systems are often oversimplified and misrepresented**

More than a decade of livelihood analysis shows that policy-makers tend to oversimplify and misrepresent the complexity and diversity of rural livelihood systems. Chambers and Conway (1991:18) reveal this complexity:

The way rural economies work is complex. Sustainable livelihoods have many dimensions and multiple causalities. They take different forms for different people in different environments. Not surprisingly they are not easy to measure or estimate; and any attempt to reduce measurement to a single scale or indicator risks doing violence to precisely the complexity and diversity which many rural livelihood manifest.

Chambers and Conway (1991: 2) show how various assumptions around poverty disregard the complexity of rural livelihoods. They especially critique three major assumptions (biases) around poverty alleviation. The first bias, "production thinking", and this point has been mentioned before, sees poverty as a problem of production or supply rather than as a problem of entitlement. The second bias, "employment thinking", sees poverty as a consequence of a lack of employment;"but this misfits much rural reality, in which people seek to put together a living through multi-various activities" (Chambers and Conway 1991:2). The third bias, "poverty-line thinking", measures poverty in a one-dimensional way; or, in other words, as a function of cash incomes or consumption. And Chambers and Conway (1991: 3) conclude: "concepts and measures of production, employment and cash income generated in urban conditions and for professional convenience, do not fit or capture the complex and diverse realities of most rural life".

From here, a few lessons can be pointed out. First, the focus on livelihood systems questions some analysis of poverty-environment relations revealing little evidence of the links between poverty and environmental degradation. "Rural people usually do take measures to protect their resources and avoid poverty or marginalization when they have the necessary local institutional support and expertise (...) [and when they have the] knowledge of and engagement with broader economic systems and ideas" (Batterbury and Forsyth 1999: 28). Adaptive capabilities are integral features of local livelihood systems and a first step toward sustainable livelihoods is to understand and

support them where possible, bearing in mind that "the adaptive success of some may have been achieved at others' expense" (Batterbury and Forsyth 1999: 28).

Participatory research shows that "the poor" themselves are not a uniform category but are heterogeneous. Indeed, "households and individuals are differentiated by their assets (especially land and education), income and social status in their local communities" (Bernstein et al. 1992, Leach et al. 1997 noted in Ellis 2000: 6). As Ashley et al. (2003: 3.2) put it: "[even] landless households can be rich (those with formal sector jobs, for example) or very poor (landless laborers)". This has often been underestimated and the literature on community-based resource management and community development approaches has often tended to over-romanticized communities (see Leach et al. 1997, Brosius et al. 1998, Agrawal 1999, Barrett et al. 2001, Shackleton et al. 2002). "Devolving decision-making to lower levels of authority does not mean that power gets diffused. In fact, elites are more able to consolidate power at lower levels" (Newell noted in Hobley 2001: 16). Communities are socially differentiated and diverse (Leach et al. 1997: 5). Therefore, livelihood strategies are competing among each other because livelihood objectives and priorities are diverse (e.g., short-terms/long terms, local/global, individual/household/community level) (DFID 1999: 1.4). Those inherent dynamics pose the issue of justice and equity. Indeed, "how can societies build the capacity to adapt when vulnerable groups are marginalized and excluded from decisions?" (Adger 2003: 3).

Further, Sinclair and Ham (2000: 108) demonstrate in a case study in the Kullu Valley, Himachal Pradesh, Western India, that "not all strategies are viable for each group within the village. Some strategies may be village-wide, while others are specific to socio-economic status, age or caste, or any mixture of variables. [...] Some strategies are only viable when others are in place". Sinclair and Ham (2000: 108) show that rural livelihood adaptive strategies in the face of change tend to rely on a bundle of options more than on just one option.

Second, and consequently, making a living, especially for the rural poor, cannot only be reduced to the fact of having a job. As the UNDP (Sustainable livelihoods website) puts it:

A key feature of the sustainable livelihoods approach is recognizing that the root of all human development and economic growth is livelihoods- not jobs, *per se*, but the wide and diverse range of activities people do to make their living. These activities are made up of more than jobs (or variations thereof) or economic activities and are designated by work, either in the formal or informal sector.

The livelihood approach makes it clear that the ways of making a living are diverse; livelihoods cannot be confounded with jobs. A job constitutes a formal agreement where an activity or trade is undertaken in exchange for payment (cash), whereas a livelihood constitutes a broader concept. It combines diverse strategies both formal and/or informal to obtain different source of living -- and not only cash (UNDP Sustainable Livelihoods website). Informal livelihood strategies constitute an important part of the living of the rural poor. "A high proportion of incomes of the poor, even of those with land, derive from sources other than direct farming" (Chambers and Conway 1991:17). This last point justifies the use of the term "rural livelihoods" instead of "agricultural livelihoods", and warns against "preconceptions about what the poor' livelihoods strategies are. It has been common in the past to make untested assumptions about the poor, and as a consequence, to misdirect support (e.g., supporting agriculture on the assumption that most of the poor are farmers, when the poorest of the poor may be wage laborers outside agriculture)" (DFID 1999: 2.5).

The livelihood approach makes it clear that livelihood systems cannot be understood without taking into account the broader multi-level contexts and structures (i.e., cross-scale linkages). Importantly, the livelihood framework shows that resource access (e.g., land, water, forest) -- and access to assets in general -- alone does not always ensure sustainable livelihoods since resource access may not allow for access to the benefits obtained from the resources. Therefore, of interest in the context of a livelihood analysis is not resources access *per se* but rather the combination of institutions (land tenure, common property, real markets, rules and customs, etc.), social relations (family, kin, caste, belief systems, village, ethnicity, gender, class, age, etc.) and organizations (government agencies, community groups, local administration, associations, non-governmental organizations etc.) that mediate resources access (Ellis 2000: 16, 30). Figure 2.1 provides the example of Elli's (2000: 30) livelihood framework.

Understanding the ways people make a living requires understanding of cross-scale linkages (i.e., the way broader structures influence livelihoods and *vice-versa*). As Ellis (2000: 6) puts it:

Individual and household livelihoods are shaped by local and distant institutions (e.g., local customs regarding access to common property resources, local and national land tenure rules), and by social relations (gender, caste, kinship and so on), as well as by economic opportunities.

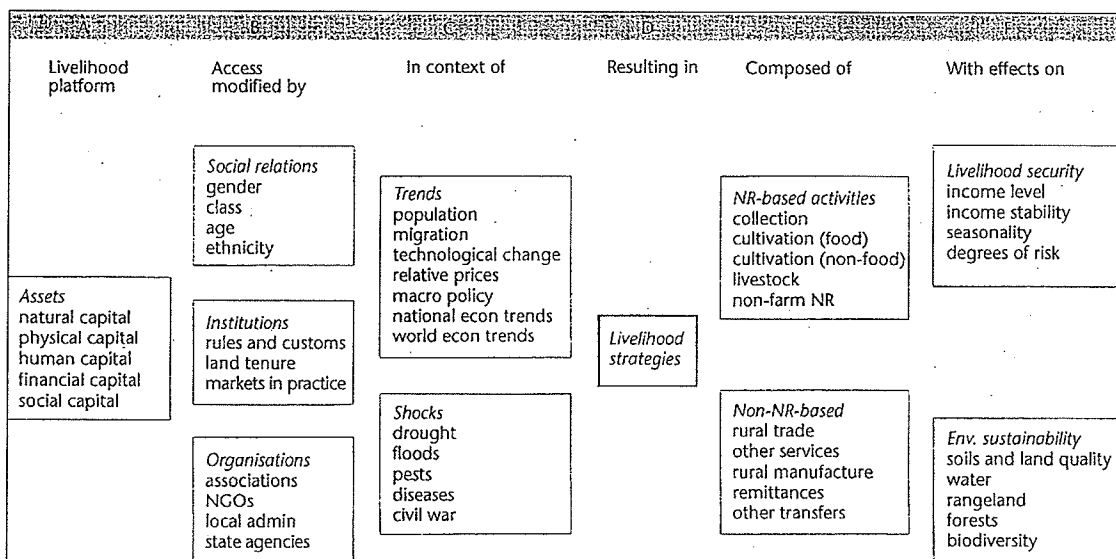


FIGURE 2.1: Ellis' livelihood framework

Overall, and importantly, the recognition of communities' heterogeneity, livelihood diversity and competing strategies emphasizes the idea that livelihoods are dynamic, flexible, mutable and adaptive systems both in time and space (i.e., the idea of livelihood portfolios, trajectories, pathways that are context-specific) facing various uncertainties (Mehta et al. 1999: 34). Livelihood systems constantly evolve and respond to internal and external conflicts, surprises and mechanisms that govern change. Roe (1999: 3) notes how this complexity and diversity requires context-specific studies:

This means that the very best an analyst can hope is that sustainable livelihoods are realized somewhere and all the time, through not everywhere and always in the same place or way.

▪ **The livelihood framework constitutes a basic model of adjustment to change**

In this study, the livelihood framework refers to the overriding framework developed by “development” agencies (e.g., DFID) to understand livelihoods and to assist analysis of the dynamics of social-ecological systems. The livelihood framework is a holistic approach, which requires a focused strategy. The acupuncture metaphor best illustrates this apparent paradox:

A good acupuncturist uses a holistic diagnosis of the patient followed by very specific treatment at key points. Holistic diagnosis does not mean needles everywhere (Ashley and Carney 1999 noted in Frankenberger et al. 2001: 83)!

A holistic approach does not always require multi-sectoral interventions (e.g., environment, agriculture, infrastructure, enterprise) but can focus on a few key points (DFID and FAO 2001: 171). One difficult task however is to find ways to identify those key points. The livelihoods approach proposes to focus on peoples’ strengths, abilities and capabilities. The idea is to build on people’s strengths (i.e., existing assets) rather than to focus on people’s weaknesses (i.e., lack of assets). Indeed, human needs are complex and might be more difficult to assess. For example, under what criteria and values, should “human needs” be assessed? At the same time, because uncertainty is high, researchers and practitioners should try to understand the contexts and processes that enable people to develop strengths rather than focusing on strengths *per se*. Ideally, the livelihood framework proposes to “strengthen people’s own inventive solutions, rather than substitute for, block or undermine them” (Moser 1998 cited in Ellis 2000: 28), and focus “[...] on the ability of rural people to discover, formulate, and carry out adaptive strategies and processes” (Batterbury and Forsyth 1999: 28). In doing so, people might see the abilities-based assessment as a rewarding approach, therefore creating a better participative dynamic because, whether seen as individuals, households, and/or as a community, people feel they are valued for what they are/have rather than what they should be/have. It is in that perspective, also, that the livelihood framework aims to be responsive and participatory.

The robustness of the livelihood framework comes from its opportunistic approach. In many ways, the livelihood perspective is not new. Indeed, its practices and methods

are rooted in the literature on systems-oriented approaches such as farming systems and household food security (DFID and FAO 2001: 151), together with participatory approach, entitlement approach, social analysis, gender analysis, participatory rural appraisal etc. This does not mean that sustainable livelihood is a substitute for these other practices and methods (Andra Pradesh Rural Livelihoods Study Website). One of the major contributions of the livelihood framework, and ideally of any overriding analytical framework, is the idea of treating those features in a systematic way rather than separately. With Thompson (2001: 117), one can wonder if the "sustainable livelihoods approach makes it easier or more effective to address the issue of poverty reduction, or [if] [...] it simply provides a different slant on an intractable problem?" According to Thompson (ibid: 119), at present experience is insufficient to answer the question. Answers might be different for different countries. However, she (ibid: 118) nicely underlines:

In some ways, it could be argued that the development of a sustainable livelihood analysis is analogous to Sen's development of the entitlement approach in food security. When Sen's work was first published, some analysts argued that it contained nothing new, that good analysts had taken all the important elements of his theory into account already. However, the presentation of these elements in a generally recognized analytical framework broadened discussion and analysis of the issue in an extremely productive manner. Similarly the adoption of the sustainable livelihood terminology may improve communication and broaden the agenda for poverty reduction.

- **Understanding the contexts of livelihoods is important in building sustainable livelihoods**

"In a matter of half a century we have undoubtedly witnessed one of the most rapid and massive transformations in human history." (Brooke 2001: 46)

Today, livelihoods are embedded in a context of rapid and dramatic ecological and socio-economic change (e.g., global environmental change such as the ozone hole, climate change, invasive species; new diseases such as AIDS, SARS; unexpected terrorist events such as "9/11"; or socio-economical change induced by the process of "globalization") with more and more complex dynamics. In a world of complexity (ecological, knowledge and livelihoods complexities – see Mehta et al. 1999), resource managers tend to forget that "sustainable livelihoods are a response to complexity, not the means to reduce it" (Roe 1999: 23). The focus on livelihoods aims to identify

people's priorities and to understand better how to build sustainable livelihoods pathways.

In 1987, the World Commission on Environment and Development in the Brundtland Report defined "sustainability" as "the use of environment and resources to meet the needs of the present without compromising the ability of future generations to meet their own needs". In this study, I use a broader definition of "sustainability" to include not only environmental and economical sustainability but also social and institutional sustainability. The term "pathways" adds the idea that the interest lies more in the on-going *process* of building long-term sustainable livelihoods rather than in determining a *state* pre-defined as being "sustainable", which conveys the idea that an adequate and acceptable solution (i.e., an end-point) exist and/or is reached. A state defined today as being "sustainable" by some may not be considered as sustainable by others (because everybody has different interests) or in the time space of tomorrow (because of new information, knowledge, technologies etc.). The focus on processes, allows for a more dynamic approach of "sustainability" but still, the term remains subjective (both in time and space).

The search for sustainable livelihoods pathways is very challenging. "No one really has the blueprint for sustainable livelihoods -in fact it is not possible in a complex world- because people tend to copy and mimic those who think are living sustainably" (Roe 1999: 13). How then should sustainable livelihoods pathways be defined? Roe (*ibid*) shows that different theories of change (i.e., critical theory, local justice framework, cultural theory, Girardian economics) raised different definitions of "sustainable livelihoods". No consensus exists among those theories because the production, representation and interpretation of changes themselves are contested. However, those theories are more complementary than opposed to each other. This supports the idea that "a complex social-ecological system cannot be captured using a single perspective" (Berkes et al. 2002: 8). Some development agencies (e.g., CARE) use the term "livelihood security" instead of "sustainable livelihoods".

In this study, rural livelihood systems are the entry point to describe and understand change and responses to change in social-ecological systems. The next section demonstrates how the resilience perspective can take the livelihood approach a little

bit further by asking not only "what are the details of your lives?" or "what successes can you replicate?" but also "how can you *increase* your ability to deal with shocks, stresses, crises?". Resilience thinking puts the emphasis on peoples' ability to learn, innovate, and self-organize and challenges the widely held western representation of nature and change in social-ecological systems.

SUSTAINABLE LIVELIHOODS FROM A RESILIENCE PERSPECTIVE

In the field of ecology and natural resources management, some scholars (see Holling, Folke, Walker) part of the Resilience Alliance -- an international consortium of researchers, try to operationalize sustainability in social-ecological systems. Managing for resilience and adaptive capacity in social-ecological systems refers to the ability of communities and ecosystems to absorb perturbations, adapt, learn, self-organize and re-organize in response to change (Resilience Alliance, 2003). The emphasis is on building memory, creativity, innovation, flexibility, diversity of ecological components, and human capabilities (Walker et al. 2002: 22). In this context, the resilience approach proposes to examine social-ecological systems from a different perspective than most environmental and social policy arenas around the world, where "change is the rule rather than the exception" (Folke et al. 2003: 377).² The resilience perspective considers the interplay between resource extraction and conservation, revealing that many traditional resource management practices have been promoting stability rather than resilience (Adger 2003: 3). In this study, I argue that the resilience perspective in the field of resources management is useful in thinking about the behavior of social-ecological systems and the perception of perturbation and change in these systems.

What is the connection between sustainable livelihoods and resilience building? A sustainable livelihood can be defined as one that:

can cope with and recover from stress and shocks, maintain and enhances its capabilities and assets and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term (Chambers and Conway 1991: 1).

² "The agenda implied by resilience actually challenges some widely held tenets about stability and resistance to change that are implicit in how sustainability is formulated in" (Adger 2003:2).

In this section, I investigate how resilience thinking (1) participates in reformulating the role of uncertainty, complexity and change in social-ecological systems, (2) represents a way to think about the dynamics of change in social-ecological systems, and (3) isolates key attributes, which seems to influence sustainable livelihood trajectories.

▪ **Uncertainty, complexity and change need to be better investigated**

“There has been little, if any, research in relation to the uncertainties affecting rural livelihoods.” (Mehta 1999: 22)

Part of the explanation of why little is known about peoples' livelihoods amid uncertainties, complexities and change may come from the way human-nature relations have been represented –and is still prevailing- in the field of natural resources management and elsewhere. The “new ecology” approach (see Allen and Gould 1986, Leach et al. 1997: 13, Scoones 1999) questions the way natural resources management has evaluated, understood and managed complexity and change in human and natural systems. In fact, the “new ecology” currently participates in initiating a shift of perspective in environmental sciences from a static, linear, and equilibrium vision to a dynamic, non-linear, and non-equilibrium vision of natural and human systems. In 1930, Elton had already stated: “The balance of nature does not exist and perhaps never has existed”. In fact, “no specific cause-and-effect responses [exists] between the environment and the adaptive unit (e.g., individual, household, community) but an ongoing and rarely linear process of response to multiple problems and opportunities” (Brooke 2001: 58). Although those ideas are not new, many conservation ecologists still believe they can control and reduce variation, change and complexity to reach sustainable outcomes (i.e., optimal solutions based on prediction and control -e.g., maximum sustainable yield method) (see Holling and Meffe 1996, Ludwig et al. 2001, Ludwig 2001, Wang 2002). As Berkes (2003: 9) puts it:

The dominant philosophy of resource management has been, and to a large extend is still, based on a tradition of positivist science which assumes that the world is predictable and controllable. However, our evolving thinking on ecosystem-based management indicates that these assumptions do not often hold.

Quite ironically, "while the goal of adaptation is the study of responses to changing conditions, analysis most frequently emphasizes adjustments that maintains stability and continuity" (Brooke 2001: 66). In this study, I hypothesize that the resilience perspective can complete the livelihood framework by focusing on processes, dynamics and attributes of social-ecological systems. The following points justify this hypothesis.

- **Resilience is a way to think about the dynamics of change in social-ecological systems**

The concept of resilience is not new; it is rooted in decades of research in various disciplines. Originally, the idea of resilience was used in physics to characterize a material's behavior under stress. In social sciences, psychologists and archeologists in particular have been using it to investigate human adaptive strategies to change. Today, the concept of resilience is getting more and more popular in various academic settings, funding agencies and development organizations. As a result, resilience has multiple definitions and multiple levels of meanings. The idea is used as a metaphor, a property, a way of thinking, or a measurable quantity (Carpenter et al. 2001). As for the term "sustainability", the concept is now becoming a buzzword in resource management.

So, what do we try to capture by "resilience"? In this study, the term resilience is used in the context of social-ecological systems and specifically in the context of the theory of adaptive change, which was refined in Gunderson and Holling's book (2002): *Panarchy. Understanding transformations in human and natural systems*; and further tested by Berkes et al. (2002). This consortium of North-American and European researchers (composed of ecologists, economists, social scientists, and mathematicians) also developed a platform of communication and discussion through the Resilience Alliance website and the journal "Ecology and Society. A journal of integrative science for resilience and sustainability" -- formerly "Conservation Ecology" (see the website, www.ecologyandsociety.org).

Resilience thinking constitutes a way to think about the process of change in social-ecological systems through (1) using various concepts and theories such as, and

among others, systems thinking (starting in 1920s – “literally means to put [things] into a context, to establish the nature of their relationships” - Capra 1996: 17), complex adaptive systems theory, chaos theory (see Gleick 1987; Stewart 1989, 1997; Waldrop 1994), complexity theory, and (2) following various academic disciplines that try to bridge the gaps between social, ecological, and politico-economic systems analysis such as human geography, political ecology, environmental history, ecological economics (see Costanza et al. 1993), and the sustainability science (Kates et al. 2000). The resilience thinking brings the lessons from these theories together and assumes that:

- **Nature-society relationships.** Humans and natural systems act as strongly linked, coupled, evolving systems (Quinlan 2003: 4). In fact, human geographers made this bridge a long time ago (see Barrows 1923, Dardel 1952). However, in western culture, the opposition between the environment and human systems constructed through positivism and Enlightenment thinking (i.e., a faith in rationality, order, coherence, regulation, and scientific objectivity) has been dominating the representation of “nature-culture” relationships. Today, the resilience project participates in a tendency based on a “co-evolutionary framework” (see also Scoones 1999, Redman 1999, Van der Leeuw 2000, Kinzig et al. 2000, McGlade 2002, Holling and Gunderson 2002, Berkes et al. 2003) and uses the terminology “social-ecological system” to break this socially constructed opposition and describe nature-society relationships.
- **General systems theory:** System understanding comes from the understanding of the whole because “the essential properties of an organism, or living system, are properties of the whole, which none of the parts have” (Capra 1996: 29)
- **Properties of complex systems (complex system theory -- see Santa Fe Institute, www.santafe.edu/).** Most systems show the following properties: non-linearity (see Prigogine and Stengers; Sapoval 1997), uncertainty, emergence, and self-organization (i.e., systems will reorganize at critical points

of instability). Knowledge, in complex systems, is uncertain because knowledge is always plural, partial, contingent, situated, and contested (Mehta et al. 1999: 12) – see literature on participatory methods, community-based resources management. Information, in such an uncertain and complex world, is also incomplete.

- **Behavior of complex systems.** Systems are dynamic: they are characterized by the existence of thresholds, surprises, unpredictability, complexity, sudden shifts between states, and multi-stable states rather than a single, fixed equilibrium. Consequently, variability in complex systems cannot be effectively controlled.
- **Directions of change.** Most systems go through cyclic change instead of non-linear change (cycles occur in various domains including in economics – e.g., the Kondratiev cycles, in nature, in the human body (e.g., the 128-day life-cycle of red blood cells), in history (e.g., see in politics), in science (e.g., see in astronomy, biology)). The scale of observation determines the representations of change because “what may appear as a linear change (e.g., growth) at one temporal scale may in fact be part of a cycle when viewed from a higher-order temporal scale” (Berkes et al. 2002: 17).
- **Scale dynamics.** Many complex systems are hierarchic and are organized in nested set of systems with a multiplicity of scales. So that, “the apparent stability and integrity of institutions and other social phenomena are not inherent. Rather, it is an illusion created by the choice of a scale of observation that is much shorter than the time over which the dynamic concerned plays itself out” (Van der Leeuw and Aschan 2000: 11). It is easier to get change in certain places than others, and those places need to be identified (see Millennium Ecosystem Assessment 2000, Lovell et al. 2002).

These theories call into question the “cause-and-effect” thinking that dominates the western science and shift “the analysis from simple models of cause and effect to complex systems and nonlinear relationships” (Berkes et al. 2002: 76). Further, it has

been applied in resources management to introduce and justify the idea of “adaptive management” (Holling 1978, Lee 1993). Complex management thinking especially shows that “management processes can be improved by making them adaptable and flexible, able to deal with uncertainty and surprise, and by building capacity to adapt to change” (Berkes et al. 2002: 9). So, what does the resilience approach bring new, if anything, into the discourse of resource management? The term “resilience” is not indispensable. In this study, I argue that the resilience *perspective* manages to make some of those theories more visible in the field of resources management, which seems to be especially useful to:

- **Move beyond the “adaptation perspective”:** Adaptation *per se* is not the main focus of this study. However, it seems imperative to clarify some ideas and lessons coming from the adaptation literature in order to justify the focus on the resilience perspective because (a) both approaches are studying change and the processes of adjustment and self-organization, and (b) the study of change and adaptation is not new. In this study, “adaptation” is seen as one aspect of resilience. The resilience perspective can help to move beyond the “adaptation perspective”. First, theories of adaptation in the context of social-ecological systems have mainly been explaining how groups have adjusted to local and relatively stable conditions. Box 2.1 briefly comments on the evolution of the adaptability perspective in the academic world.

As Brooke (2001: 67) expressed it: “Because the adaptation perspective fails to inquire beyond the immediate conditions causing constraints, the process influencing their perturbation and exacerbation are ignored. Thus a critical aspect of the dynamic is missing”. Goodman and Leatherman (2001) call for rethinking the adaptation framework in a more dynamic way, or as they frame it, adaptation needs to be considered dialectically. “The context of future response is altered by the responses themselves; the adaptive process operates dialectically, contributing to ongoing change in the human condition and the nature of human-environment interactions” (Goodman and Leatherman 2001: 24). Second, adaptation is not the only response to change (i.e., risk of reductionism with the dualist view adaptation versus mal-adaptation) because

peoples can also create and/or shape change. Indeed, "people caught in systems of exploitation attempt to adapt within the constraints placed upon them. But they also try to find solutions that circumvent and challenge these systems, and sometimes they succeed" (Brooke 2001: 67).

- **Create a theory of integrated social-ecological change (versus theory of environmental change or social change)** (Berkes et al. 2002: 4): Numerous theories of change exist. For instance, change is analyzed through categories such as theory of social change, cultural change, economic change, environmental change, institutional change etc. The resilience thinking attempts to present an integrated theory of change in social-ecological systems. Holling's adaptive renewal cycle shows that the internal dynamics of social-ecological systems *cycles* through phases of exploitation, conservation, *but also* collapse (release), and re-organization. That said, the parallel between social systems and ecological systems (e.g., Zimmerer 1994, Gunderson et al 1997, Levin et al 1998) remains controversial. Resilience thinking requires to focus on the exploitation and conservation phases but also to investigate the release and reorganization phases. In other words, the resilience thinking asks to move beyond the conservation (i.e., to reduce the impact of change) versus development dilemma (i.e., to take advantage of the opportunities created by change) (Folke et al. 2003: 376).
- **Explore the role of change, uncertainty and crisis in social-ecological systems:** The resilience thinking shows that "disturbances may be important for a social-ecological system to "exercise" its problem-solving skills, and to innovate and adapt" (Berkes et al. 2002: 21).

Some scholars argue for a need to replace the term "sustainability" by "resilience" (Van der Leeuw and Aschan 2000). I rather argue that resilience thinking may provide some key entry points to understand complex systems facing change. In this study, I am more interested in investigating "resilience thinking" or the process of "resilience building" rather than "resiliency" or the property of being "resilient" *per se*. Box 2.2 clarifies the term of resilience used as a property.

- **The resilience literature isolates key attributes which influence sustainable livelihoods**

The resilience literature in resource management identified attributes of social-ecological systems that seem to cause them to gain *or lose* resilience at different points in time and space. Those lessons identified in the resilience literature are not new. Rather they are rooted in the literature on cooperative decision-making, social learning, environmental ethics, sustainable livelihoods, and public accountability especially (Trosper 2003: 6). The contribution of the resilience angle is the idea of treating those features in a systematic way rather than separately. Specifically, Folke et al. (2003: 354-5), isolated four main factors from various case studies – further tested by Berkes et al. (2002), that seem to be required for building social-ecological resilience during periods of change. As Berkes et al. (2002: 15) explains:

In operationalizing this view of resilience, managing for sustainability in socio-economic systems means not pushing the system to its limits but maintaining diversity and variability, leaving some slack and flexibility, and not trying to optimize some parts of the system but maintaining redundancy. It also means learning how to maintain and enhance adaptability, and *understanding when and where it is possible to intervene in management.* (Added emphasis)

The authors postulate that learning from crises, nurturing social-ecological diversity, combining different types of knowledge, and creating opportunities for self-organization appear to influence resilience building in social-ecological systems. A synthesis of the literature suggests that resilience building means:

- a) **Nurturing and sustaining flexibility of ecological components and human capabilities**

The resilience approach attributes some failures of resource management to social structures “locked in” to undesirable states or processes. Examples of the “rigidity trap” (Resilience Alliance 2003) are found in technological, cultural and institutional settings. Conventional resource management of “command and control” is locked in the modernist paradigm emerging from the Enlightenment and tends to favor institutional and cultural rigidities (see the disastrous social-ecological impacts of the so-called Green Revolution). But traditional societies in the past were not exempt from institutional and cultural rigidities. For instance, Diamond (2003: 7) shows how rigid

religious values gave rise to the deforestation of Easter Island. Indeed, "the persistence of a cultural trait, both in behaviors and institutions, may have little to do with its continued adaptive value or efficiency" (Stepp et al. 2003: 7). Case studies focusing on resilience tend to confirm that flexible resource management is "management-as-experiment" (i.e., a process of continued negotiation commonly named "adaptive management" (Holling) and implies a flexible decision-making process able to incorporate new information and to be modified on the basis of this information (Thompkins and Adger 2003: 7); and flexible spatial and time scales of investigation.

b) Nurturing and sustaining memory

Resilience thinking attributes resource management failures to an absence of prior experience or a failure to retain and transfer social, ecological and institutional memory related to resource use. Social memory is the accumulation of experiences related to resource use that ensure the capacity of social systems to monitor change and build institutions that enable appropriate responses to signals from the environment (Resilience Alliance 2003). For instance, Diamond (2003: 4) relates the collapse of the classic lowland Maya society to its incapacity to sustain prior experience of drought. Further, Berkes et al. (2002: 144) mention that institutional memory of large disturbance does not exist in scientific management and has to be imported from "passive" adaptive management systems. Taboos, rituals, and ceremonial practices are means of internalizing and sustaining socio-ecological memory. For instance, the prohibition on picking coconuts that fell during the night in the Pacific Islands provides multiple ecosystem services such as windbreaks and habitat protection for species (Berkes et al. 2002: 135).

Box 2.1: The adaptability perspective

- **The origin of human adaptability perspective** mainly comes from the geography and anthropology disciplines. Geographers have been studying the impacts of natural disasters on peoples (vulnerability approach) from a rather technical approach (e.g., cost-benefit analysis). Physical anthropologists, interested in the biology of poverty research especially, have been studying peoples' demographic, morphological, physiological, and genetic adaptation to their environment, and later on the impacts of diseases, natural disasters (see Firth 1969) on local communities. However, the adaptability perspective mainly focused on local realities (local, regional) without taking into account macro-policies (regional, national, international) and cross-scale linkages. Adaptation was seen as a collection of static measures more than as a dynamic process (Goodman and Leatherman 2001: 23).
- **Later on**, "researcher adopting an adaptation framework have illustrated the ability of local groups to assert their autonomy from economic or political change, and ingenious adaptations and innovations form a part of this process" (Batterbury and Forsyth 1999: 9), responding to the need to study adaptation in terms of social and power relationships (political-economic perspective) and not only from a biological point of view (i.e., adaptation perspective) (Goodman and Leatherman 2001: 21). Indeed, as Batterbury and Forsyth (1999: 9) put it: *"There are many more components to the maintenance of sustainable local livelihood systems than simple adaptation to environmental change"* (Emphasis Added).

Box 2.2: Resilience as a property

- **Resilience is forward looking.** Resilience represents the ability to respond to change, but also to anticipate it.
- **Resilience is not stability.** Stability can be defined as a system's capacity to return to equilibrium, whereas resilience can be defined as a system's capacity to keep its internal structure in a period of perturbation (Van der Leeuw and Aschan 2000: 9). In other words, "resilience is not being defined as returning to an equilibrium. This is because we are using a view of ecosystems in which there is no one equilibrium but rather, as a consequence of complexity, multiple states or domains of attractions and multiple equilibria. (...) Resilience cannot be defined as bouncing back to equilibrium – there is no equilibrium to bounce back to". (Berkes et al. 2002: 15).

c) Developing creativity, novelty and innovation

Resilience thinking also attributes resource management failures to a lack of creativity and novelty creating barriers for new visions, ideas, actions, paths, rules, norms, structures, roles, responsibilities, and new resource management institutions in the face of change. Different societies have different ways of “providing” forms of insurance. Further, creativity and novelty can lead to innovation. Innovation is the design of new forms of resource management built upon a pre-existing practice or form such as existing indigenous or traditional systems (Messerschmidt 2002: 5).

One example of creativity and innovation is the evolution of the “dina” in Madagascar. Since the 19th century, the “dina” has been a traditional community law dealing with resources management such as cattle rustling or bush fires. Raharimalala (1996) and Razanaka (1996, noted in Dubois 1999: 13) report cases of spatial expansion of the local law to district, provincial and regional levels; but also cases of new laws created by the state and some NGOs from the “dina” principles in partnerships with traditional leaders. Further, the “dina” has recently been officially incorporated at the national resource management level. The promotion of new ideas, structures, etc. requires in turn negotiation platforms for transparent and equitable trade-offs. Although it is often tempting in the political context to postulate that there is only one solution to what is perceived to be a problem, in reality a variety of pathways exist.

d) Iterative learning from crisis to live with change and uncertainty

Learning from crisis is a key aspect of adaptive management. Learning can be oriented in the short-term (i.e., sharing and organizing ideas) and/or in the long-term (i.e., testing ideas). Analysis of long-term learning implies doing significant historical research. Learning is the ability to draw lessons from crisis enabling better anticipation and response for future changes. In that sense, disturbance should be seen as “an essential force in social and ecological systems” (Berkes 2003). Rather than reactive learning, learning based on common sense, experience and monitoring is privileged. In the context of climatic disturbances for example, learning is more than the knowledge of climatic variabilities *per se*, rather it is knowledge that has been tested by trial-and-error and put to use by the construction of new standards (Berkes et al.

2003: 4). Finally, resilience building also needs to account for perverse learning (i.e., learning that benefits a few at the expense of others) (Diamond 2003).

e) Nurturing and sustaining diversity and redundancy of structure and function

Resilience thinking shows that diverse and redundant (i.e., overlapping) functions and structures of social-ecological systems can help to buffer disturbance especially by spreading risks across scales. For instance, Adger (2000: 353) argues that although coastal fishing communities are dependent on a single ecosystem, they can still be relatively resilient by performing a diversity of functions such as tourism and transport to secure their income in the face of change. In sum, resilience thinking privileges the diversity of the social-ecological system components as well as the diversity of system options (e.g., citizen-manager-scientist partnership). Further, one-way to foster diversity is to nurture knowledge.

f) Combining knowledge systems

Resilience building in a social-ecological system facing change also depends on the capacity to process information and the understanding of “the negotiation of expertise” (Scoones 1999). Indeed, as Redman and Kinzig (2003: 11) put it, “the ways in which a society filters and conveys knowledge at a variety of levels of organization is itself an essential element in the resilience of that society”. A case study reporting the effects of climate change in the Canadian Arctic, for instance, demonstrates that there is much to learn from the combination of western scientific knowledge and traditional ecological knowledge of climate change and variation (Berkes and Riedlinger 2000).

Clearly, these categories (nurturing flexibility, memory, creativity and innovation, learning, diversity, and combining knowledges) interact and are interdependent in many ways. Box 2.3 outlines nine lessons learned through the literature review on resilience. Overall, and under the above points, I argue, in this study, that the categories or surrogates of resilience appear to be a useful tool to help simplify and organize the understanding of complex social-ecological systems in the face of change. This study investigates some of the categories of resilience building whenever

relevant. Indeed, the framework is not an end in itself, but provides some analytical entry points to “read” the field. The next chapter gives a detailed description and critique of the approaches and field research methods.

Box 2.3: How to interpret Folke et al. (2003) categories of resilience building?

How to interpret and use Folke et al. (2003) categories of resilience building? Following a literature review on resilience, nine lessons or guiding principles on how to interpret and use Folke et al. (2003) categories of resilience building can be listed as follow:

1. These categories (i.e., learning, diversity, knowledge, and self-organization) do not pretend to be a checklist to determine a system's resilience (i.e., if only the social-ecological system has a particular trait; it would then withstand shocks, stresses, crises).
2. These attributes do not mean that if some or all characteristics are found, the system trajectory will be resilient.
3. Each attribute influences the resilience of the system either by supporting it or contests it. In other words, each factor can increase and/or decrease the resilience of a system trajectory.
4. The attributes interact and are interdependent in many ways. They are also constantly evolving through changing contexts.
5. Therefore, each attribute is not an indicator of resilience *per se*. Rather, each factor is a potential factor for resilience building. The idea of "surrogates of resilience" (Carpenter et al. 2003 noted in Berkes and Seixas 2003a) might be a better way to qualify those "factors" or "estimators", instead of looking for "indicators" of resilience (i.e., static approach).
6. These attributes do not pretend to investigate causal relations, trade-offs, trends between factors within various spatio-temporal contexts. Causal relations are difficult to isolate. Specific changes in social structures and institutions due to environmental crisis for instance are always combined with other general changes (economic, agriculture) both internal and external (exchanges, increasing westernization...). Therefore, researcher and practitioner need to investigate key drivers of change and the way they interact to influence the resilience building of the system under investigation.
7. These attributes should be used as a starting point to investigate how surrogates come in multiples or clusters to reinforce one another (Carpenter et al. 2003 noted in Berkes and Seixas 2003a).
8. These attributes should fit the case study but not *vise-versa*. The risk is to take "facts" out of context to fit the framework. The framework should pay particular attention to "outsiders", and eventually create new categories. In that sense, these categories need to be general, open and dynamic to allow for flexibility.
9. An in-depth historical analysis of the system general context can give more credibility to the resilience analysis.

CHAPTER 3.

RESEARCH APPROACHES, METHODS, AND A CRITIQUE



PLATE 3.1: Youth group discussion about questions of identity and sense of place in Yangkhoo with villager in the middle.

"The information generated by an assessment is only as good as the process of generating it." (Frankenberger et al. 2001: 81)

In this chapter, I investigate ways to operationalize the concepts and build a bridge between the researcher and the fieldwork. I consider first some key principles for cross-cultural fieldwork activities, as well as general and more specific research methods and tools. To unveil the reality of the research and its varied contexts, different methodological aspects of the fieldwork are examined in detail, including the processes of: (1) choosing the study site, (2) living in the village, (3) collecting and verifying data inside the village, as well as (4) outside the village. I conclude by reflecting on the limitations of the fieldwork methods and the challenges of analyzing data. Appendix I summarizes the research schedule.

PHILOSOPHICAL APPROACH IN CROSS-CULTURAL CONTEXTS

The ideas in this section, are mainly inspired by Tracey Skelton's (2001) report on her cross-cultural field research experience on the island of Montserrat, in the Caribbean, as a British white woman in her twenties doing Ph.D. work. As with Skelton's work, one of the major challenges of this study comes from the cross-cultural context: the research takes place "between people of different cultural heritages, backgrounds and practices" (Skelton 2001: 89). She concludes her article by underlining those challenges (*ibid*: 96):

Cross-cultural research is difficult, particularly if we think through and acknowledge the complexities, sensitivities and dilemmas that are implicated within it, but that does not mean that we should abandon doing it. What it does mean though is that we have constantly to think about what we are doing, why we are doing it and what the research we do means to other people.

Skelton's experience shows cross-cultural fieldwork research involves, among other factors, issues of positionality, reflexivity, and responsibility for the researcher.

▪ Positionality

The ways the researcher perceives things and is being perceived in the field partly depends on his/her positionality (i.e., in my case, a researcher who is a foreign, white,

western, young woman). Skelton (2001: 89) defines "positionality" as "things like "race" and gender [...], our class experiences, our level of education, our sexuality, our age, our ableness, whether we are a parent or not". She (*ibid*) argues, "it is crucial in any research that we consider our positionality and what that might mean in relation to the ways in which we do our research, and how the people we work with perceive us". The researcher needs to establish trust and will be "tested" by the local peoples. For instance, Skelton (*ibid*) reports how at the beginning of her research, nobody wanted to be interviewed after she had interviewed the first two people in the village. She further explains (*ibid*: 93): "people had been waiting to see if I could be trusted, if the information given in interviews would be kept confidential. They waited to see if any of the stories and information given to me in the first two interviews "leaked out" into the village". Finally, the researcher should also be aware of power relations. Skelton reports (*ibid*: 97): "to me, my positionality and the cross-cultural research I do are very much part of a politics about the recognition of power and trying to challenge existing power relations". In my case, for instance, I had to recognize the leaders of the village to enter the village and work "through" them. Later on, however, I had to dissociate myself from the current leaders because I was looking at issues that give a space to the villagers to challenge the power of the leadership.

▪ Reflexivity

Positionality calls for reflexivity. The French sociologist, Pierre Bourdieu (Rabinow 1988 11, Preface), considers the American ethnologist, Paul Rabinow, as one of the founders of the reflexive ethnology. The assumption behind reflexivity is that the researcher in the field cannot avoid pre-conceptions and assumptions, but needs to be aware of those social-cultural filters as much as possible, and be able to communicate them together with the results of the research. The researcher needs to turn back on him/herself. In this study, although I did not manage to keep a diary (my field notes were mainly analytical), I always managed to regularly physically extract myself from the study site. This time was used to share and discuss research findings but also emotions, perceptions, attitudes, and personal biases that influenced the process of selecting, collecting, and interpreting data with people also working in the study area as well as people separated from the research and the study area.

▪ Responsibility

Part of the responsibilities of the researcher is to ensure the confidentiality and anonymity of the subjects from whom the data are collected, and to verify and share information with them and the community. Before any formal or informal interview, I provided a short explanation of the purpose and objectives of the study in ordinary language and without too much jargon. Subjects decided then to consent verbally³ to participate in the study.

The confidentiality and anonymity of the subjects were maintained and protected by using a coding system kept separately from the rest of the data. Verification (i.e., triangulation) meant crosschecking data as much as possible, for instance, by checking the interpretation of the results with the informants, by using multiple sources (e.g., "key informants from two different villages, from outside the village, from governmental and non-governmental organizations), and multiple methods. (See section "Collecting and verifying data")

GENERAL APPROACHES, METHODS AND TOOLS

▪ Village case-study

The social-ecological system under study was a village. The village, Yangkhoo (Darjeeling District, India), was defined according to physical, administrative and socio-cultural characteristics (see Chapter 4, "An overview of Yangkhoo"). The analysis was at the village and household levels⁴ to enable the focus on livelihoods and to account for socio-economic differences and disparities inside the village. Because of time and cost constraints, the study focused on only one village (i.e., this is not a comparative study). However, a literature review, secondary data, interviews with key informants and visits to other villages in the district helped to put Yangkhoo into perspective at the

³ Written consent is not always appropriate in certain illiterate communities where trust and reciprocal relationships are important.

⁴ The FAO (2003: 7) defines a "household" as "[...] a group of people who eat from a common pot and share a common stake in perpetuating and improving their socio-economic status from one generation to the next". The FAO further nuances: "there can be no single definition of a 'household'" because as a category it is socially constructed and varies in different socio-cultural settings.

local and regional levels. The study mainly focused on village and household responses to local and regional drivers of change and not *vise-versa* (i.e., how village and household responses influenced local and regional drivers). Although to some extent international drivers of change impacted the village, time constraints did not allow an in depth focus on international drivers of change.

▪ **Historical and integrative approach**

The approach of the study was mainly historical. The identification of change in Yangkhoo was examined over a 50-year period following the collapse of a local tea estate, which was identified as a major crisis in the system. Further, as Anderies et al. (2002: 22) mention regarding a watershed study in the United States using a resilience approach:

To actually achieve this goal [to analyze the resilience of a system] we must build and analyze several “minimal models” of the system. That is, models that contain just enough detail, and no more, to capture the essence of the system. “Resilience” applies to fairly long time frames on the order of 20 to 50 years, or more. Thus the minimal model must focus on processes likely to be important on this time scale. It is easy to become overwhelmed with details in systems at the scale of [the watershed] [...]. Such details are very important in the short term, but not in the long term.

The approach was as integrative as possible, examining a combination of changes (e.g., closure of the tea estate, impacts of NGOs, impacts of political unrest, impacts of roads) instead of focusing on a specific type of change, and to identify the key processes that occurred during the 50-year period (e.g., cascading effects, scale mismatches, time lags, etc.). The study identified change and responses to change mainly from the villagers’ perspectives (Plate 3.3). Additional information was collected from a literature review, secondary data and other key informants outside the village in NGOs, the private and public sectors.

▪ Literature review

Before fieldwork began, I reviewed some of the available literature on West Bengal and the Darjeeling District, and refined it further during and after fieldwork. The literature review included:

- **History of Darjeeling District** (O'Malley 1985 (First Edition 1907), Pinn 1990 (First Edition 1986))
- **Socio-economic analysis** of the Himalayan region (Kreutzmann 2004), West Bengal (Crook and Sverrisson 2001, Ghosh 1982, Sonntag 2003, Datta et al. 2002), Darjeeling District (Chhetry 1999, Fareedi and Lepcha 2000, Khawas 2002, Sarkar and Lama 1986, Das Gupta 1999, Bhadra 1990, Chakraborty 1986, Biswas 1987) and Sikkim (Desai 1998),
- **Socio-cultural studies** (Gurung 1995, Schlemmer 2004, Sagant 1973, Bhattacharya 1971, Subba 1989)
- **West Bengal Government records** (Census of India 2001, National Environment Policy 2004, Draft Plan for Darjeeling Hill Area 1980-85, 1986-87, 1985-90; Eleventh working plan for the Darjeeling Forest Division, West Bengal Forest Development Corporation 1987)
- **Local non-governmental organizations (NGOs) records** (Rai and Sarkar 1986, DLR Prerna Conference papers; DLR Prerna Monthly Meeting; DLR Prerna Annual Reports, DLR Prerna concept papers and survey)
- **Environmental and natural resources management case studies** in the Hindu Kush-Himalayan region (Tulachan 1999), West Bengal (Beck and Ghosh 2000), Darjeeling District (Mitra and Ray 1982, Chakrabarti et al. 2002, Banerjee 1982, Dasgupta 1986, Chattopadhyay 1986, De and Chattopadhyay 1998, Basu and Kumar De 1998, Froehlich et al. 1992, Rai and Rai 1994, Saxena 2004) and Sikkim (Sharma et al. 2001, Sharma et al. 2000, Partap and Sundriyal 1998, Sharma and Sharma 1997, Rai 1997, Subba et al. 2002)
- **Other case studies in the Indian Himalayan region** (Sinclair and Ham 2000)

▪ Rapid Rural Appraisal

The methods used in the field research were participatory and combined qualitative and quantitative data collection. The major assumption underlying participatory

approaches is that "local people are knowledgeable about matters which affect their lives" (Mitchell 2002: 218). In other words, local knowledge provides insights to the understanding of the complexity in local systems (see literature on traditional ecological knowledge such as Berkes 1999). Although this assertion (i.e., community-based methods) seems very much legitimate, the relationship between western science and local knowledge is still controversial (e.g., the relationship between the Forest Department and Yangkhoo, Chapter 6, section "mismatches").

Because of time and cost constraints, I used Rapid Rural Appraisal (RRA) methods (see Conway 1985; Chambers 1991, 1994), both at the beginning of the field research to obtain initial information about the village and identify key entry points (i.e., refinement of research questions and hypothesis), and throughout the process to collect information on particular topics. Basically, when information cannot be collected through secondary information, RRA enables "the [...] rapid collection of information by focusing on selected key variables [...]" (Mitchell 2002: 214). Unfortunately, the RRA approach does not always fit very well when evaluated against the cross-cultural aspects (i.e., positionality, reflexivity and responsibility) mentioned earlier. The mismatch between the RRA approach and the attributes ideally required in cross-cultural research was a constant challenge during the fieldwork. Using more participatory methods such as visual models (e.g., resources maps, social maps, historical timelines) and semi-structured interviews helped to minimize the biases in the RRA approach.

CHOOSING THE STUDY SITE

▪ Criteria

Three criteria determined the choice of the study site: (1) the occurrence of past crises, shocks, and/or stresses, whether socio-economic, environmental, socio-cultural, and/or political, to enable the study of change, (2) the ownership of land property as to examine the complexity of livelihood options and responses, and (3) the openness of the system (e.g., NGOs' interventions, market interactions) so as to examine the role of cross-scale institutional linkages. Other secondary, yet determinant, factors were logistics related. They are: the ability to find (1) a link organization or person to

introduce me to the study site (see section “Interacting with the local NGO”), (2) a competent translator known and accepted by most of the villagers (see section “Translators and translation”), and (3) the limited time available for the investigation of study sites. I chose the village of Yangkhoo after consultations with a number of informants in Darjeeling, including DLR Prerna (to be discussed later), and following an initial field visit.

▪ **Finding secondary data at a village level**

The search for local secondary data (e.g., books, journal articles, reports, maps, survey results, census information, government reports, published/unpublished studies, etc.) was crucial to avoid unnecessary duplication of work, and to find benchmark data at a village level for the study of change. With a few exceptions (Subba 1989, Biswas 1987), it revealed the paucity of data available at a village level in the Darjeeling and Kalimpong sub-divisions. For instance, the geographical focus of research at the University of North Bengal was mainly on the plains of West Bengal or on the state of Sikkim. Overall, a combination of factors explains the lack of data, especially pre-1986 benchmark data. Factors are financial, technical and institutional. For instance, for most of the local small budget NGOs, research is not (cannot be) the priority. Further, rivalries between some local NGOs are certainly not a positive factor for a smooth flow and transfer of information. But more determinant in explaining the lack of data in the hills subdivisions of Darjeeling District, and especially the Darjeeling sub-division, are historical and political factors.

The people of the hills sub-divisions of Darjeeling District (especially the Darjeeling sub-division) are mainly third and fourth generation Nepali immigrants who came to work in the tea estates established by the British in the middle of the 18th Century. The majority of the settlements are therefore relatively young settlements, with the exception those in Kalimpong sub-district, which is nearly free of tea estates and dominated by the Lepcha communities, probably the indigenous people of this area before the British invasion. But in any cases, no recorded history has been found. The indigenous people were mostly nomadic and had oral histories. Today, oral history is still important culturally for these people.

Further, the little recorded history that existed was further eroded during the political agitations that took place in the region in the 1980s. For more than four decades, the poorest and landless of the Darjeeling Hills working in the tea estates were led by the Gorkha National Liberation front (GNLF). They have been militating for the creation of a separate state of "Gorkhaland" outside the state of West Bengal and within India in order to obtain recognition of their distinctiveness.

Altogether, those factors make it difficult to study in the Darjeeling District, or at least, more difficult than in the plains or the state of Sikkim. Although the Gorkhaland movement has lost energy since the 1990s; it has changed the ambiance of the region, especially in the main urban centers. For instance, the streets of Darjeeling town are now empty after 5-6 p.m. during the winter, which was not the case before the agitations, and rumors of past (and present?) murders are still heard. Locals seem nostalgic for the pre-1986 time. Finally, the majority of the Darjeeling sub-district is occupied by tea estates which are very difficult, if not impossible, to penetrate and study even by locals.

LIVING IN YANGKHOO

▪ Entering and spending time in Yangkhoo

- "How is it to do farming in your country? (a villager)
- We have more land and more techniques. We can even grow tomatoes without soil!" (the researcher)

It was strange enough to the villagers, as a foreign, white western woman doing research, especially when they also learned I had no caste, no religion and no husband! The latter status gave me the surname of "Julie Miss". Titles are very important in Nepali. A wider number of words than in English or other Latin languages exists in Nepali to characterize various types of social relationships. It is a mark of respect and also enables individuals to position themselves towards one another and *vise-versa*. Over a 4-month period, I lived a total of one month in Yangkhoo with a family, which I found to be representative of a mid-income household within the Yangkhoo socio-economic context. I felt the family treated me as one of them, with the exception of the famous morning bed tea that only guests are entitled to receive.

The help of a local NGO, the Darjeeling Ladenla Road Prerna (DLR Prerna), based in Darjeeling town and involved in the area since 1996, was key to my introduction to the village. I first used the pretext of a monthly women's self-help group meeting to visit the site with the local NGO. Later on, the local leaders introduced me to the villagers through the monthly village meeting. I presented the goals of the project to document the history of the village as well as the challenges of their current daily livelihoods. I emphasized the importance of documentation as, while elders are dying, their knowledge was also disappearing (Plate 6.5).

Generally, I felt the villagers perceived the study positively (i.e., they agreed upon the importance of documenting their common history and life problems), and if not, I faced indifference. At the same time, villagers were also expecting some kind of concrete financial help ("How is this going to help us?"), and had a hard time accepting that I was coming from a university (and not from an NGO or governmental agency) only for the purpose of "documenting" aspects of their lives. Being a foreigner turned out to be an advantage at a certain point. Villagers were proud that somebody came from so far away to learn about them and felt they had to participate. Generally, villagers were very hospitable and always respectful. They would invite the translator and I into their homes and offer us at the very least a cup of tea, depending on their economic status.

▪ **Attitudes towards researchers**

"Are you part of the problem or are you part of the solution?" (A villager)

Ironically, as I was trying to study change, I also became an agent of change at my own (small) scale, in the village at an individual/household level, but also within the local NGO. Mainly it happened by asking questions framed in different ways or asking follow-up questions promoted by responses, and by discussing questions more than once. To what extent this changed people's responses, is hard to evaluate. For instance, one of the interviewees said: "you open our brain". They confessed that another foreigner had once tried to visit, but they ran from this individual, as they were afraid. This household also reported the project made them realize the losses of historical memories, the importance of nurturing memories, as well as the importance

of relationship building with their neighbors especially about cultivation methods. That said, most of the villagers were busy and arranging their participation in interviews and group discussions was a real challenge and it was even more so toward the end of the fieldwork (see section "Creating visual records").

▪ **Note on gender**

This study did not have a gendered perspective, yet I made sure to interview women on their own, whenever possible (with $n = 39$ villagers, 51% of the interviewees were men, 31% were women, and 18% were simultaneous interviews with married couples). When both husband and wife were present during the interview, men would tend to speak more but they would let their wives speak, and I also encouraged their participation. However, (and I am generalizing to some degree), interacting with men was easier than with women because men were more confident and more educated. The socio-cultural and historical particularities of the region also need to be reiterated here. The Nepali community of the Darjeeling Hills is not as patriarchal as in the rest of India and Nepal (Bhadra (1990: 384-5) confirms this observation⁵). It is noticeable through clothing styles and gender relationships for instance. In Darjeeling town, young men and women spend time together.

From direct observation, husband and wife in the village have equitably distributed tasks and I did not notice women were working more than men, as can be seen in other parts of India. Men tend to do a greater proportion of the off-farm work whereas women tend to do a greater share of the work necessary to tend the fields, and take care of the livestock and the house. Women were observed dealing with the household accounting (observation from my participation in one household) and most of the time they are also the ones to go to the market to buy food. During my stay with a family, I noticed that the couple I was staying with were very close to each other and had long conversations and debated about ideas in the evenings. Marriage with the same caste

⁵ Bhadra (1990: 384) explains the absence of "son complex" in the tea estates and the greater equality among men and women in comparison to the rest of the Indian society. "In plantation society, men usually exercise less authority over women" (Bhadra 1990: 385). She guesses: "one reason may be that in this society both sons and daughters work and earn, and both of them are economically independent". She further mentions how the daughter in the Hindu society generally constitutes an economic liability whereas in the tea estate society, the woman is an asset, she brings an economic contribution to the household.

is still the norm and is encouraged by elders. However, a wedding that I attended in the village was between different castes, showing that a place for flexibility also exists.

COLLECTING AND VERIFYING DATA IN YANGKHOO

▪ Observing

The study is based on information collected inside and outside the village study site. The information collected in Yangkhoo is based on direct observation (walking, participating in cooking, religious and social ceremonies and village meetings), semi-structured interviews, household and group mapping exercises, group discussions, villagers' personal data (i.e., one villager had a personal diary), as well as photographs and video. Data were collected from household and village perspectives.

Direct observation, "occurs while the outsider is conducting other work, and can involve the systematic observation of events, processes, relationships or patterns" (Mitchell 2002: 221). Staying and spending time with a family (on average 2-5 consecutive days) was one of the most valuable means to observe village life, daily routine and problems, and village social relationships between households as well as inside a household unit. It helped me build trust relationships, enter into the "politics of the village", and gain an integrated view of the village as much as possible. Finally, staying in a family also provided more opportunities for the unexpected to happen. At the end of the fieldwork, I found myself in situations I would have never contemplated; nevermind thought that I would participate in. Walking, observing, waiting, interacting with the villagers, attending social events (wedding, village meeting and religious ceremonies), visiting households, socializing by drinking tea and other local beverages were all part of the research process.



PLATE 3.2:
Yangkhoo
villagers with
elder in the middle



PLATE 3.3:
Yangkhoo
villagers during
historical timeline
exercise

▪ Dealing with translators and translations

Two major criteria determined the choice of the translators. I hoped to work with an individual: (1) with a rural background, ideally of Rai origin, and (2) known and appreciated by most of the villagers. Given these criteria, options were limited. Indeed, although many people speak English in Darjeeling and although Yangkhoo is only 13 km from Darjeeling town, few people learn and speak English in the villages. Having a translator with a rural background was crucial because differences between the urban and rural cultures are important (e.g., different language and expressions, different contexts, different understandings). As a result, a translator from Darjeeling would not fit the needs of the research study very well. Furthermore, barely anybody in Darjeeling town knew about Yangkhoo despite its proximity.

Only one young man in Yangkhoo was able to understand and speak English fluently. He helped me in the beginning. However, his father was one of the leaders of the village and I feared that if I continued to work with this translator that I might be prevented from speaking to certain households in the village (my suspicion proved to be right later on). I found two male translators from surrounding villages and involved in Yangkhoo for work to be the best options. They knew the village and were also well known by the villagers. They were able to provide me with some context and put villagers' stories into perspective.

The initial translator was from a village adjacent to Yangkhoo, which turned out to be an advantage for observing and understanding some of the clear differences as well as the perceived differences between the surrounding villages. He worked as an administrative officer at the Panchayat (e.g., providing birth certificates, maintaining the voting list). His position at the panchayat enabled me to get more information about the local Panchayat and governmental social programs as well as general administrative information on the villagers. He was of Rai origin (i.e., the majority of Yangkhoo is Rai caste) and his father was a progressive person (i.e., he takes initiatives and introduces new ideas) and was well known in the area (e.g., his father was the first one to teach villagers how to use cement for house building in the area). His economic status in his village was quite good, even more so in comparison with Yangkhoo (e.g., he owned a cement house with indoor toilets, running water, electricity

supplied by a generator, and he owned a motorbike). In Yangkhoo, nobody has motor transport, indoor toilet with running water or electricity and only six households have cemented houses.

The second translator was from Lebong bazaar, eight kilometers from Yangkhoo. He had been working in Yangkhoo as the director and teacher of the village school for five years. He had commuted every day by motorbike and foot. Among other interests, he was involved in publishing articles in a local Nepali journal about political and social issues in the region (e.g., the political agitations, the problem of Nepali girls' prostitution in India, homeless people in Darjeeling town). His main interest in working in Yangkhoo was to help and support the locals; he was especially involved in efforts to gain governmental recognition for the school. A shop in Lebong provided his main income. He was very much appreciated by the villagers. He thought it was his duty to help me and did his best to motivate people to participate in the study. I felt that, compared to the previous translator, villagers were closer to him and started talking about controversial issues (i.e., village politics and power relations, illegal livelihood activities). Some villagers were only willing to be interviewed with him and I felt that a majority trusted him more than the previous translator.

▪ **Selecting households for interviews**

I obtained a sample size of 36 households (53%) from a total of 68 households in the village based on the household's interest, availability and social position (e.g., contractor, secretary of village society). Most of the villagers interviewed had no formal education. Among the men interviewed ($n = 19$), 68% had no education, 10% had completed some classes in primary school, and 21% had completed some classes in secondary school. Among the women interviewed ($n = 11$), 54% had no education, 27% had completed some classes in primary school, and 18% had completed some classes in secondary school. Although men tend to be more educated than women (Census of India), the men interviewed represent a larger majority of the non-educated interviewees than the women interviewed. This is because most of the elders interviewed were men and the older generation is less educated (no facilities) than the younger generation.

As many elders as possible were interviewed to try to reconstruct the history of the village and change (Plate 3.2). The best key informants⁶ had on-going relationships with Yangkhoo (job, family, friends), but did not live in Yangkhoo: they were less afraid to speak and more critical about different aspects and issues in the village (see section "Data collection in and around Darjeeling"). Some households were interviewed more than once, and sometimes more than one person within the same household (n = 36 households with n = 39 people) was interviewed.

The average age of the villagers interviewed (household interviews, n = 36) was 44 years. Further, 28% of the villagers interviewed (household interviews) were between 20-35 years old, 36% between 35-45 years old, 14% between 45-55 years old, and 22% 55 years old and above. Seventy-seven percent were Rais, 14% Mukkias, 5% Tamangs and 3% Chettris. The dominance of Rais is representative of the village caste distribution and the relative caste homogeneity of the village (see Chapter 5, "Ethnicity, caste and belief systems"). Twenty-five percent of the households interviewed were from Lower Yangkhoo, 45% from Middle Yangkhoo, 22% from Higher Yangkhoo and 8% from Eghara Number. The percentage of villagers interviewed is also representative in that the majority of households were located in Middle Yangkhoo (See Chapter 5, "Settlements and landholdings").

▪ Interviewing households (Appendix II)

The interviews conducted in the village were semi-structured. Semi-structured interviews, also called conversational interviews, are informal discussions conducted with individuals, key informants and groups (e.g., from community groups and focus groups, to casual encounters). A written questionnaire is not used; the goal is to have more flexibility than with structured interviews. It is useful to discover the way people express ideas in their own words. The interview is left open-ended in order to reveal new ideas and topics (Mitchell 2002: 221). However, the interviewer should still be able to orient the discussion to key topics and questions.

⁶ Key informants were the persons in the village and outside the village (i.e., NGOs, government officials, private sectors) who knew more about a precise topic.

TABLE 3.1: Household semi-structured interviews in Yangkhoo -- see Appendix II for the actual questions asked

Themes	Topics	N
(1) Household data	- Age, Household members, number of children - Education level, main livelihood activities	36
(2) Memories of change and coping/adaptation strategies	- Tea estate history, closure of tea estate, coping strategies - Political insurrections and coping strategies - Impacts of roads, roads frequency, roads, basic needs	7, 5, 6 6, 10 12, 7, 7
(3) Attitude toward cultivation	- Main challenges - Taking decisions, seeking advice, and managing seeds - What are you doing to increase crop productivity? - Why do you do polyculture?	24 11, 3, 9 8 6
(4) Attitude toward animal husbandry	Main challenges	9
(5) Ideas and attitudes towards institutions	- Are you expecting external help? - What external help did you get? - DGHC/West Bengal government - GNLF; Panchayat; DLR Prerna - Impact if DLR Prerna should pull out? - Can the cooperative SVC run without DLR Prerna? - SVC member, SVC - SHG member, SHG - Samaj member, Samaj - Neighbors/village relations; social cohesion - Traditions/rituals/transmission of knowledge - Social disparities	16 7 2 6, 4, 10 8 7 7, 9 7, 6 10, 7 12, 8 4 10
(6) Ideas and attitudes toward the environment	Forest, Water, Land	15, 8, 11
(7) Ideas and attitudes toward the future	- What are you doing to anticipate future possible perturbations? - Savings	6 19
(8) Ideas and attitudes toward Yangkhoo	- Willingness to migrate in tea estate - Major problems, happiest/saddest moments - Idea of development and wealth	9 20, 3 4
(9) Attitude toward life	- Major livelihood challenges - What are you doing to improve your life? - What did you learn from crisis that you could teach to others/your kids?	11 16 4

During semi-structured interviews, all the questions were asked in English and simultaneously translated into Nepali. The interviews at the household level focused on different themes: (1) livelihood data, (2) memories of change and coping/adaptation strategies, (3) attitudes toward cultivation, (4) attitudes toward animal husbandry, (5) ideas and attitudes toward local and external institutions, (6) ideas and attitudes toward the environment, (7) ideas and attitudes about the future, (8) ideas and attitudes toward Yangkhoo and life in general. Table 3.1 lists those themes with the main topics of interviews and the number of people interviewed for each of them (n).

Depending on the informants, I focused on different themes. For instance, elders were mainly questioned about the history of the place. The resilience perspective enabled me to determine some themes before the fieldwork began. Other themes and questions emerged during the fieldwork. Themes and questions were discussed and modified with the translators to avoid jargon and to make sure the translator understood the ideas. The questions were based on various indicators of change determined before and during the fieldwork. For instance, villagers always had a positive perception of the impacts of road construction, but other indirect indicators (e.g., eating habits, loss of land) showed that roads have other complex impacts that are not always positive. Some key informants were interviewed more than once and/or participated in different exercises. Most interviews took one to three hours, especially in the beginning. I kept interviews as informal as possible to reduce barriers with the informant. I encouraged that the interviews took place at the person's house in order to gather and verify additional information on their socio-economic conditions through direct observation.

- **Mapping and group discussions (Appendix III and IV)**

Semi-structured interviews also included historical timelines (Plate 3.3), seasonal calendars, geographical and social maps, mobility maps, youth group discussions (Plate 3.1), and livelihood change exercises at village and household levels. These tools were used throughout the fieldwork, partly to complement and verify information. Most of the time, mapping exercises and group discussions worked well, especially when synchronized with the monthly village meeting. These exercises also enabled me to break up the routine of the regular interviews for the researcher, the translators

and the informants. I set up each exercise in creative, yet simple, ways. For instance, part of the evaluation of social capital used visual aids. The translator would read a list of topics (e.g., sense of place, access to information, level of trust among villagers, etc.) and ask the informant to rate each topic according to his/her emotions. The informant was provided with a card listing three options, illustrated with different icons (or visuals) (a "happy face" ☺, a "neutral face", and an "unhappy" ☹), and was asked to refer to one of those three options.

▪ **Creating visual records**

Ideally, visuals can complement and elicit textual materials and become part of the research method. In this project, and following the basic assumption of visual anthropology and sociology, visuals (both records and documents) were sources of information and knowledge. Use of visual records here included photographs and video. Landscape photographs were useful for comparison with older pictures and to illustrate the change in forest cover over time (Plates 5.6-7). Often, the camera became a tool to "break the ice". Most villagers were very keen to have their photographs taken and were very curious about the camera itself.

The context of the video production is important to understand and justifies the role of the video as part of the research method. The video-making project began a month and a half before the end of the fieldwork. At that time, it became more difficult, if not impossible, to gather information in the village. Various consecutive religious festivals combined with a general decrease in interest and participation from the villagers and translators prevented me from interviewing villagers. Simultaneously, the construction of the village road also started and kept the villagers busy during the day. Altogether, I looked for different ways of doing research that would better fit the current situation and be of interest to the village and villagers.

While I was doing my fieldwork, DLR Prerna put me in contact with people in Darjeeling town involved in community mobilization with the Darjeeling Initiative, a group of volunteers working for a better Darjeeling Hills through the organization of various socio-cultural events. Among the actors in the Darjeeling Initiative was a small video production team, with whom the local NGO had previously worked on a video

documentary on solid waste management in Darjeeling.⁷ A member of DLR Prerna, the video production team and myself found common interests and started the video project in Yangkhoo on an informal and voluntary basis.

The video production team, Iris Productions, was small and managed by two men. Before beginning to work full-time on Iris productions and the Darjeeling Initiative, the cameraman worked as project managers for a U.S. NGO, called "Mercy Corps", working on community development in the rural areas of Darjeeling. Therefore, the cameraman was familiar with local people and rural life issues. Needless to say, he became more than a cameraman and showed great abilities in making people feel comfortable in front of the camera and in probing for more in-depth answers. The villagers quickly accepted him. The editor studied mass communication with a specialization in video editing. Advantageously, his father was also well known by some villagers for his work in the school of a neighboring village.

The primary goal of the video was to document my research in the village and to provide the video as feedback for the community. The leaders of the village accepted the idea. In total, we spent five days filming in the village over the month of December. By that time, key informants had been identified. A basic story was written, but the final script came together only after the filming because of time constraints. The videotaped scenes included: semi-structured interviews with villagers, villagers' daily life and livelihood activities, socio-cultural events and landscapes. Villagers were never filmed without verbal consent and we never asked them to act "as if the camera was not there" either. The reaction of the villagers in front of the camera was always positive.

The video production required a large work input during and after the filming. This process, even more than the output (i.e., the video itself), became a polyvalent and catalyst research tool with positive impacts on the research. It especially helped to:

- (1) Provide a visual feedback for the village, which was mainly illiterate
- (2) Document and illustrate information collected during the research
- (3) Serve as aide memoirs in interviews
- (4) Provide more information than memory or notebook alone (Duffield 1998)

⁷ DLR Prerna. 2003. *A new beginning*. Documentary film on solid waste management. Darjeeling. Irish Production.

- (5) Reclaim some of what was lost through translation to text (Duffield 1998)
- (6) Complement text (different representations)
- (7) Discover and produce new information
- (8) Aid my stay in the village and continue interviews
- (9) Observe the villagers with a different perspective. The video making created a new distraction for the villagers ("defamiliarization"). The cause of distraction also switched from being the researcher to being the camera and cameraman, therefore creating a different kind of relationship with the interviewees.
- (10) Work with a team and get feedbacks
- (11) Clarify ideas and identify data gaps (through the process of writing a story and discussion with the team involved)
- (12) Raise new interest and energy between the villagers and the researcher
- (13) Verify data (most of the people interviewed had already been interviewed at least once)

The video project also faced many challenges, including:

- (1) Implicit versus explicit data (Duffield 1998:4). Explicit data such as power relations inside the village were difficult to document visually without jeopardizing the position of some individuals inside the village.
- (2) Confidentiality. In order to preserve the confidentiality of the informants especially about sensitive issues (e.g., illegal wood business), we decided to make two different versions of the video. A short version in Nepali for the village and the Darjeeling region, and a longer version documenting a broader range of issues in English for an audience outside of India.
- (3) Lack of time. As of today, some final editing work still must be done on both versions.

▪ **Verifying data**

Data verification was a continuous process throughout the fieldwork. Methods used for data verification included: observation, interviewing the same informant more than once, asking the same questions of different informants, organizing group discussions to build a consensus on a particular topic, removing myself from the village on a

regular basis and cross-checking data and impressions with key informants outside of the village (see next section “Collecting, analyzing and verifying data in and around Darjeeling”).

▪ Meeting the shaman

I had the opportunity to meet a shaman (“bijuwa”) in the village at the end of the fieldwork during two different ceremonies, one at a clan level (“Khul Pitra Puja”) and the other one at a household level (“Chula Dunga”) (See Chapter 4, section “Ethnicity, caste and belief system”). Later on, it opened a new window on my understanding of the villagers’ cosmogony⁸ and especially their way of transmitting oral history and dealing with change, past, present and future. Meeting the shaman and observing the clan and household ceremonies became determinant in changing my perception of the village and the villagers. It unveiled another part of their culture including their way of relating with the environment, time and their sense of community through the clan organization.

▪ Leaving Yangkhoo

How were the research findings shared with the village? Sharing information means that the material produced during the research should at least be made available to the community and/or local institutions, NGO and research institutes in a meaningful way and format. Before leaving the field, part of the video was screened in the village during the monthly village meeting. Members of the NGOs were also present and helped to organize the event. The Nepali version of the video is going to be the research feedback for the village. Due to time constraints, it has been handed over to DLR Prerna to finish some of the final editing work.

⁸ A cosmogony is an explanation about the nature of the origin. Many creation stories exist both scientific and mythological. The story of origin in the Rai belief system is one mythological cosmogony among others (e.g., the book of Genesis). Note that “cosmogony” contrasts with “cosmology”; the latter is the study the Universe at large, throughout its existence (<http://en.wikipedia.org/wiki/Cosmogony>). (more on the origin myth of the Rais in Chapter 5)

COLLECTING, ANALYZING AND VERIFYING DATA IN AND AROUND DARJEELING

▪ Living in Darjeeling

The information collected in and around Darjeeling (mainly local secondary data) was based on participant observation (participation in the meetings of NGOs, workshops and informal discussions), semi-structured and open interviews, the process of video-making as well as the collection of visual documents such as maps from the Land and the Forest Departments, and old and recent pictures of the village area (Hayden Hall and DLR Prerna). All interviews were in English. I interviewed key informants from NGOs (Hayden Hall, DLR Prerna), governmental agencies (Forest and Land Departments, Emergency Department of DGHC), and the private sector from the tea industry (Tea Promoters of India, Selimbong Tea Estate) (See Appendix V). As in the village, some key informants were interviewed more than once. The interviews were on the following themes: (1) information on institutions, (2) information on interventions/non-intervention affecting Yangkhoo, (3) ideas about the relationships between institutions/projects and Yangkhoo, (4) ideas about the village organization and dynamics, (5) ideas about villagers' mentalities and attitude toward life in Yangkhoo, (6) ideas about resources management in Yangkhoo, (7) ideas about Yangkhoo socio-economic status in comparison to nearby villages and/or other villages in the region, (8) ideas about the impacts of the intervention/projects in Yangkhoo and (9) for the organization itself, and (10) attitude toward the project and attitude toward Yangkhoo (see questions, Appendix I).

Moving back and forth between Darjeeling and Yangkhoo provided an interesting contrast between rural and urban life. It enabled me to remove myself from cultural immersion in both contexts (rural and urban) and prevented me from losing perspective. In Darjeeling, I could also talk informally about my project with people involved or not in the study site area on a constant basis. Darjeeling town became a place to rest, think, discuss theoretical, methodological, and emotional issues, record and analyze the material accumulated, and prepare for the next village visit. The organization and analysis of qualitative and quantitative data were achieved with the software programs AskSam and Microsoft Excel. Darjeeling was also the place for

preparing, capturing and editing the video. The majority of the key informants in Darjeeling have also been video taped. The video team knew some of the key informants, which facilitated the interview process. It might have been difficult to meet some of the individuals appearing in the video otherwise.

▪ **Interacting with the local NGO**

Importantly, my relationship with DLR Prerna determined the realization of the project in Yangkhoo. The local NGO was responsive and showed interest in the project from the beginning until the end of the fieldwork, and even after the completion of fieldwork. Some members read my research proposal. They helped me with networking, the collection of secondary data, getting to the field, leaving the field, exchanging data, discussing and clarifying findings, and getting a broader perspective on local issues through their work in other places. Consequently, the NGO was an important support system both in terms of information and logistics. DLR Prerna, itself, also decided to organize an internal workshop to decide upon their future intervention in the village area. I believe our discussions motivated the NGO, together with other factors, to decide to carry on their involvement in Mineral Spring.

To what extent did DLR Prerna shape my image of Yangkhoo? To what extent did I become biased toward the DLR Prerna and what did I do to limit these possible biases? I developed and maintained my awareness by getting to know the internal dynamics of DLR Prerna to understand what biases were operating inside the organization and integral to their projects. Throughout the project I also attended some of their meetings and workshops, which gave me a better sense of their work philosophy, experience and the evolution of their work. Some members were comfortable with my presence and open to sharing their experience and lessons, but also willing to learn from the project. Giving and receiving feedback became an on-going process. Some members made me more aware of my own biases too. I also spent time with some members, which enabled friendship building. Finally, I did not take anything for granted and made my own judgments through discussions with villagers and other key informants. Furthermore and importantly, I noticed individuals inside the organization had differing conceptions and philosophies of fieldwork and those different views obviously had an impact on the way the projects were

undertaken. For example, fieldworkers and office workers did not seem to always have the same level of awareness in terms of approach and methods related to community development.

As mentioned, DLR Prerna introduced me to the village. The extent to which it influenced the villagers' perceptions and answers to my questions is hard to say. Part of the answer may reside in the way the village itself knew and perceived DLR Prerna. Most of the villagers had a limited understanding of the NGO and its role. Some villagers confused DLR Prerna with an NGO that had worked in the area before. That said, the majority of the villagers had a positive perception of DLR Prerna's contribution, but this perception was limited to DLR Prerna's help through the tea cooperative. Reactivity of the villagers (i.e., villagers were changing their behavior) to my connection with DLR Prerna was probably there especially with farmers involved in the tea cooperative, but I felt it was minimal and I made sure that I introduced myself as separately from DLR Prerna and its projects. (more on the nature and the role of the local NGO in the next chapters)

- **Visiting neighboring villages**

Nearby Yangkhoo are Harsing and Dabaipani. These villages have the same historical background as Yangkhoo (i.e., closure of the local tea estate of which they were also a part) and have regular relationships with each other especially for the marketing of the green tea leaves sold collectively to a nearby tea estate. I managed to stay overnight in a household once in each of the two villages. Direct observation in the villages and open interviews with the villagers from the surrounding villages enabled me to identify some broad similarities and differences (e.g., cultural, socio-economic) and put the village of Yangkhoo into perspective within the background of the tea estate's history. It also enabled me to collect more information related to the closure of the local tea estate as the tea estate factory and the administration offices of the tea estate used to be located in Dabaipani. For example, I collected from a villager letters from 1952-1961 between the tea estate management body, the workers union, and the West Bengal Government at the time of the closure.

▪ Visiting other villages

I visited other villages at the beginning of the project to become familiarized with local issues and to select the study site but also throughout the project to better understand where Yangkhoo stands in comparison to other places in the Darjeeling district, especially in comparison with the Kalimpong subdivision. Villages visited in the Kalimpong subdivision were: Gidang, Reondang, Pemling (Nimbong block) and Pudung. Villages visited in the Darjeeling subdivision were: Rampuria, Bungkulung, Chimley and some villages around Rimbick. Some of the visits included informal and open interviews with villagers as well as overnight stays within the village. How did I choose those villages? First, they were already study sites of a research organization (Create, St Joseph College, Darjeeling) or DLR Prerna. Second, those villages had similar as well as different characteristics in terms of landownership (e.g., no access versus access to landownership), history (i.e., other villages who used to be part of a tea estate that collapsed), and culture (i.e., Nepali versus Lepcha communities) enabling comparisons.

DEALING WITH LIMITATIONS OF METHODS IN THE FIELD

In addition to the research method problems and challenges already mentioned throughout the section, other methodological limitations were related to: (1) language barriers, (2) time constraints, and (3) cultural barriers. This section then lists additional factors, comments on the income-expenditure exercise, and concludes with some lessons on field research skills.

▪ Language barriers

My inability to directly converse with villagers had many consequences for the data collection. Some of the consequences were:

- (1) Limited ability to read body language and expressions
- (2) Dependence on translators (as transmitters and mediators of signals and sense)
- (3) Lengthy process of double translation (i.e., the presence of the translator implies a process of double translations whereby translation happens first

between the researcher and the translator, and second between the translator and the interviewer – and *vice-versa* in both cases), which cut the natural flow of a discussion and could create a sense of boredom and annoyance

- (4) Loss of information and meaning (e.g., difficult to keep the flow of conversation going without losing information)
- (5) Lack of depth of interviews partly due to the lack of probing skills of the translator
- (6) Biases in the translation (e.g., the translator forget to translate what is “evident” to him).

▪ Time constraints

The time spent in the field was limited to four months and a half. First, everything takes its own time (e.g., finding a study site, translators, and key informants; getting familiarized with the people, the culture; building relationships and trust; accessing office records, understanding how the system works, who is doing what, why, etc.). Second, the work depended on the availability of the informants. As the households were physically dispersed, considerable time was spent in travel. Generally speaking, the poorest households were also the busiest and the least educated. Therefore they were also the most difficult to interview. Third, the interviews were suspended during religious festivals because villagers were busy and they also tended to drink more alcohol during that time. Fourth, the project also depended on the availability of the translators. They were often late and available only in late morning and during the afternoon, whereas the villagers were mainly free early in the morning and in the evening. Finally, villagers also needed their own time to get to know me.

As a result, I started asking too many questions and took too much of the informants' time in the beginning. It was difficult to retain my informants both at the start of the fieldwork because too many questions emerged (questions which were not directly related to the research topic, but were important to understand the system) and at the end of the fieldwork period because I was left with only a few key informants. Another backdrop was the lack of time to investigate a second comparative study site in depth.

- **Cultural barriers**

Working in a different cultural setting tends to generate many misunderstandings from both sides, especially because categories, norms, and perceptions are different in each culture. Signs become open to multiple interpretations. Meanings can also get distorted or lost more easily because the space of interpretations is vague. For example, I had difficulties to read people's body language and I lacked perspective to interpret people's answers properly. Cultural aspects might be underestimated or overestimated and even romanticized. It was also my first time in the Eastern Himalaya and in India. The way questions were asked and answers interpreted needed to account for these pitfalls and required care.

I illustrate the importance of cultural barriers during fieldwork with three examples or ways of answering and interpreting villagers' responses: the "contradicting" answer, the "no" answer, and the "obscure" answer. Some of my interpretations changed over the course of the fieldwork. First, when the villagers were asked if they had any kind of relationship with their neighbors, most of them would say no. Yet, later on they would acknowledge buying seeds from their neighbors. What can apparently be interpreted as a contradicting answer might be a misunderstanding of the word "relationship", which was too vague. It is still not clear.

Second, one attribute of resilience building is the forward-looking capacity or "future thinking". Therefore I asked some villagers directly how they were planning for their future. Most of the villager answered "nothing". A rapid conclusion would assume that the villagers do not plan for the future. I found another answer as I became more familiar with the culture. Different indicators of future thinking appeared: many villagers reported they were saving money, planting trees "for their children", and I saw the shaman of one of the clans in the village making predictions. The villagers do live to a greater degree in the present compared to "western" culture, but they also do have "future thinking" (more justification on "future thinking" in the next chapters). Therefore I realized later on that some of my questions were not tuned to the different ways of thinking of the villagers. In fact, I was even forcing them to follow my own way of thinking and categorizing. What appeared initially as a "no" answer was an answer in

itself: a cultural gap (i.e., two different ways of categorizing and expressing time aspects)!

Third, another attribute of resilience is learning and therefore knowledge transmission. One day as I was interviewing a shaman, I was particularly insistent on trying to understand how he was transmitting his knowledge. The answer was: "It comes to you. You are chosen in creation". "Obscure" answers are only "obscure" because they are difficult to grasp from a western or personal viewpoint.

▪ Other factors

Other factors that influenced the way villagers answered and the way their answers were interpreted are:

- (1) This study relied heavily on information provided by villagers on the basis of their memory and recall of historical event. However, it was not always easy for people to remember past events.
- (2) Some questions were hard to answer because (a) generally it is hard to talk about change, (b) some questions needed time for reflection, or at least to be rephrased, and (c) villagers needed more time to think about some questions.
- (3) My access to some information was deliberately restricted (e.g., illegal livelihood activities).
- (4) Villagers lacked confidence (especially women) in general and were also afraid to talk about the issues of the village.
- (5) Villagers lacked education and maybe had difficulties to express their ideas.
- (6) Most villagers found it difficult to talk about themselves and their problems, maybe because (a) they were proud, and (b) the questions required them to put their own life into perspective, but it was very difficult for them to think about their day-to-day lives in an abstracted and distanced sense.
- (7) Most of the people were uncertain how to answer the interview questions and if they were provided with examples they would use those instead of coming up with their own (biases).

- **Comments on income-expenditure exercise**

Villagers (n = 6) were asked to talk openly about their income-expenditure for the year 2003. A few trials were made in the beginning to verify and add new items and to be as precise as possible. The exercise was very challenging because most of the villagers did not keep a record of their income-expenditure. Only two of the households interviewed had detailed records. Overall, the villagers tended to overestimate their expenditures and underestimate their incomes. Indeed, I had to go back to the majority of the households interviewed more than once to clarify income gaps. Households tend to hide incomes related to illegal activities (e.g., sale of planks and charcoal). It was also difficult to talk about the exact amount of land they had because many hide it to avoid land taxes. The absence of records and the other difficulties presented did not allow me from documenting the variation of over-time income inside one household.

- **Learning field research skills**

"It is not that kids do not know how to speak: they try many languages until they find one their parents can understand." (Jean Piaget quoted in Rabinow 1988: 13-14, translated from French)

In this quotation, the Swiss psychologist, Jean Piaget, encapsulates two major lessons learned during the fieldwork about the relationship between the research and the informants: the importance of creativity and flexibility. First, the researcher needs to find tricks to make things look interesting and maintain the motivation of whomever is involved, including that of the researcher herself! Creativity also means that the research needs to find and arrange concepts and tools so that they fit the local context. Second, flexibility is important in order to avoid becoming too rigidly focused and thereby missing and/or misinterpreting information. The researcher must learn how to go with the flow without giving up his/her main objectives. Flexibility means being responsive to different contexts, situations and people and adapting the methods accordingly. Flexibility does not mean vagueness: field research requires precision and consistency. Overall, being ready to deal with the unexpected is not only a resilience attribute for social-ecological systems, but also for research itself! Finally, the researcher needs to accept that perfection does not exist. For instance, in the end, the important data might be rooted in a few key people and interviews.

OTHER CHALLENGES: ANALYSING DATA AT A DISTANCE

The interviews were analyzed using Excel. Whenever required, data were disaggregated to account for various variables (e.g., gender, age, main livelihood activity). The main problems faced during the analysis were:

- (1) The inability to verify data (inability to go back to the field) and the difficulties of dealing with data gaps
- (2) The risk of extrapolating (i.e., going beyond the data, making things more complicated than they really are).
- (3) The risk of romanticizing the culture with distance
- (4) The constraints of standard academic tools. The processes analyzed might require tools different from the usual (standard) academic ones. For instance, academic writing is mainly linear, static, and partitioning whereas the processes analyzed are cyclic, complex, in constant movement, and act in combination with one another. This thesis uses tables and figures as much as possible in order to try to reduce these limitations.

The next chapters explore a series of questions, including: What does the current regional context, within which Yangkhoo is embedded, look like? What is the current livelihood system in Yangkhoo? (Chapter 4) How did Yangkhoo come to be what it is today? Why did the social-ecological system not collapse after the closure of the tea estate? (Chapter 5) What are the internal and external forces that influence Yangkhoo today? Is the system going to collapse or it is sustainable? (Chapter 6) And finally, what are the policy implications for managing resource-based livelihoods that can be drawn from this village case study? (Chapter 7)

CHAPTER 4.

CURRENT LIVELIHOODS IN YANGKHOO



PLATE 4.1: Wooden house in Yangkhoo (R) with vegetable garden (notice sugar cane in the center) and farm trees. (Photo J. Gardner)

The goal of this chapter is (1) to put the village of Yangkhoo and its livelihoods into the broader regional and local contexts of West Bengal and Darjeeling District, (2) to provide an account of the current livelihood system, and finally (3) to describe the current farm management. This chapter builds on a referenced literature review and local secondary data, and on primary data.

THE DARJEELING DISTRICT, WEST BENGAL

"Darjeeling Himalaya as of today is a living confusion." (Khawas 2002: 9)

The field research took place in Darjeeling, the northern-most District of West Bengal. The Darjeeling District is made up of three hill subdivisions: Darjeeling (also called "Sadar"), Kalimpong, and Kurseong; plus Siliguri, a plains subdivision. Bounded by Nepal on the West, Sikkim on the North, and Bhutan on the East, the region has an historically geostrategic location. The Teesta River, flowing north to south from Sikkim to Bangladesh, bifurcates the Darjeeling District. Since it is part of the Himalaya, the area is commonly referred to as the "Darjeeling Hills" or "Darjeeling Himalaya". Indeed, hills and mountains occupy about 74% of the total land area. Figure 4.1 locates the state of West Bengal and the Darjeeling District.

The Darjeeling District represents only 3.54% of the land area of West Bengal (Census of India 2001). Together with this physical distinctiveness, the distance of Darjeeling from the state's administrative center, Kolkata (formally Calcutta), various historical, politico-economic, social-cultural, ethnic and linguistic factors tend to reinforce the relative distinctiveness of the area from the rest of West Bengal. That said, West Bengal state policy also has a bearing on the Darjeeling District. Hanstad and Brown (2001: 5) report "West Bengal, with a population of more than 80 million and a population density of 904 persons per square kilometer is the fourth most populated state in India and the most densely populated". According to the last census (Census of India 2001), the Darjeeling District is also one of the least populated districts of West Bengal with a population of more than 1.6 million and a density of 510 habitants per

square kilometer (an average of 350 habitants per square kilometer in rural areas, and more than 6,900 habitants per square kilometer in urban areas⁹!).

Relatively young generations of immigrants compose most of the Darjeeling District (third to fourth generation Nepali). The tea industry of the Darjeeling Hills especially attracted immigrants. The Darjeeling Hills are multicultural (e.g., Hindu, Buddhism, animism, Christianity), multi-lingual (e.g., Nepali, Hindi, Bengali, English, Tibetans), and multi-ethnic. For instance, Khawas (2002: 4) lists at least five major ethnic groups in the Darjeeling Hills: the Nepalese (including more than 15 ethnic groups, castes, and tribes), the Lepchas (autochthonous tribes), the Buthias (tribals including both Bhutanese and Sikkimese Bhutia), the Tibetan, and the Bengali (permanent residents and migrants of south Bengal and refugees from Bangladesh). No recorded history has been found as of today regarding the earliest inhabitants of the region. However, local indicators such as toponyms suggest the Lepcha were pushed from this area by the expansion of tea cultivation (Subba 1989:25) and the arrival of migrants of various types, including plantation workers. The migrants form a different and new cultural group, nourishing a regional identity crisis. One of the socio-politic manifestations of the crisis (together with other economic related aspects; especially the landlessness issue) was the separatist movement, the "Gorkhaland agitation", active over the last four decades in the Darjeeling Hills.

According to the last Census of India (2001), only 35% of population in the Darjeeling District is employed! The State average is slightly the same with 37%. Employment in the Darjeeling District is also gender biased: 49% of the male are employed in the Darjeeling District in 2001, but the percentage drop to 21% for women. Employment is slightly higher in rural areas especially for women. The large majority of the employed population is non-agricultural workers (including tea estates workers) with only 25% being agricultural workers (including 15% of cultivators and 10% of agricultural laborers).¹⁰ Although agricultural workers constitute a minor portion of the working

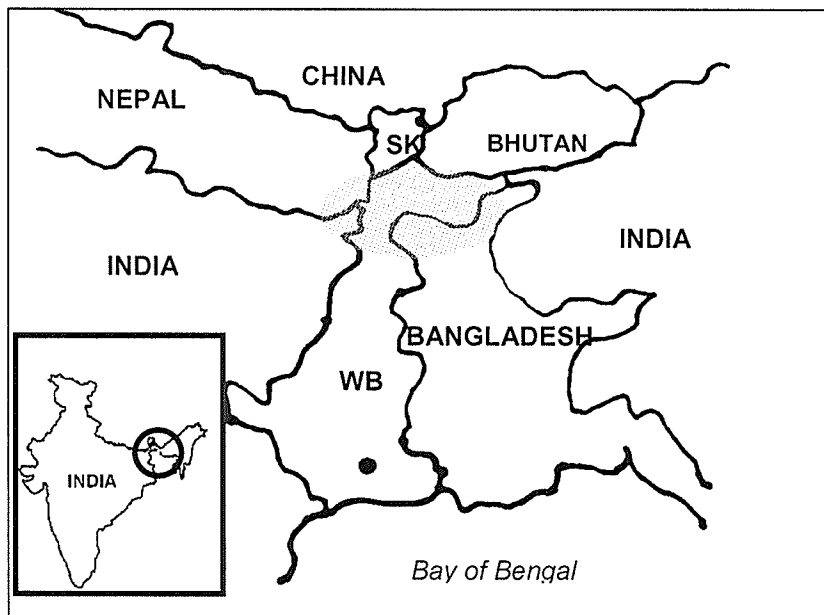
⁹ The Directorate of Census Operations of West Bengal (2003) defines a town/urban area as having: (1) a minimum population of 5,000, (2) at least 75% of the male working population engaged in non-agricultural pursuits; and (3) a density of population of at least 400 per square kilometer.

¹⁰ The term "employment" here includes the main and marginal workers (Census of India 2001). According to Census of India 2001, a **main worker** refers to "a person who has worked for 6

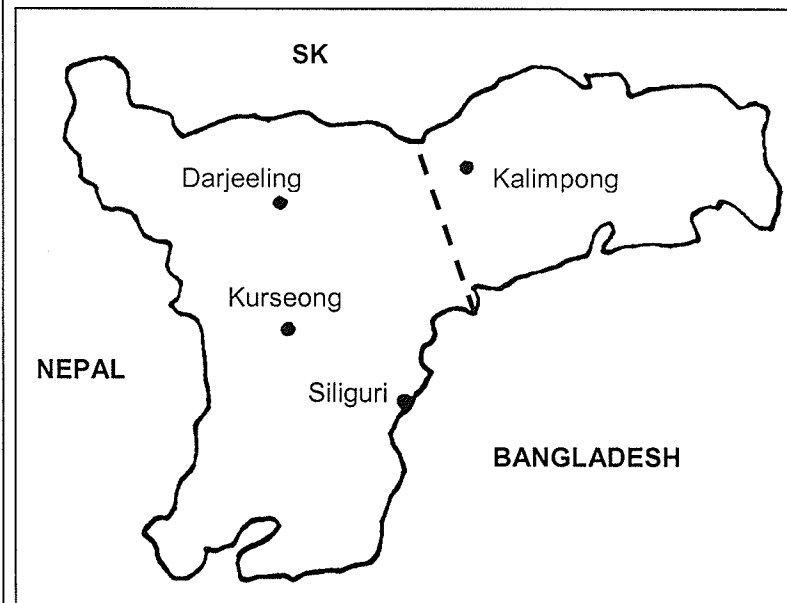
population, the majority of the population in the Darjeeling District (68%) lives in rural areas (Census of India 2001). Generally the proportion of agricultural workers in the district has been decreasing from about 40% to 25% in 40 years (1961-2001) and is below the West Bengal average (44% of the total workers in 2001) probably due to the rise of the service sector. On a day-to-day basis, rural livelihoods in the Darjeeling Hills need to adjust to very underdeveloped infrastructure such as, among others, a lack of proper transport and communication facilities, access to primary health care, safe drinking water, and power supply (Khawas 2002: 6). For instance, according to Census of India 2001, about 39% of the rural households in the Darjeeling District do not have access to both electricity and latrines –compared with only 6% in urban area. This percentage increases considerably when considering only scheduled castes (about 55%) and scheduled tribes (about 50%).

At the same time, and considering that West Bengal remains one of the poorest of Indian states (Crooks and Sverrisson 2001: 36), the Darjeeling District benefits from activities related to forest resources, tea plantations, tourism and transport linking urban centers. According to the District Rural Development Authority, Darjeeling, Annual Action Plan (1989-90), the amount of cultivable land in Darjeeling District equals 19% and uncultivable land equals 81% (of which 28% is forest). Darjeeling has 28% of the area under forests, a considerably higher proportion compared to the national average of 22% (Datta et al. 2000: 28). Interestingly, the district benefits from a high literacy rate: nearly 67% of the rural population is considered to be literate compared to 84% in urban areas. Also, the literacy rate is gender biased with 77% of literate men in rural areas compared with about 56% of women. The literacy gap between men and women is less in urban areas.

months or more during the last one year preceding the date of enumeration. A **marginal worker** refers to "a person who has worked for less than 6 months. A **cultivator** is a person "engaged in cultivation of land owned or held from Government or held from private persons or institutions for payment in money, kind or share. [...]". An **agricultural laborer** is "a person who works on another person's land for wages in money or kind or share. A **non-agricultural worker** can work in household industry (i.e., "industry conducted by one or more members of the household at home or within the village in rural areas and only within the precincts of the house in urban areas) or as Government or semi-government employees, municipal employees, teachers, doctors, factory workers, plantation workers, pleaders, those engaged in trade, commerce, business, transport, banking and insurance, mining, construction, political or social work, priests, entertainment artists etc." (Census of India, Directorate of Census Operation, West Bengal, 2003, Added emphasis)



A. The State of West Bengal



B. The Darjeeling District

FIGURE 4.1: Location of the Darjeeling District

Legend

- SK:** State of Sikkim
WB: State of West Bengal
 ● Kolkata
 [Stippled Area] Darjeeling District
 ----- Teesta River

Importantly, those figures need to be taken with caution because interpretations of literacy rates might be more complex than often portrayed. First, no definition of what "illiterate" means has been found on the Census of India website (<http://www.censusindia.net/>). For instance, a person who can read and write one's name in one's mother tongue can be counted as literate. That said, literacy rate still gives an idea of proportions compared to the local and regional contexts. On average, the literacy rate in the Darjeeling District is higher than the literacy rate in the overall West Bengal - 64% in rural area and more than 81% in urban area. Among other related factors, the missionaries in the region acted as a catalyst for the promotion of education both in urban centers and rural areas. This is important because education is one of the key determinants to bring about change in agrarian relations. As Subba (1985: 135) puts it: "education is found to be important in alleviating one's class position and changing the value system of the society from agriculture-centered to service-centered." Second, as Sengupta and Gazdar point out (1997: 182-3): "Well-being achievements do vary widely even at a similar level of private income. West Bengal itself is a significant example of a state in India that has had relatively better health and educational conditions in rural areas, in spite having some of the lowest levels of private income".

AN OVERVIEW OF YANGKHOO

"We have problems in everything." (Rupa Rai, villager, Yangkhoo)

This section describes Yangkhoo from a livelihood perspective, focusing on the different assets of the village area (i.e., geographical and physical, administrative and political, demographic and socio-cultural, economic and technological, and human assets – or capital). In reality, assets are not well separated from one another but are interrelated.

▪ Geographical and physical assets

Yangkhoo village ("busty")¹¹ is located in the Darjeeling sub-division of the Darjeeling District. It is five kilometers on the opposite slopes of Lebong (1809 meters), a small market 13 kilometers just below Darjeeling town (2134 meters). Because of Lebong's warmer climate (about 10 degrees difference with Darjeeling town), one of the first experiments of tea cultivation in the Darjeeling District between 1840 and 1850 started on the Lebong slopes (O'Malley 1907: 201, Das Gupta 1999: 1). Altogether, Lower Harsing, Yangkhoo and Dabaipani are revenue villages (i.e., a local term referring to landownership status. In revenue villages, people have ownership rights on their land and pay land revenue tax to the state government. Conversely, in non-revenue villages, people do not have ownership rights on the land and make most of their living working in the forest reserves, owned by the West Bengal Forest Department, and the tea plantations -- Chakrabarti et al. 2002a). The landownership status of these villages used to be different as they were part of a local tea estate¹², Lebong and Mineral Spring Tea Estates. The area is now called "Mineral Spring". Figure 4.2 (A) shows that except for one revenue village that has never been part of any tea estates, the other surrounding settlements are still part of tea estates (Plate 6.4).

Yangkhoo village (elevation 700-1371 meters) lies at the base of the Senchal Mountain. The climate is warm enough on the lower part for orange cultivation. Higher, the vegetation changes from subtropical forest to temperate forest. Here, the climate is cool and humid, suitable for the cultivation of Darjeeling tea. Just above the Senchal Mountain stands Tiger Hill (2590 meters), the highest spot in the Darjeeling sub-division. Various streams surround Yangkhoo. During the monsoon period, those streams become difficult to cross and contribute to the physical isolation of the place. Rainfall amounts are high from June to September (e.g., between 1994 and 1999 the Meteorological Department of India recorded an average rainfall of 638mm during those months) and low the rest of the year (68mm average) -- (Fareedi and Lepcha

¹¹ Busty is a local term and connotes a rural and relatively remote settlement.

¹² In this study, the term "tea estate" refers to a socio-economic unit producing and processing tea in a delimited area and including workers settlements. The term "estate" is used instead of "garden" because the former (such a(s) Mineral Spring Tea Estate -- see details Chapter 5) refers to a larger tea plantation in terms of surface area than the latter (i.e., less than 40 hectares).

2000:3). Temperatures are mild and oscillate between five to 25 degrees. The mountain slopes are convex and steep with small terrace farming. Soil is mainly rocky and thin. The Senchal Wildlife Sanctuary borders the South and Southeast sides of the village. In 1915, the Senchal Forest was declared a wildlife sanctuary. It is the oldest sanctuary in the country with an area of 39 square kilometers. The sanctuary also serves as a water reservoir for Darjeeling town (Plate 4.2).

▪ **Administrative and political assets**

Administratively, Yangkhoo comes under the Darjeeling Sub-division and Leborg I and Leborg II Gram Panchayats (Leborg Valley Constituency). The Gram Panchayat is the lowest level of self-governance within the Indian Constitution (73rd Amendment, 1992). Since 1983, Yangkhoo is part of Bijanbari Block Development Office.¹³ Tea estates compose most of the Bijanbari block. Although an autonomous council, DGHC (Darjeeling Gorkha Hill Council), with independent power from the West Bengal government is investing significant funding in this block for road construction, the area suffers from a lack of education facilities and an absence of electricity in some villages. Mineral Spring water could be developed to attract tourism but no strategy has been undertaken so far. The road passing through Mineral Spring is supposed to link Darjeeling to Siliguri and is still under construction. It is a strategic route because events such as in 1968 showed that some of the other roads (e.g., Darjeeling-Kurseong) are prone to large landslides.

The land status of Yangkhoo and the surrounding villages, Harsing and Dabaipani, stands apart from the majority of the Bijanbari block and Darjeeling sub-District. With the closure of the tea estate, the villagers gained *de facto* landownership in 1965, and finally *de jure* landownership in 1984-85. The status of the village switched from tea estate to revenue village. The latest unofficial governmental land survey (1995-96) shows that the average size of landholdings has been considerably divided and reduced because of the increasing population and people falling back on agriculture after the closure of the tea estate (Plate 5.8.B). Today, the size of landholding in

¹³ Within the Indian administrative land division, each state is divided in "districts", "subdivisions", "blocks" and finally "mouzas". Gram Panchayats represent the Mouzas, Panchayat Samits represents the Blocks and Zilla Parishad Panchayats represent the Districts.

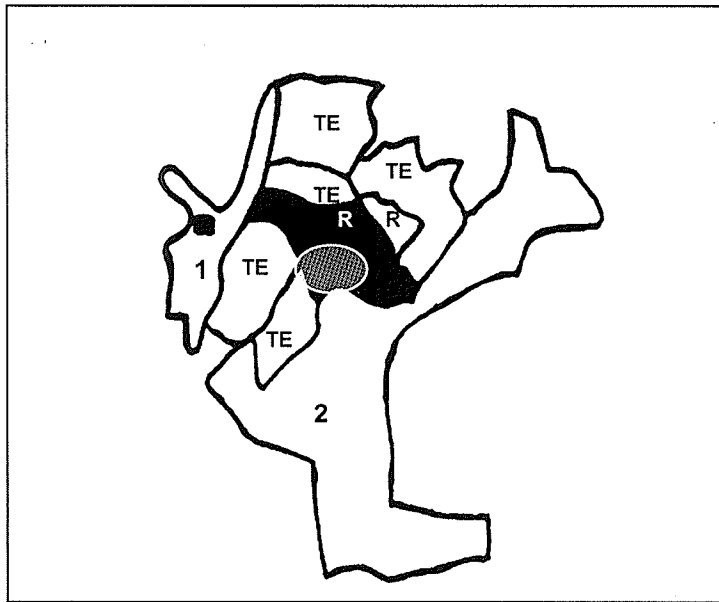
Yangkhoo varies from 0.12 to 4 hectares¹⁴. Land use intensification in Yangkhoo also corresponds to a major change in the entire Darjeeling Hills. On average, the size of landholding in the Darjeeling Hills declined from 18 hectares in 1931 to 0.4 hectare in 1981 (Chhettri 1999: 49). It can be noted that a landholding less than 2.8 hectares is not considered to be economically viable (personal communication, retired professor Das Gupta, Department of Economic, University of North Bengal, November 2004). One consequence has been the birth of a new class of landless laborer since 1961 in the Darjeeling Hills. That said, generally competition for land is less intense in mountainous areas than in the plains partly because mountain areas are characterized by smaller plots of land and non-irrigated land, which is economically less productive than most of the land in the plains.

▪ **Demographic and socio-cultural assets**

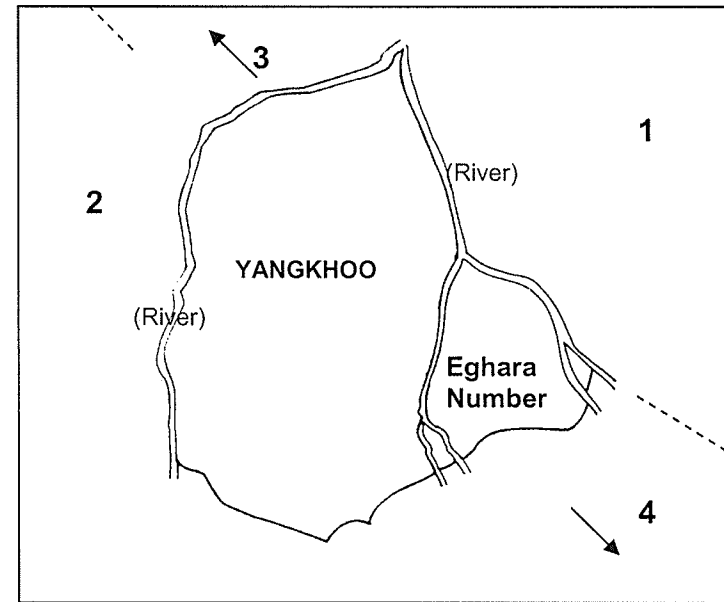
1. Settlements and landholdings

In 2004, Yangkhoo consisted of 68 households, divided into two distinct hamlets, 15min apart by foot on two sides of a stream: Yangkhoo (52 households) and Eghara Number (16 households). Yangkhoo can be divided in three different clusters of settlements: "Lower Yangkhoo", "Middle Yangkhoo" and "Higher Yangkhoo" with a range of 12 (Lower Yangkhoo) to 23 houses (Middle Yangkhoo). In late 1950s - early 1960s, Yangkhoo was still part of a tea estate and the latest official map from the Land Department recorded only 16 households in Lower and Higher Yangkhoo (Plate 5.8.A). Eghara Number and the rest of Yangkhoo were covered with tea and forest owned by the tea estate ("tea estate forest"). Literally, "Eghara Number" means "Number Eleven" and refers to the administrative land division during the time of the tea estate. To date, no consensus emerges on the meaning of the name "Yangkhoo" and further research needs to be done on the subject. It might come from the Sikkimese, Bhutia, Limbu, Subba, or Lepcha languages.

¹⁴ In the Darjeeling Hills, acre is used as a common unit (1 acre = 4000 m² or 2.5 acres = 1 hectare)



A: Mineral Spring Area and surrounding



B: Yangkhoo village and its two hamlets

FIGURE 4.2: Location of the study site

Legend A:

- 1: Darjeeling Municipality
- 2: Senchal Wildlife Sanctuary (Forest Department)
- TE: Tea Estates (including non-revenue settlements)
- R: Revenue villages
- Mineral Spring Area
- ▨ Yangkhoo village

Legend B:

- 1: Dabaipani Village (within Mineral Spring Area)
- 2: Senchal Wildlife Sanctuary (Forest Department)
- 3: Towards Harsing, Lebong and Darjeeling Town
- 4: Towards Kalimpong Town



PLATE 4.2: (A) Dispersed settlements in Lower Yangkhoo with small terrace farming and farm trees. (B) Pandam Tea Estate (R of the bridge), Senchal Wildlife Sanctuary (N and L of the bridge), settlements in Lower Yangkhoo (L of the bridge)

As in most of the Himalayan region, people's landholdings are dispersed rather than contiguous. Two households even have land in a nearby village. The settlements are also scattered along the mountain slopes and fairly independent from each other (Plate 4.2). Scattered households characterized the entire region. "Traditional villages" defined in sociology and anthropology as a close group of households with high social capital, are not common. As O'Malley (1999: 40) describes in 1904:

Villages, in the proper sense of the term, are almost unknown. In the hills with the exception of the coolly lines on the various tea plantations, each homestead stands in its own land near the patches of cleared cultivation, though occasionally five or six houses are grouped together; and there is no corporate village life such as there is in the plains. Even in the Tarai the social unit is the farm, not, as elsewhere in India, the village.

Subba (1989) studied the dynamics of castes in the hills of Sikkim and Darjeeling, including two village case studies in the Kalimpong sub-division. Subba (1989: 55) also reports on the socio-cultural aspects of dispersed landholding:

The houses are isolated and the distance between houses of a cluster is often more than 100 metres. [...] This perhaps indicates the individualistic personality of the Nepalis. Corporate feeling even within a clan is often missing and unless situations so demand it does not arise. This aspect of the Nepali society is responsible for their not being able to do anything jointly without an overarching figure, be that a king or a commander, to get them do something. Their voluntary corporate ventures have always fizzled out much before the goal is reached. This is precisely why I have called the Nepali solidarity a "negative solidarity [...].

2. *Ethnicity, caste and belief systems*

The people of Yangkhoo are the third or fourth generation Nepali immigrants who came to work in what used to be a tea estate (Fareedi and Lepcha 2000: 35). The caste system in Yangkhoo as well as in the entire Darjeeling District is not as strong as in other parts of India -- However, the caste system might increase now with the rise of migrations from South India (Hindus). Subba (1989: 94) confirms this observation: "even within the Nepalis, the high castes do not own more land than the lower caste". In Yangkhoo, it is the result of a double process. First, when the migrants came to work in the tea estate they left their caste behind. Migrants obtain work and land on a "first arrived, first serve" basis rather than on a caste basis. However, disparities of

landholding were there as who arrived first in the tea estates got more land and/or better land. Second, the same disparities during the time of tea estate, which did not correlate strongly with the caste system, remained after the closure when the process of "land grabbing" took place.

Yangkhoo is culturally homogeneous. The people of Yangkhoo are Nepalese (some originate from Nepal, others from Bhutan), among which 74% is of Rai origin. Other ethnic groups are: Mukhias 16%, Tamangs 6%, and Chettris 4%. The traditional activity of the Rais is agriculture and animal husbandry. Originally, the Chettris are a higher caste than Rais and refers to a fighting caste (warriors). Tamang are a middle (lower) caste and originally refers to the horse traders (cavaliers) (Subba 1989: 56). The traditional activity of the Mukhias seems to be related to basket making (key informant, Darjeeling). Rais and Tamangs are more tribal in nature than the Mukkias and do not come under the typical caste system.

The villagers from a Rai ethnic background reported to be "Kirant", to belong to the "Kiranti group". According to the literature, Kirant are a Tibeto-Burman branch of the Sino-Tibetan language group mainly located in the mountains of East Nepal, but also numerous in Sikkim, Darjeeling and Assam. No consensus emerges on the origin of the Kirant identity (Schlemmer 2004).¹⁵ Rais are divided in clans and each clan has its own traditional language (Subba 1989: 37). In Yangkhoo, the Rais are divided in two clans: the Kulung and the Sunar Rai, the latter being settled in Higher Yangkhoo. Although they define themselves as Hindus, they also practice their own religion and traditions, which is not legally recognized by the Central Government. As stated in the West Bengal Directorate of Census Operations (West Bengal, 2003, Census Concepts, <http://www.wbcensus.gov.in/HouselistingF/Definations.htm>): "Under the

¹⁵ According to Schlemmer (2004), "Kirant are approximately one million (around 5% of the Nepalese population), speaking Tibeto-Burmese languages". During the second part of the 18th Century, the founder of the modern Nepali State "progressively suppressed the privilege of this ethnic minority by a slow but continuous movement of land spoliation, a limitation of political rights and an imposition of a strict Hindu model. Resistance movements appeared since the time of the conquest, but because of the government's repression, claims were mainly carried by the migrant community in Sikkim and Darjeeling." Schlemmer demonstrates how the Kirant origin has been constructed "out of a mix of information borrowed from the traditional myths but also from classical Sanskrit literature and from western writings about these populations in particulars". In the end, the different uses of the term refer to a debate on identity and legitimacy of different ethnic groups in Nepal and surroundings.

Constitution (Scheduled Castes) Order, 1950, no person who professed a religion different from Hinduism was deemed to be a member of a Scheduled Caste. [...] Later on, as per amendment made in the Constitution (Scheduled Castes) Order 1990, the Hindu, the Sikh and the Buddhist were placed on the same footing with regard to the recognition of the Scheduled Castes." Traditional worship in Yangkhoo relate to the natural environment (land, forest, water). For example, the villagers of Rai ethnic background believe land and forest are gods and worship them once or twice a year ("Bhumi Puja" and "Jungle Ko Puja"). They also worship water sources where the powerful snakes are ("Naag Puja"). Bamboo, ginger, banana leaves and homemade alcohol play an important role during worships.

The ancestor worship ("Khul Pitra Puja") also constitutes an important part of the tradition and culture. Respect for the ancestors is a crosscutting theme and appears in many ceremonies (e.g., "sawule") as well as in day-to-day life. For religious and socio-cultural ceremonies, Rais invite a traditional priest or shaman ("bijuwa" or "jhakri"). Each clan has its own shaman, who comes from within the village or nearby villages. Today, Yangkhoo has two shamans (male and female). The villagers forgot their traditional dialects but the shamans are still worshipping in one of the Rai languages during religious and socio-cultural ceremonies (at times of sickness, birth, death, and wedding). Another important function of the shaman is to transmit traditions and oral history ("hearsay") through the origin myth.

Overall, the place of culture, festivals and worships is important. Religious festival can represent a significant part of the household's expenditures. On average, 17% of the household's expenditure (n = 5) is devoted to "socials" (i.e., festivals, social programs, alcohol -- The use of alcohol in the Rai community related to customs -- Plate 4.5). This proportion does not seem to correlate positively with the social-economical status of the household (i.e., the poorest households do not seem to spend a lower percentage of their income for "socials" than richer households). Villagers rarely eat meat but festivals are also the occasions for Rais to eat pork.

▪ Economic and technological assets

1. *Central and peripheral livelihood activities*

Central livelihood activities at the time of fieldwork activities included: sale of cash crops (i.e., tea, ginger, cardamom, and *Amliso*), animal husbandry (i.e., sale of milk, cows, pigs, goats), agricultural and construction labor (jobs related to the road construction) inside the village, service holder positions, pensions, and local private business (shop, local brewery, coal and planks making, middlemen, contractor). Peripheral livelihood activities included: subsistence crops (especially maize), vegetables and fruits for subsistence and sell, sell/exchange of cardamom seeds, collection of grass, fodder, and firewood. It is difficult to rank those activities by order of importance as it varies from one household to another (spatial variations) and most of the time different activities are also combined within one household. The importance of livelihoods activities also varies from time to time depending on resources availability (temporal variations).

2. *Transportation services and access to markets*

Today, Darjeeling town is the second largest market in the Darjeeling District after Siliguri, 80km away on the plains. Well-known internationally for the production of finest tea, Darjeeling is also a central point in the region for international and Indian tourism, supported by the climate and the natural beauty of the surroundings, including views of Kunchenjunga (8598m) in Sikkim -- the third highest mountain in the world. This aspect probably contributes to give Darjeeling a more westernized and less conservative touch, at least superficially, than other hill stations in India. It is even common to see locals wearing western clothes in the rural area of Darjeeling District, as in Yangkhoo – another factor influencing the western orientation in clothing might be the absence of mass produced cold climate wear in India. The hill station is fast growing with a growth rate of more than 47% between 1991 and 2001. Today, the population reaches more than 107,500 habitants with a density of 10,200 habitants per square kilometer (Census of India 2001)!

A paved road links Darjeeling to Yangkhoo and it takes about one hour by jeep to cover the distance. This road has been open to vehicles since 1995. Although transportation improved immensely since then, only one wave of two-three jeeps per day departs early mornings to Darjeeling bazaar and comes back early afternoons. One legacy of the tea estate time are the small and steep paths, locally called "pony roads", inside the village. Most of them do not have stones and steps, and erosion increases during monsoon. Cement bridges between Yangkhoo and Eghara Number have replaced bamboo bridges and are funded by the local Panchayat (Plate 4.2). A jeep road linking Lower Yangkhoo to Middle Yangkhoo, where the school and the library are, is now being constructed. It started in 2003 with DGHC funds. The construction of the village road is facing many problems. It is on a landslide site. No study has been done to evaluate the landscape and the possible impacts of the road on the area. The local contractor is supposed to build the drainage system after the construction of the road itself! Finally, the Emergency Department of DGHC responsible for the road construction faces a lack of competent engineers and skilled labor.

3. Health services

For health services, the villagers have to go to Darjeeling town. The Darjeeling municipality has a total of eight medical institutions (three hospitals, three clinics, and two dispensaries) with 358 beds and 30 doctors, which is the highest in the sub-division (Fareeda and Lepcha 2000: 50). That said, Fareeda and Lepcha (2000: 51) show a pessimistic view of health services at the level of the Darjeeling District and conclude after analyzing data from 1995-1999: "the growth in medical infrastructure/institutions has not kept up in pace with the growth in population". Staff of the Health Department (DGHC) comes to the village to provide services such as vaccinations. Two women in the village are employed through the national policy for children, "Integrated Child Development Schemes" (ICDS). The program is supposed to help children and nursing and pregnant women with nutrition especially. In 2004, the number of children per married woman in Yangkhoo varied from zero to nine with an average of 3.9 children per household. It is close to the national average but lower

than the West Bengal average.¹⁶ The road construction brought tremendous changes in terms of health care as people used to carry sick people by foot up to Darjeeling town. Progressively, the road also contributed to change the villagers' mentalities about health care. Thirty years ago, villagers were more superstitious and used to refuse to bring sick people to the hospital. Many of them used to die on the way. Nowadays, a jeep can be booked on credit. Sick people can also obtain psychological support from the shaman. The villagers still use local medicines for minor injuries (see section "skills and employment" on local knowledge).

4. House, electricity and sanitation

A settlement consists of a main house (living room and bedrooms) together with a separate building for the kitchen, a cowshed, chicken house, pig/goat house, and eventually a cardamom kiln to dry the rhizomes, built with a mixture of mud and cow dung. Almost all the buildings are made in wood (beams, facades) and/or a mixture of bamboos and mud-cow dung mixture; corrugated iron sheets are used for roof and sometimes also as facades. Iron sheets are becoming more common as "below poverty line households" can obtain them from the Gram Panchayat. Although, some households still have some plots of "khar", a kind of thatching grass grown outside of farmland, thatched roofs are now disappearing but are still used for cowsheds. The kitchen fireplace ("chula") is made of mud (Plate 2.1). A few houses have been constructed in cement (5-6 houses) especially after the road construction.

The furniture depends on the socio-economic status of the household: at least people will have wooden beds and, if more prosperous, they have living-room furniture. About 22% of the households have television that runs off generators. Only three villagers own a landline telephone and two others have applied for it. Two villagers have a mobile phone. The village is still not equipped with electricity in contrast to some of the surrounding revenue villages. One of the main reasons is: the village road construction needs to be done first to be able to carry the electricity transformer. Further, the

¹⁶ In India, the average number of surviving children per married women aged 45-49 years is 3.7 (with 3.8 in rural area and 3.6 in urban area). In West Bengal, the average number equals 4 (with 4.3 in rural area and 3.3 in urban area). Although the average number of children per married women is even lower in urban areas of West Bengal compared to the national average, the figures show a huge bias toward the rural areas of West Bengal. (Census of India 2001)

Mineral Spring area is vast with scattered settlements, which makes the electrification process more difficult. The villagers rely on kerosene oil for light (i.e., wick lamps locally called "dhibri", and lanterns), and firewood for cooking purposes. Households have individual outdoor latrines at a few meters from the main house (i.e., a dry type of latrines with manual scavenging and with iron sheets or wooden walls, or simply surrounded by a tarpaulin). However, some households still do not have outdoor latrine at all.

5. Drinking water and irrigation

Today, every household has access to drinking water. PVC (Polyvinyl Chloride) or polythene pipes are connected to stream fed tanks collecting water from sources in private lands and the governmental forest. These progressively replaced traditional bamboos pipes. The villagers rely on two different types of water tanks: the old ones built by the Public Health Engineering Department in 1995, and the new ones built by the local NGO, DLR Prerna, in 2000 with international funds. Both are supposed to be maintained at a collective level. Water is abundant especially during the monsoon season. Yet, some households in Lower and Middle Yangkhoo reported to have water shortages during at least one day on a monthly basis due to lack of maintenance, water pumping higher up, and diversion of water for cardamom fields. No restriction has been placed on the number of private pipes people can connect to the water tanks because, in theory, water is abundant. People use their individual pipes to irrigate vegetables and crops close to their house. For more distant plots, no specific irrigation system is in place. Some households, especially in Higher Yangkhoo, build small channels and divert stream water for their cardamom fields. Others have to irrigate their crops with water buckets during the dry season (December-March).

6. Income-expenditures

No fixed source of income *per se* seems to prevail. Indeed, the main sources of income vary (1) from one household to another (horizontal variations) according to the amount of land, the level of skills and education of the household members, the number of children (and if children go to school outside of the village), personal

initiative, the fluctuations of prices on the market, natural cycles (milk production, bamboos blossom¹⁷), diseases, the amount of wild animal threats etc. and; (2) inside the household from one year to another (vertical variations) according to events in the households (e.g., death of members, births). Generally speaking, the main source of income for the poorest households (according to local standards) is agricultural labor. Those households tend to have small plots unsuitable for cardamom (dry land) and/or no tea bushes. The middle and rich households are cultivators (cash crops) and complement their livelihood activities with income from the livestock and seasonal or regular employment.

The average income is about 4,500 INR (Indian Rupee) per month (100 USD)¹⁸ for a middle household, and can be multiplied by more than three times for a rich household. With $n = 5$, income fluctuates from 2,600 INR (59 USD) per month up to about 15,000 INR per month (337 USD). However, those figures have to be taken with caution (see Chapter 3, "note on income-expenditure exercise"). Villagers' income-expenditures are always difficult to measure especially because people do not keep accounts and tend to overestimate their expenditure and underestimate their income. Income gaps probably mean that villagers tend to deliberately omit illegal business related to forest uses (charcoal and plank business). Indeed, although forest business is decreasing, it is still a relatively lucrative business. Nonetheless, it is safe to say, both from those figures and direct observation of peoples' assets, that important socio-economic disparities inside the village among households (e.g., in terms of size of landholdings, quality of land, level of education) characterize the village socio-economic structure.

▪ Human and institutional assets

1. Education

The majority of the households interviewed ($n = 36$) has no education but has children going to the local school. A primary school is operational in Middle Yangkhoo. It includes a nursery and primary (classes I-IV) sections. Four teachers (from Yangkhoo

¹⁷ In the bamboo life cycle, the bamboo blossom corresponds to the death of the bamboo tree.

¹⁸ In this study, 1 USD equals 44.50 INR.

and surrounding villages) are appointed for about 40 students. The West Bengal government does not yet recognize the school and the teachers' salaries are relatively low (1000 INR per month – i.e., about 23 USD per month). School services are free since 2000, when the UNICEF (United Nations International Children's Emergency Fund) and DGHC started funding it. Before, the villagers themselves were directly paying a teacher from a nearby village to run the school. Some villagers also mentioned that 26 years ago, a night school was running in Lower Yangkhoo before a landslide swept it away.

On average, school attendance has increased in the last five years. In particular, attendance for the nursery section is not regular because parents do not force their children to go. Attendance for class I-IV is more regular but the drop out after class IV is high because secondary schools are far away in Lebong and Darjeeling, taking up to four hours one way by foot (personal communication, director of the school). The villagers with higher standard of living and social networks (e.g., relatives living in town) can afford to send their children to secondary school after class IV. School expenses constitute an important part of the household expenditure when the children go to secondary school outside of the village (from 30% to 75% of the household expenditures with $n = 2$). A youth group discussion also showed that youth, themselves, were conscious of the importance of education (Plate 3.1).

2. Skills and employment

Figure 4.3 illustrates the distribution of skills in Yangkhoo by activities and by gender. The Figure shows that the villagers are skilled in different farm and off-farm activities. In this study, farm activities include income from subsistence and cash crops and animal husbandry. Off-farm activities include income from pension, sell of alcohol, planks and charcoal, service holders, and shop keepers. Most of those skills come from their tea estate background, the interventions of NGOs, private and governmental sectors, as well as the exchange of information, labor and skills with neighboring villages, experience, and trial-and-errors techniques. Job opportunities inside the village are limited and are nearly non-existent outside of the village partly because of the lack of education and transportation, and the concurrence within overpopulated

urban area. Few villagers are doing temporary labor work with the nearby villages and tea estates. The only other options outside the village for youths are to work in the army or as security guards in Darjeeling town. A majority of the households interviewed (n = 20) perceived education and employment as the main problems the village faces. It should also be mentioned that generally the Nepalese in India are seen as low class labors, which has an impact on employment types and opportunities.

3. Institutional and organizational assets

Table 4.1 describes the role of the major institutions and organizations currently influencing Yangkhoo. Seven institutions are active in Yangkhoo including a village society (Samaj), a traditional panchayat, shamans, a local school, a village education committee, a library, a women self-help group, and a panchayat elected representative with a Beneficiary Committee. Three major multi-village level institutions are active at the level of Mineral Spring area including: a community cooperative (SVC), a political committee (the GNLFC Shakhha Committee), and cultural organizations (Mukhia and Kirat organizations). At other levels, various organizations are at play including a local NGO (DLR Prerna), governmental agencies (including DGHC), and private sector (Tea Promoter of India, Selimbong Tea Garden, markets, and financial donors).

ASPECTS OF FARM MANAGEMENT

This section describes how the villagers utilize their land and build up their agro-ecosystems. The sources of farming activity rely on cultivable land and forest areas (on-farm trees and government forest), and mainly get absorbed by the farm units (kitchen, house and livestock).

▪ The land, crops and plants

Subsistence crops include maize ("makai"), millet ("kodo") and soybean ("bhatamass") but they are cultivated in a very small amount, mainly due to preference for cash crops, lack of land and threats of wild animals from the adjacent wildlife sanctuary. Maize is used as appetizer for home consumption, as food for livestock (pigs and

poultry) and as a base for homemade alcohol ("jaanr" pronounced "jaar") – Plate 4.5. Except for tea introduced in mid-19 century, the villagers have been relying on indigenous crops: ginger, cardamom and *Amliso*, cultivated in the region before the British colonization. Those crops are well adapted to the ecosystem (e.g., sloping land) and, over time, they all became part of a cash oriented production. Appendix VI describes the history, uses, main characteristics of each cash crop as well as related aspects of the production and marketing systems. Two villagers on the lower part of the village also have mandarin orange orchards (*Citrus reticulata* or the Sikkim madarin) yielding between 2,500kg and 3,500kg in 2003 (DLR Prerna 2004).

Although not grown locally, white rice is the main daily food along with dal¹⁹ and local vegetables. White rice is part of custom and very important in Nepali and Indian cultures. It plays an important role during all the religious (traditional and Hindu) and socio-cultural ceremonies (e.g., stages of individual growth). White rice is more appreciated and better perceived than other starch crops. Maize and millet are perceived as food of the poor whereas white rice connotes a wealthier socio-economic status (see also the importance of colors: dark/white in reference to millet/rice). Villagers are dependant on the markets or local shops and sellers to buy most of their basic food (i.e., rice, flour, wheat, mustard oil, sugar, salt, onion, spice, dal, vegetables, meat and fish -- more on this aspect Chapter 6, section "Tea estate legacies". Basic food constitutes the major source of household expenditure (n = 4) and represents on average more than 45% (n = 5) of the total household yearly expenditure. However, the proportion of money spent for basic food varies among households from 8% to 75%. More prosperous households are able to spend money in other sectors such as secondary education.

The villagers manage to maximize the limited land through complex agro-forests, where cardamom is cultivated within forest areas benefiting from the shadow, moisture and nutrient of trees (Plate 4.3). Aside from inter-cropping in forest areas, villagers also practice polyculture in cultivable land. Integrated farming practices transform each field into a luxurious ecosystem combining tea bushes, other cash and subsistence

¹⁹ Dal is a thick soup made of different varieties of lentils; usually eaten with rice.

crops, fruit trees, vegetables and other edible plants²⁰. Terraces with vegetables are mainly around the house, instead of on further distant plots of land, to limit the impacts of wildlife threats (Plate 4.1). Wildlife and pests attacks on crops and vegetables are one incentive for diversification mechanisms. Wildlife includes monkeys, wild pigs, rabbits, "dumsy" (kind of porcupine), birds (e.g., "kokole", "mater", "mashan"), deer, and rats. Only tea bushes and ginger seem to be immune to grazing by wildlife. However, landholding and ecological diversifications also have their own limitations. The distances from one plot to another can inhibit monitoring. At the same time, diversification is also more labor intensive (e.g., manure, irrigation). This is especially the case during tea plucking seasons because the time between plucking and processing has to be reduced as much as possible.

Terraces are one key element of sloping land farming systems. Most of the farming terraces in Yangkhoo are very small and poorly prepared and maintained. Gravity and erosion processes flush the nutrients away, especially during monsoon. At first glance, walls barely appear because of weeds. Villagers interviewed reported that bigger terraces are often not possible because they are labor-intensive and soil is thin and lacking. Rats and boars can dig holes as well, which would increase the instability of bigger terraces especially in rainy seasons. Agriculture is very labor intensive (mechanized labor is not possible). The villagers do not have oxen to plough the land. Farming activities rely on family labor and, if required and affordable, on additional labors from the village ("agricultural labor") especially for tea and ginger cultivation. All farming activities use traditional and rudimentary tools made by lower casts outside the village (Plate 4.4). Income-expenditure exercise (n = 5) shows that some villagers get more income from cash crops (n = 2), others from livestock (n = 3). It fluctuates according to natural cycles and human factors (internal and external to the village).

²⁰ Some of the cultivated vegetables are: peas, beans, garlic, chilies, squash, pumpkin, "mula", "rayo sag" (*Brassica rapa* spp. *campestris* variety *cuneifolia*), "pindallu", and sweet potatoes. Other plants cultivated all year around are sugar canes (Plate 4.1). Some of the fruit trees are: guava, banana, and plum trees.

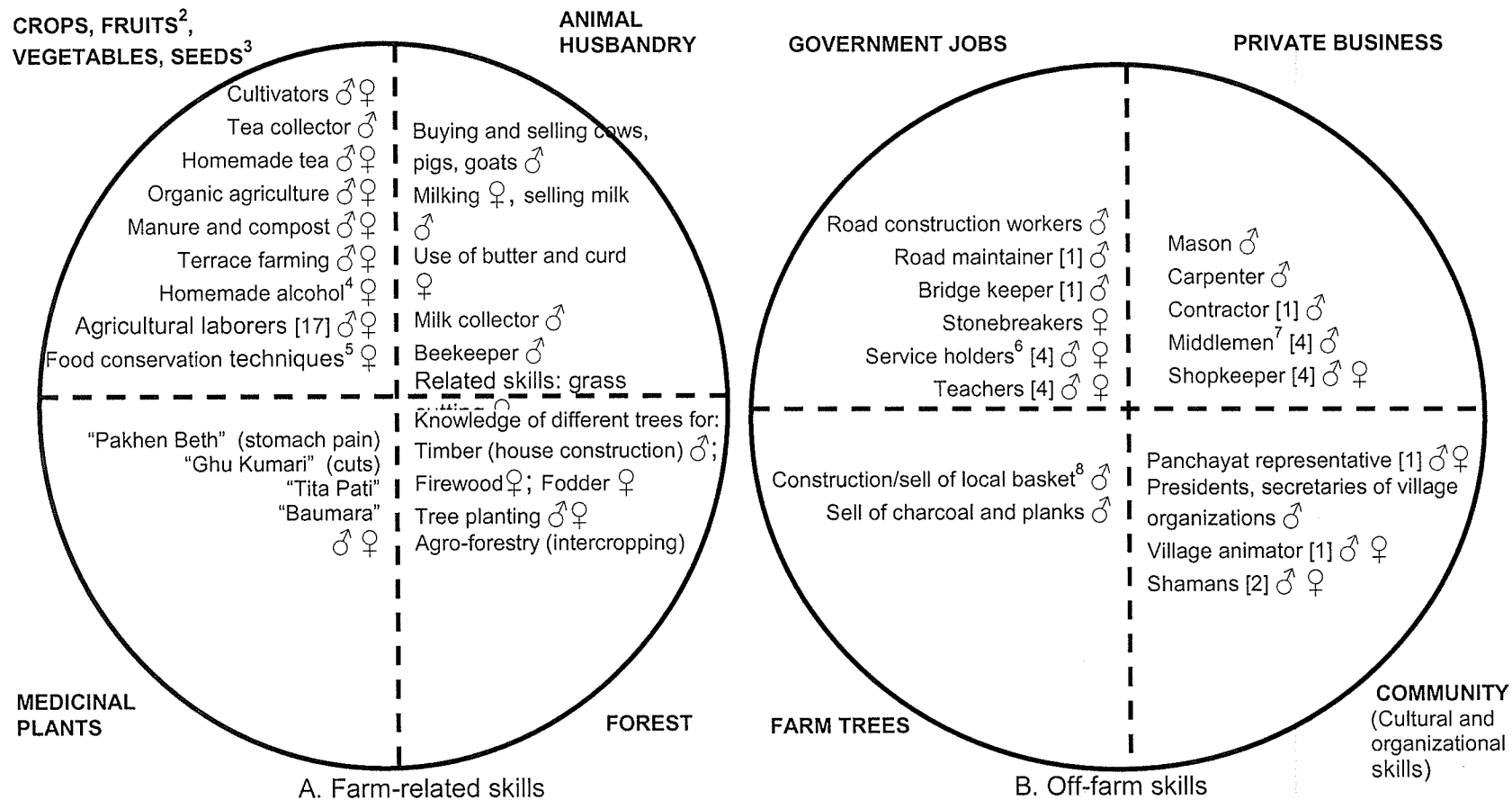


FIGURE 4.3: Skills in Yangkhoo¹

Notes Figure 4.3:

1. The signs "♂" and "♀" refer to men versus women activities. Numbers in brackets refer to the number of villagers involved in the activity at the time of the fieldwork.
2. Fruits include, among others, orange orchards and related skills (e.g., crafting of orange trees).
3. Buying, selling, exchanging, storing (e.g., making pits for ginger seeds) and growing seeds (e.g., cardamom nursery).
4. The homemade alcohol, locally called "jaanr", "white beer" or "Nepali beer", is prepared from fermented starchy material (wheat, millet or rice). "White wine" or "raksi" is distilled liquor, by-product of "jaanr".
5. Conserved food includes: maize, pickles, and local plants (e.g., "Gundruk" is a fermented product of leafy vegetable such as rayo sag, leaves of mustard, radish and cauliflower.).
6. Library and Integrated Child Education Scheme (ICDS) jobs.
7. The roles of the middlemen include collecting and selling cash crops, vegetables and fruits to markets, contacting sellers, advising villagers on when to harvest according to its information of the price of cash crops in the market.
8. The local baskets, "doko", are made of bamboo and used to carry grass, fodder, firewood and crops.

TABLE 4.1: Current institutions and organizations involved in Yangkhoo

Institutions/organizations	Functions
Village level	
Samaj	▪ Welfare committee ▪ Financial and logistical support system in times of accident, sickness, wedding and death (credit system, loans) ▪ Environmental awareness/code of conduct: afforestation programs, informal law regarding use of the governmental forest ▪ Conflict resolution platform and sanctions (between villagers, in village institutions) ▪ Economic development of the village (school, electricity) ▪ Collection of funds for the society from the village ▪ Organization of social events ▪ Discussion platform (monthly meeting)
Traditional panchayat	▪ Traditional village support system formed by elders ▪ Conflict resolution platform on <i>had hoc</i> basis
Shamans	▪ Transmission of oral history and traditions ▪ Link between past/present/future ▪ Religious and socio-cultural ceremonies ▪ Traditional support system in times of sickness, death, birth
Village education committee	▪ Organizational and administrative school support
Library	▪ Education
School	▪ Education
Women Self-Help Group	▪ Financial support system (savings, loans)
Panchayat elected representative	▪ Village development ▪ Allocation of funds for the construction/reparation of houses under the Indira Awas Yojna (House Scheme for Below Poverty Line (BPL) households), bridge and road constructions
Beneficiary committee	▪ Help decision making process regarding the allocation of DGHC/panchayat funds ▪ Supervision of the work

Multi-village level	
Dabaipani Gram Panchayat	▪ Funds distribution for development ▪ Administrative support
SVC (Sanjukta Vikas Co-operative) including a Tea Committee, a Sanjukta Nari Sangathan (United Women Committee), and a Consumer Cooperative	▪ Community organization ▪ Overall supervision of tea process (Collection of green tea leaves, quality inspection) ▪ Financial support system (credit group)
GNLFF (Gorkha National League Front) Shaka committee	▪ Political organization
Mukhia and Kirat organizations	▪ Cultural organizations
NGOs	
DLR Prerna (Darjeeling Lalendra Road Prerna)	▪ Community development ▪ Organizational and administrative support ▪ Financial resources (from national and international funders) ▪ Training (compost, organic agriculture, winter tea cultivation, savings) ▪ Institutional development (tea cooperative, women self-help group) ▪ Physical development (water tanks)
Government	
West Bengal government	▪ Integrated Child Education Scheme (ICDS) (see Fareedi and Lepcha 2000) functions: immunizations, vitamins tablets for mothers, food powder, rice (but ration is irregular) – national scheme ▪ Governmental forest conservation and access regulation
DGHC (Darjeeling Gorkha Hill Council)	▪ Community development (e.g., road construction) ▪ Financial public support system
Private sector	
Tea Promoter of India (TPI)	▪ Financial and organizational support (organic tea certification) ▪ Economic partner (indirect)
Selimbong Tea Estate	▪ Economic partner (buy and process organic green tea leaves) Organic training of farmers ▪ Technical support of tea and other crops (e.g., winter cultivation, manure, plucking, pest problems) ▪ Run internal organic inspection and quality inspection ▪
Markets	▪ Darjeeling, Siliguri ▪ Local markets (surrounding villages) ▪ International organic market
Donors	▪ Banks ▪ Funding agencies



PLATE 4.3:
Cardamom
agroforestry in
Yangkhoo. The
cardamom is a
native plant
cultivated under
tree cover with
humid soil. This
system is almost
self-sufficient

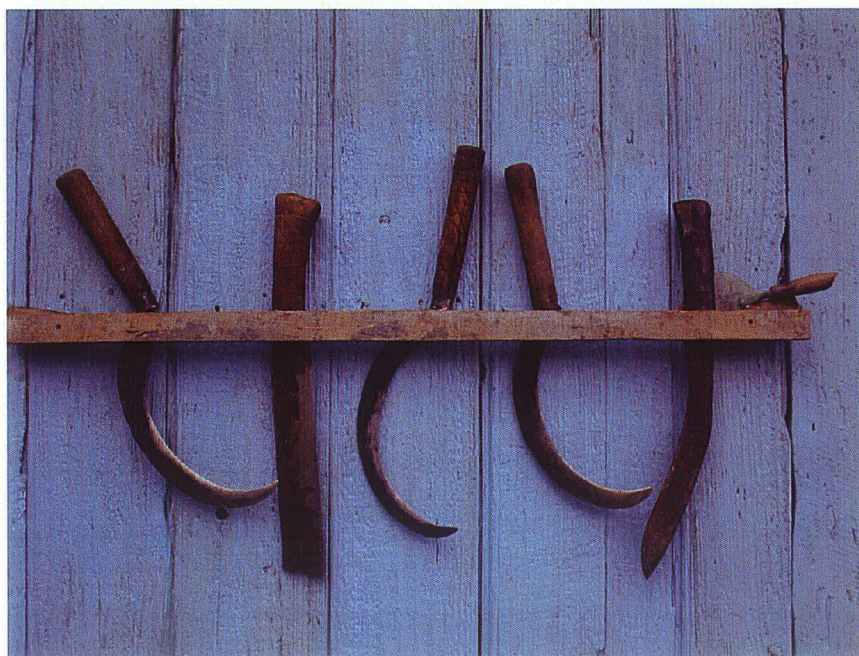


PLATE 4.4:
Traditional tools
(L to R): “hasiya”
for grass cutting,
“chuppi” for
shrubs and small
wood cutting, two
other “hasiya”,
and a “khukhuri”
(traditional nepali
knife) for wood
cutting

▪ The livestock

“Cows are essential for farming, even if you do not make profit out of milk, the cow dung is essential for our crop. Without the cow dung nothing grows.” (Manilal Rai, villager, Yangkhoo)

Nowadays, keeping cows is not very profitable but cow manure (a mixture of cow dung, grass and leaves) is essential to sustain organic cultivation. Not only is the cow manure used for field's fertilization but also for house construction (fireplace, façade). Most of the time, the cow dung is dumped nearby the cowshed, losing much of its humidity and nutrients. This reveals the villagers still need to learn how to improve rearing practices. Each household has on average two to three cows, kept in very basic wooden sheds rarely with four walls. In some cases, the lack of adequate shelter may contribute to health issues and reduction of milk productivity. Keeping cows is labor intensive because each cow requires about two dokos²¹ (i.e., 40kg) of fodder per day (Plates 6.2 and 6.5). During wintertime especially, fodder is more difficult to get. *Amliso* is the main source of fodder during those dry months. Fodder is not stored but collected once or twice daily from the forest areas.

The decrease of interest for milk business is also related to transportation and marketing difficulties, as competition is important in Darjeeling. Villagers give their milk to a local collector or carry it directly to Darjeeling market. Some households now prefer to keep cows for selling, but the isolation of the place constitutes an additional risk for the buyers and tends to decrease the financial returns from livestock. Other animals kept for sale and home consumption (e.g., festivals, weddings) are: chickens (Rais and Chettris), goats (Chettris), and pigs (Rais). For example, a baby pig is bought for 1,000 INR (i.e., about 22 USD) and can be sold on average for 4,000-5,000 INR (i.e., about 100 USD). Farmers can get about 60 INR (i.e., slightly more than 1 USD) per kilogram -- a pig can grow up to 60-75kg. Food given to the livestock includes: vegetables (e.g., squash, fig leaves, “postakari” (leaves and stems), “mane pindalu”, “postcart”), by-products from harvested crops, fodder trees, grass, maize, and leftover food and by-product of “jaanr”. Villagers also buy additional food for their livestock in local shops and bazaars such as: flour (pigs), “mustard cake” (cows), and

²¹ Local basket made of bamboo with a strip to carry on the forehead and used to carry firewood and grass. It is also a local measure. One doko equals 20kg.

wheat (chicken and pigs). Overall, the livestock constitute a “processing” unit (i.e., production of eggs, milk, butter, meat, and cow manure) as well as a “recycling” unit (i.e., crops, vegetables, plants used as food for the livestock).

▪ The forests

The villagers also have forested plots, which can represent up to more than half of their total land. Most on-farm trees grow naturally but villagers also plant trees taken from the nearby riverbanks and the adjacent governmental forest.²² Dependence on forest is important. It is used for firewood (for cooking and drying the cardamom rhizomes), house construction (facades, beams, floor, furniture), and livestock (wood for sheds; grass and fodder for food).

Most of the villagers also use *de facto* the government forest to gather additional firewood, and other non-forest products such as medicinal plants, flowers, grass, leaves, wild cardamom, “soft broom” (a certain type of wild *Amliso*), fruits (e.g., “okher”, “kawlo”, “lapshi”), and vegetables (e.g., “sishnu”²³, “nigro”, mushrooms). The people of the area never had *de jure* access to the adjacent government forest since the British period. Recently, the villagers have also started encroaching on the government forest by planting cardamom and broom. Other illegal activities are the felling of trees for charcoal and planks, which are sold in Darjeeling market, but the demand is now decreasing. Planks can be made anywhere with local, improvised saw-mills (“dharun”), which require only two persons (Plate 6.1).

²² Farmers reported to have the following trees in their forested plots: *Betula cylindrostachys* or Himalayan birch (“Saur”), *Schima wallichii* (“chilaunay”) used for firewood, *Alnus nepalensis* or Himalayan alder (“Uttis”) used for furniture, *Albizia* (“sirish”) used for house construction (beams, floor), walnut used for timber, *Macaranga pustulata* (“Malata”), *Spondias axillaries* (“Lapsee”), *Engelhardtia spicata* (“Mauwa”) and *Castanopsis indica* or chestnut (“Katush”) used for foundations of houses, *Ficus hookeri* (“Nevaro”) and *Saurauvia nepalensis* (“Gogun”) used for fodder, bamboo (2 types of bamboo found: “molibass” can only be used for cowsheds, fence, climbers, the other one can be used to construct the local basket (“doko”)), and others (“Jamuna”, “Ghorakhane”, “Dhupi” (pine)).

²³ Sishnu (Nettle leaves) soup is prepared from leaves of edible wild varieties of nettle. Sishnu soup is a typical Himalayan cuisine served with cooked rice.

▪ The villagers

What are the villagers' attitudes, beliefs and ideas towards cultivation in Yangkhoo? How do the villagers take decisions and plan their crop patterns? On farm decision-making, the villagers (n = 11) mainly reported to build upon experiences and copy what the others do, guess what would grow more and what could be more profitable, take advice from the middlemen and exchange information with neighbors, and follow astrological calendars. Many physical and institutional factors limit villagers from improving their farm management. Simply, they can only grow according to the capacity of the land, the type of soil, and the amount of compost-manure and seeds they have, etc.

Problems in production and marketing of cash crops, vegetable and fruits prevail and also vary depending on each product (Appendix VI describes the main characteristics of each cash crops). Generally, common production problems are: wildlife and pest threats, and lack of inputs (land, available and qualified labor). Major marketing problems are: lack of transportation, absence of storing and processing facilities, instability of prices, and dependence on middlemen. Villagers (n = 6) clearly justify their choice of polyculture as a mechanism to build up security in the face of uncertainties (i.e., variations of the price of cash crop and climate) through decreasing the dependence on one specific item and allowing experimentation ("what will grow best?"). In other words, one challenge is to grow with limited inputs (physical, financial, technological, institutional/organizational, and informational) in an uncertain world (climatic, economic and institutional uncertainties). Given that context, villagers do not have much choice than to diversify. Another key element to understand the farm management system are the livelihood activities not directly related to the farm. Economic diversification complements the ecological diversification described above. Income-expenditure exercises (n = 5) reveals that 41% of the household's income comes from farming activities and 59% from off-farm activities.

Seeds also play a key role in the farm management. The amounts of seed they have depend on a variety of factors such as the availability and amount of manure and compost (e.g., 40kg of ginger seeds require 20 dokos of compost!), but also the

availability and amount of cash to buy seeds (even if most of the villagers are now keeping their own seeds) and therefore access to credit (e.g., through village institutions, relationship between neighbors). The villagers have learned to keep seeds in the last decade (Plate 6.3).

In general, the villagers interviewed ($n = 8$) report a small increase of their productivity or no change since 1990s. To increase their productivity, they buy and keep seeds; they make compost and manure, intensify the land utilization, increase the amount of cultivable land, get advice from NGOs, tea private sector and governmental agencies, and experiment (trial-and-errors techniques). Middlemen mediate access to information (e.g., price of crops). Another source of information is the ability for the better-off villagers to move around and go to the markets. Obviously, the level of villagers' mobility depends to a large extent on their socio-economic status and the existence of family/relatives networks. Farming is mainly an individualistic activity at the household level possibly due to a combination of cultural aspects and human nature (pride). Neighbor's relations towards cultivation evolve around buying and exchanging seeds, as well as working in others' fields mainly against cash (agricultural labor), rarely against reciprocal exchange of manpower anymore ("parma system"). The villagers try to improve their livelihoods by investing in animal husbandry (sell and milk) and cash crops, trying new crops and plants (e.g., chili, turmeric), planting trees and participating in the community cooperative, getting involved in business, educating children and intensifying vegetable and cash crop production (especially by planting ginger and new tea bushes).

Finally, villagers think their economic situation is similar or worse than the surrounding villages and more broadly than the neighboring state of Sikkim. Villagers do have the ability to compare because most of the married women of Yangkhoo come from the surrounding tea estates, they also go to markets, and even a few (mainly the ex-army employees) have already been to Sikkim for work and/or to visit relatives. They generally see differences in houses and access to services (transportation and school) and explain those differences because of physical, socio-cultural and political reasons.

However, the majority of the villagers interviewed are also attached to their land and way of life. When asked if they would prefer to live in one of the surrounding tea estates than in Yangkhoo, seven households out of nine interviewed report they are not ready to move. Even some villagers who think that life is better off in tea estates ("people work less", "people have more facilities") do not want to move because "it is easier to stay where you are born". But the majority of the villagers, including the youths, interviewed have more realistic ideas about the life in the tea estates, and it is often associated with negative ideas ("slavery", "less freedom").

Other aspects that emerged during discussions are the sense of personal satisfaction ("I have the ability to feed my family with my own production"), and the sense of place and belonging ("I don't want to leave the land my parents cultivated!"), together with the ability to still cultivate tea. At the same time, not all of them would like their children to stay in Yangkhoo because of "transportation problems" and the "hard work". A youth group discussion also reveals that youth are happy to be in Yangkhoo because they are attached to the land of their childhood, yet they also have to face problems of education, health, marketing of the cash crops and lack of transportation. They do not want to live the same life as their parents but want to bring about change in agriculture to increase profit making.

This chapter outlines some striking facts that characterize the regional and local contexts, including the livelihood system, within which Yangkhoo is embedded. Villagers are living off the land from subsistence crops, livestock, forest products, cash crops for markets and some wage paying jobs mainly inside the village. In theory, this range of diversified livelihood activities the villagers developed in Yangkhoo should provide a relatively high capacity for building resilience to change. However, pre-disposing environmental factors, lack of agricultural knowledge and politico-economic conditions at the Central and State government levels are also some of the constraints on the villagers' current livelihoods. The next chapter describes how Yangkhoo came to be what it is today.



PLATE 4.5:
Outdoor kitchen
with individually
constructed water
tank. On the fire is
a still for making
local brew ("jaanr"
and "roksi").

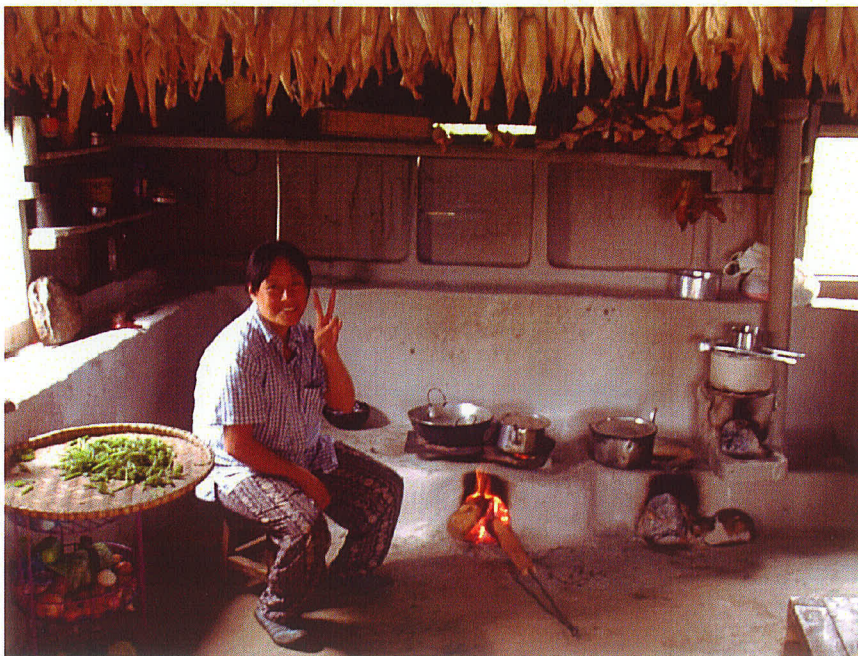


Plate 4.6:
Indoor kitchen
with cooking area
("chula"), firewood
and maize
storage

CHAPTER 5.

DYNAMICS OF LIVELIHOOD CHANGE IN YANGKHOO



PLATE 5.1: Lower Harsing (R) and Senchal Wildlife Sanctuary (L), adjacent to Yangkhoo, in 1985. Notice the small tea terraces and the lack of trees. (Photo taken for Miseria Lenten Campaign 1985, Frankfurt)

PREAMBLE: THE ORIGIN MYTH

For 10 months, we live in the womb of the mother, drinking her warm milk. But how many of us still survive drinking the milk of our mother? The Earth is larger/bigger than the mother. Our mother is the Earth. (Shaman narrating oral history to a Rai clan in Yangkhoo)

It is about Creation, about our grandfather and grandmother who gave birth to us. This worship is in their name and they are the ones who created us. Different languages, different dialects, but the same god. In the mark of the creators, the grandfathers and mothers, we are doing this worship. We are Kiratis, Khamba Kiratis²⁴ and we are commemorating and worshipping them. Everyone has this god. No one in the world does not have it. The mother and father, one gives birth, the other is a care-giver. (Shaman explaining the ancestors' ritual, or origin myth, to the researcher)

Where did the Kirat get born? They are the reasons for our creation; they are our gods for the Kiratis, the Khamba Kiratis. That's why we are keeping them here [worship altar]. People from other countries will be frightened to see this. In the olden days, our grandmothers used to wear such clothes²⁵, before we used to walk around naked. She is the one who taught us how to wear such cloth. We didn't even know how to eat. All this is oral history. We don't know anything. We are deaf and dumb. The ancestors are the only ones who know. This is not our tool, this is a woman's tool; the male's tool is the kukuri. When we say that, we are talking about the creation of the Kirat. (Shaman narrating oral history to a Rai clan in Yangkhoo)

INTRODUCTION: HISTORIES OF CHANGE

The Origin Myth describes the history of the creation of the Rais and their relationships with their ancestors and the natural environment. Following the shaman's words²⁶, one could say: "different histories, different stories or realities, but the same goal"; that is, trying to adapt to, make sense of, understand and explain change. The purpose of this chapter is to explore livelihood changes in Yangkhoo over time after the closure of a local tea estate. Why did the system not collapse after the closure of the tea estate? The chapter provides an overview of the livelihood change and the drivers of change in the village, chronicled over a 50-year period (horizontal dynamics), including cross-scale changes that influenced the livelihood system (vertical dynamics). The

²⁴ Khamba Kiratis are one of the Nepali lineages, which can be traced to Kham in Tibet (see details chapter 4, section "Demographic and socio-cultural assets").

²⁵ The shaman pointed out a wooden figure in the worship altar representing a simply dressed woman.

²⁶ "Different languages, different dialects, but the same god."

description builds on a referenced literature review and local secondary data, further supported and developed using primary data.

Background information first clarifies the origin of the Yangkhoo settlement with the creation of the tea plantations during the British period, followed by the progressive decline of the Darjeeling tea industry after Independence. The evolution of livelihoods is then examined over six major periods of change: (1) a period of economic instability leading to the closure of Lebong and Mineral Spring Tea Estates in 1952-1965, (2) a period of limbo in 1966-1971, (3) NGO and governmental interventions in 1972-1986, (4) political unrest in the Darjeeling District in 1986-1988, followed by (5) a period of relative stability in 1989-1995, and (6) a second NGO intervention from 1996 onwards. The identification of these key periods of change emerged from interviews with key informants inside and outside the village, and has been further verified and modified at a village level through a group discussion. The last section summarizes the dynamics of livelihood change with specific references to related social, politico-economic, institutional and ecological changes.

PRE-INDEPENDENCE: THE TEA INDUSTRY AS AN ENGINE OF GROWTH

▪ Deforestation and tea plantation under the British

The Yangkhoo settlement is recent and originated from the British entrance into the Darjeeling District in the early 19th Century. Prior to the British entrance in 1835, the Darjeeling Hills were sparsely occupied by only “a few hundred souls” and were entirely covered with dense forest. Indigenous people were practicing slash-and-burn agriculture (O'Malley 1907). Interested in the temperate climate and the abundance of forest resources, the East Indian Company of London²⁷ decided to develop Darjeeling by building sanitariums and boarding schools, taking possession of the forest resources, and starting the plantation of tea monocultures as a commercial crop. These activities created employment opportunities for neighboring communities and started an exponential increase of the population in the area through migration, mainly

²⁷ “An English company formed in 1600 to develop trade with the new British colonies in India and southeastern Asia; in the 18th century it assumed administrative control of Bengal and held it until the British army took over in 1858 after the Indian Mutiny” (<http://www.onelook.com/>).

from Nepal. Timber (*Sal*) was used for railway construction all over India and was even shipped to England during World War II for use in boat construction and as firewood. The emergence of tea estates also became instrumental in bringing laborers into the Darjeeling area.

▪ Life on the Tea Estates

The general conditions in the tea estates of the state of West Bengal and the Darjeeling Hills were relatively similar. Tea laborers were supposed to benefit from various facilities complementing their small wages. The tea estates were obligated to provide them with (a) kitchen gardens, (b) free housing, (c) medical dispensary, (d) maternity benefits, (e) fuel and grazing facilities, and (f) food and clothing provisions at reduced rates (Plantation workers in West Bengal, Labor Gazette 1994: 36). However, the workers' socio-economic conditions were miserable. The workers were not part of any of the decision-making processes on the tea estates. As Das Gupta (1999: 138) reports it: "The workers were not organized and the employers dictated the terms and conditions of laborers. [...] The owners and the managers had absolute control over the laborers". On top of the hierarchy of the tea estates, the managers stood both as god and dictator. Temporary workers ("bigha") composed the majority of the tea estate population. Among the permanent workers, the majority was engaged as daily rated workers mainly for plucking jobs. Monthly rated workers included the supervisory staff (clerical, medical and technical staff). Child and adolescent laborers were also common and decent educational facilities non-existent. (Plantation workers in West Bengal, Labor Gazette 1994)

The absence of workers' control over assets further reinforced this socio-economic stratification creating large disparities and dehumanization inside the tea estates. The British government leased the land to British proprietors. The tea estate workers "became part and parcel of the garden, bought and sold along with the garden whenever the owner felt like it" (DLR Prerna 2000: 1). According to elders in Yangkhoo, workers had kitchen gardens varying from 0.1 to 0.5 hectare for the cultivation of vegetables and subsistence crops (potatoes, maize, millet and soybean). Supervisory staff had access to and benefit from a larger amount of land and/or more

productive land (e.g., land suitable for cardamom) especially if they had good contacts with the tea estate manager. Tea estate workers also had to pay taxes to the tea estate manager for cows rearing and cardamom cultivation on land non-suitable for tea. Workers depended on an outsider middleman to sell the cardamom. In the tea estate forest, the workers were only allowed to take dead wood and to cut one or two trees per household (depending on the size of the household) once a year for firewood purposes. They were also allowed to cut trees for social occasions such as weddings and funerals.

▪ **Lebong and Mineral Spring Tea Estates in 1942**

Yangkhoo, together with Lower Harsing and Dabaipani villages, were part of what used to be the Lebong and Mineral Spring Tea Estates. In 1824, Lebong and Mineral Spring Tea Estates were part of Harrison Tea Estate, named after the initial British proprietor. Various changes in British ownership took place over the century. Lebong and Mineral Spring Tea Co. Ltd became a registered company in 1913 (Indian Companies Act) and included two estates: Lebong Division and Mineral Spring Division (Aryan Planters' Agency 1955: 2). A local legend explains the derivation of the name "Mineral Spring" ("Dabaipani") coinciding with the discovery of medicinal water in the area when an Englishman's illness was cured in one of the natural springs.

In 1942, Lebong and Mineral Spring Tea Estates comprised more than 800 hectares.²⁸ The total area under tea cultivation represented 32% (315 hectares), including 20.5% under Mineral Spring Division (about 207 hectares). Within the Darjeeling context, Lebong and Mineral Spring Tea Estates were relatively large tea estates benefiting from ideal environmental conditions with an abundance of trees within the estate as well as a proximity to forested area and water resources. Not only were the tea estates on the fringe of the Senchal Wildlife Sanctuary (about 39 km² total surface area), but the amount of forest land inside the tea estate itself equaled the amount of cultivable land. 31.5% of the total tea estate area was non-cultivable land (Aryan Planters' Agency 1955: 3-6).

²⁸ Chhetry (1999: 42) reports that tea estates with less than 0.5 hectare are non-viable in the Darjeeling District due to diseconomies of scale.

With a total labor population of 1200, the land-labor ratio per total tea cultivable area equaled two persons per hectare. The tea estate was also receiving income from forest resources and sales of cardamom. From 1913-1942, the highest recorded crop yield was 72,000 kg of tea and the gross sale proceeds was estimated in 1942 at three rupees per 0.45 kg (Aryan Agency Planters 1955: 3-6). As the estates were close to the Senchal Governmental Forest, the workers of the tea estate were also allowed to collect dead wood and had to pay a royalty to the government to collect grass and firewood ("forest patta"). Before Independence, the surrounding tea estate managers might have used the government forest as a game reserve forest to hunt tigers and leopards. But later on, the villagers also reported that their grandparents used to graze buffalo in the governmental forest. Today, tigers have disappeared.

In 1942, the effects of World War II had already contributed to a weakening of the tea industry in the region. Five years later, Indian Independence introduced new instabilities at a state level. During the same year of 1947, the partition of Bengal into West Bengal (mostly Hindu) and East Pakistan, later named Bangladesh (mostly Muslim) in 1971, precipitated by the Hindu-Muslim differences, led to another large displacement of people from Bangladesh. This new labor force arrived at a time when many tea estates, especially in the Darjeeling Hills, started to face static employment due to socio-economic problems (Boyce 1987: 1-6).

1947-ONWARDS: DECLINE OF THE TEA INDUSTRY

▪ Management policy

The Independence era corresponds with a period of important change in the management system of the tea estates in West Bengal in general and the Darjeeling District in particular. The living conditions in the tea estates did not improve after Independence; rather, they deteriorated. After 1951, a combination of elements led to the general stagnation and then decline of the Darjeeling tea industry and the erosion of the bargaining power of the tea laborers (see Chhetry 1990, Das Gupta 1999). At an international level, although the tea market was increasing, the share of Indian tea started decreasing due to lack of competitiveness. The change of ownership after

Independence and a financial and liquidity crisis, among other factors²⁹, led to the stagnation and then decline of the tea industry (Das Gupta 1999).

First, after Independence, the British tea estate proprietors withdrew from the area in the face of a decrease of profit and economic uncertainties. In 1942, Aryan Planters' Agency, an Indian Co, in Kolkata bought Lebong and Mineral Spring Tea Estates from the British company James Finlay and Co. Ltd. for 665,000 INR – i.e., about 15,000 USD (Aryan Planters' Agency 1955: 3). The changes and difficulties faced at the Lebong and Mineral Spring Tea Estates were common to most of the tea estates in the Darjeeling Hills at that time. After the change of ownership, the majority of the tea estates further suffered from the lack of experience of the new owners, the absence of long-term development programs (speculative owners), and centralized distant management (i.e., centralized management from the plains of estates in the hills) with no local profit re-investment (Das Gupta 1999). Mismanagement and frequent change of ownership became common practices. Productivity decreased due to a combination of factors including: the low re-plantation rate of old tea bushes (after 60 years of age, tea bush productivity declines -- Sharkar 1986: 54), the decreasing fertility of soil due to the overuse of pesticides and fertilizers, and/or due to soil erosion and depletion, the diseconomies of scale due to higher cost of production in the hills (i.e., lack of transport and communication, energy and irrigation) and the decline of the terms of trade (Sanyal 1986: 143).

Second, the new tea estate owners also faced a financial and liquidity crisis. After 1947, the financing system of the tea industry changed from a British financial monopoly to bank financing. The new owners depended almost entirely on commercial banks (Das Gupta 1999: 124), but the rules and regulations of those banks changed frequently bringing about a liquidity crisis (Das Gupta 1999: 140). In addition, tea is a seasonal crop in Northern West Bengal (in contrast to South Indian estates), and this exacerbated the financial gaps.

²⁹ Das Gupta also mentions the emergence of the trade unions movement as a key factor in the decline of the tea industry in the Darjeeling District.

▪ Social policy

After Independence, the tea workers “were exposed to hardships of every description. Low wages, inadequate housing, scarcity of drinking water, and virtual absence of medical and sanitary arrangements reduced them to a sub-human stature” (Plantation workers in West Bengal, Labor Gazette 1994: 1). At the same time, however, a gradual formulation of a social policy for tea estate laborers was emerging. Within the emergence of a labor regulatory framework (e.g., Industrial Employment Act 1946, Minimum Wages Act 1948, Employees’ Provident Fund and Miscellaneous Provision Act 1952), the Plantation Labor Act (1951) constitutes a milestone as it regulates the working conditions in the plantations.

That said and in reality, the laborers still had to face time lags in the enactment of policies as well as the difficulties incurred when policies failed to be implemented. Further, in the case of grievances, the Union workers tended to favor negotiations rather than strikes because of the seasonality of the tea industry in the hills. As Das Gupta (1999: 141) puts it: “[...] If tea leaves are not plucked in due time, the entire leaves are damaged. It harms the laborers most because they do not get the wages in time.” As a result, however, “the employers [would] show reconciliatory attitude more in plucking seasons than in non-plucking seasons” (*ibid*) to reduce the cost of maintenance, which would lead to a long series of never-ending negotiations (the next sections show how this also applied in the context of Mineral Spring tea estate).

Finally, the Plantation Labor Act was not an integrative policy and did not account for environmental issues in the tea estates – it can be assumed that the tea monoculture plantation system and the related processes of deforestation and pesticides and insecticides use did affect the ecosystem but these adverse effects still need to be documented properly (DLR Prerna 2000). In fact, at a national level, environmental policies have emerged in the 1970s-80s and mainly focused on sectorial aspects (e.g., water, air). Integrative policy only started to appear after the Bhopal tragedy in 1986.

▪ Land and forest policy

The state of West Bengal enacted a land reform in 1953 but significant regional disparities have remained. Land access issues³⁰ have been more exacerbated in the Darjeeling Hills than in most of West Bengal. Indeed, land reforms did not apply to non-Crown land (i.e., forestland and land under tea plantations), and today this represents more than half of the surface area of the Darjeeling District. In other words, half the land is not accessible to the overall population of the Darjeeling Hills! In the 1960s, the proportion of landless was even larger since tea plantation and forest cover were occupying a greater land surface than today. Although West Bengal land reform is now claimed to be a landmark in India and did improve rural livelihoods (Crook and Sverrisson 2001), land access disparities have continued. Recent studies in West Bengal (Beck and Ghosh 2000, Beck 2001) show that access to common pool resources that are vital for the livelihoods of the poorest and landless is decreasing rapidly. This situation also means that the rural local governments, Gram Panchayats, cannot take on land development in more than half of the district, which puts into question the real significance of the process of "decentralization" in the Darjeeling Hills.

Further, due to time lags in forestry regulations enactment and mismanagement, the West Bengal Forest Department also contributed to the deforestation process (more on this issue in Chapter 6). For instance, it took nine to ten years to implement the State Acquisition Act (1959). This act enabled the transfer of tea estate forests to the West Bengal Government. Isolated forest patches in the tea estates became difficult to control and an important amount of forested area disappeared before the Forest Department even intervened. Tea estate managers also knew the act was coming into force and started felling trees for sale and selling the land to people (Personal

³⁰ "Land" here means irrigated, non-irrigated, and forested land. Using Schlager and Ostrom's (1993) terminology, "access" here refers to the *de jure* right to benefit from the land. In the case of the tea plantations and the forest industry people can be considered as "authorized users" meaning that they have the right to enter a defined physical property. However they do not have the right to withdraw benefits (i.e., the right to obtain "the products" of a resource). Further and following Ribot's argument (1998, 2003), "access" is something more than just "a bundle of rights", it is also (and foremost) "a bundle of power", i.e., "the ability to benefit from land". Indeed, the *right* to benefit from the land does not always imply the *ability* to benefit from it and *visa-versa*.

communication, Ex-forest office, Darjeeling). The Forest Department also used forest for commercial purposes. For instance, the Eleventh working plan for the Darjeeling Forest Division (vol. 3, 1977-78) from the West Bengal Forest Development Corporation shows that the Senchal forest, adjacent to Yangkhoo, was a converted forest in 1977. The forest was used commercially to produce "maximum yields". The Government used to plant trees (e.g., oaks, maples, cherry, birch, and chestnuts) for selling purposes. At the same time, the Forest Department also reports the Senchal forest became a Wildlife Sanctuary in 1915! Again this ambiguity might relate to a gap in notification of forest regulations and enforcement. As Chhetry puts it (1999: 33): "Due to illegal felling and mismanagement by the West Bengal Government's Forest Department, the forest cover in the districts hill areas has plummeted to a shameful 38% from 60% in the 1950s". It is all those policies (politico-economic, social and environmental) that further contributed and reinforced economic instabilities in the Darjeeling Hills and precipitated the closure of Lebong and Mineral Spring tea estates.

1952-65: ECONOMIC INSTABILITIES AND CLOSURE OF THE TEA ESTATE

- **A long period of uncertainties and "negotiations"**

Official letters of correspondence from 1953-1960 between Lebong and Mineral Spring Tea Estates management, the Union Workers, and the government of West Bengal provide testimony of the terrible crisis faced by the tea workers and the complete failure of an endless "negotiation" process. Between 1952 and 1960, the Lebong and Mineral Spring Tea Estates underwent three temporary closures (i.e., 1952-53, 1955-56, and 1957-60), all during winters when the period of plucking was over. During those eight years of instability, the Union Workers (Shramik Sangha) denounced "the unfair labor practices" of the Officer-in-Charge of the Tea Estates, and the "sheer neglect and mismanagement on the part of the proprietor". The Union reported the workers' grievances as follows: unjustified worker dismissals, irregular payment of wages, lack of minimum wage, non-payment and payment in arrears, lack of reimbursement for the cost of home repair incurred by the laborers, lack of proper

school facilities, and political repressions³¹. The tea estate management justified the irregular payment of wages due to financial difficulties.³² On January 1958, the Union Workers reported the socio-economic situation in the Tea Estates to the West Bengal Government as follows:

It has become a question of life and death to the workers and their families of the aforesaid tea estates to continue any further without any means of livelihood. As you know that the garden has been closed abruptly since November last year on a flimsy pretext, so much so that all the garden officials also long left the garden. [...] There has been a grim picture of about 2000 people gradually succumbing to sheer death for want of means of sustenance. In order to save precious human lives the only alternatives left open to the Government is to find out some other subsidiary means of employment elsewhere whereby they could at least try to survive somehow.

During the period of temporary closures and instabilities, the workers might have used the tea estate forest resources. For instance, the Officer-in-Charge of the Tea Estates reported on November 1954 to the West Bengal Government extracting land taxes to some households inside the tea estate, which was against the law, as: "they themselves refrained from garden works since long and they are living as busy people. They are destroying company's forest right and left at their will".

▪ **Final closure of the tea estate and "land grabbing" process**

The West Bengal Government provided temporary relief to save the workers from starvation, but the project was immediately ended after a February 1958 agreement. According to this agreement, the nearby tea estates would purchase the green tea leaves of the Lebong and Mineral Spring divisions. Despite the Union Workers' calls for temporary relief by "creating road construction or other works in the neighborhood", and suggestions for "taking over the garden by the Government or in the alternative by

³¹ "He [the tea estate Officer-in-Charge] is reported to have told the workers not be members of any Union or Gorkha League but to become a member of the "company's party" (Letter from the Secretary of the Union Worker to the Assistant Labour Commissioner, Gov. of West Bengal, Darjeeling, 1954).

³² "The garden is now passing through a great difficulty for finance" (Manager of Lebong and Mineral Spring Tea Estates, 1954) "As the bank has stopped finance you are hereby advised to give notice to the workers for closure of the garden immediately" (Letter from the Head Office of the company owing Lebong and Mineral Spring Tea Estates to the manager of the tea estates, December 1955).

a worker's co-operative", the State government did not undertake any action.³³ Facing the incapacity of the tea estates management and the state government to take action, the laborers started plucking green tea leaves in the nearby tea estates, which created another loss for the Lebong and Mineral Spring tea estates. In September 1960, the "munshi"³⁴ of the Tea Estates reported to the West Bengal Government:

"Most of the laborers (green leaf pluckers) of Mineral Spring Division Tea Estate are going to work to some other neighboring garden without obtaining permission from this garden authorities in spite of repeated requests to be engaged themselves in this garden [...] even in lack of money during the winter cultivation season. [...] As a matter of fact, it caused a great loss to this garden for the green leaf which could not be plucked out in time in some blocks and became banji³⁵."

In October 1960, a note probably written by the Union Workers, reported inadequate wages of about five Indian rupees per week per worker (about 10 US cents in today's currency rate)! Overall, since 1952, a long period of uncertainty and crisis had started, which progressively further deprived the tea workers from their main source of livelihood. Interestingly, ambiguity still surrounds the closure of the tea estate and it was hard to get a consensus on the exact year of the closure of the tea estate at a village level. However, 1965 seems to mark the year of the final closure starting with the "land grabbing" process by the defunct laborers. Elders in Yangkhoo reported the informal land occupation took place within one year. Although, people feared reprisals from the managers of the tea estates, a domino effect took place in the area after one of the settlements started occupying the land. Elders only reported verbal disputes among people, as the land surface area was large enough to accommodate

³³ "You also promised to make some arrangement for test relief by creating road construction or other works in the neighborhood of these two gardens in order to provide work to them, but unfortunately this has not been done from your side up till now" president of the Sangha to the deputy commissioner, "Now that the plucking season is over and as there are no leaves to be plucked in these abandoned gardens, the workers in these two gardens have been completely thrown over board including their families numbering about 2000 and they are facing death by starvation. [...] I request you to kindly take immediate step to open up test relief to save the starving workers and also gratuitous relief in the meanwhile" (Letter from the President of the Union worker to the Labor Minister, Government of West Bengal, Darjeeling, 1958).

³⁴ "In many gardens "munshis" instead of the managers became the real authority. The "munshis" were experts in the manipulation of accounts. They were supposed to keep all records of the financial transactions of the gardens. The "munshis" in some gardens were very powerful" (Das Gupta 1999: 123).

³⁵ Local terms referring to tea bushes starting to become trees because they were not properly managed.

everybody. The most strategic grabbed larger plots of land and the most fertile land. Grass plants and sticks (e.g., using “nurcut” (bamboo) or “gagoon” branches) were used as physical markers of land occupation. The “land grabbing” process marked the end of the tea estate and the beginning of a new period and new means of livelihoods.

1966-71: PERIOD OF LIMBO

▪ Socio-economic crisis

After the closure of the tea estates, socio-economic instabilities in Yangkhoo and surrounding settlements that were part of the Mineral Spring tea estate, continued on. The villagers were deprived of basic needs (i.e., food and clothes). In fact, from a legal viewpoint, the Mineral Spring area was still considered a tea estate and continued to fall under the Plantation Labor Act (1951) until the 1990s (see the previous section on “social policy” about Plantation Labor Act). In other words, the area did not benefit from government development and social welfare programs for at least two decades! Other events also triggered the socio-economic crisis in the Mineral Spring area: significant landslides and fires in 1968 at the local level, political unrest (especially between 1967 and 1975) at the regional level, and the India-Pakistan war in 1971 at the national level (i.e., leading to market closures).

▪ Adjusting strategies

“We had to survive.” (Raghunath, 72 years old, Yangkhoo)

During the instabilities, the villagers of the Mineral Spring area successively fell back on the tea estate forest and the outskirts of the government forest to survive (i.e., an elder reported the government forest was still very dense and hard to penetrate). Some villagers also reported that at that time the forest guards in charge of implementing the government forest rules were corrupt. They collected roots and plants for food, and fodder for livestock. Forest resources were also transformed and sold in Darjeeling town as broom, firewood, and charcoal. One informant also remembered how he once carried bamboo to Darjeeling town for scaffolding. When

the tea estate forest was completely exhausted, the villagers started partially uprooting the tea bushes. They sold hand made tea and started to expand the cultivation of subsistence crops (maize, millet and soybean). A few households also had milk, mainly for their own consumption and progressively for sale.

The villagers mainly learned to expand cultivation as they were doing, but also by emulating what others did (e.g., some villagers, especially people coming back from the army³⁶, had more exposure and were more progressive) and through trial-and-error techniques. At the same time, they had to face time lags between the planting of crops and vegetables and the resulting harvests. Other coping strategies reported were: remittances from other Indian states (i.e., Sikkim (Plates 1.1) and Assam), temporary labor work and economic support from social networks (relatives) outside the village, and sale of land. The villagers reported the sale of land was agreed to orally. Most of the people bought land from others at a very low price because people had no sense of ownership. A combination of factors might explain the absence of migration: the region faced a labor surplus due to the general decline of the tea industry and related static employment; many people were still hoping the tea estate would re-open; they lacked other skills and had low self-esteem and self-confidence to find other jobs. Six years after the final closure of the tea estate, an NGO intervened for the first time in the area.

1971-86: NGO AND GOVERNMENTAL INTERVENTIONS

▪ Hayden Hall intervention

Hayden Hall is an NGO based in Darjeeling town and part of a group, the Darjeeling Jesuits of North Bengal. It is funded by the Canadian Jesuit Mission (CJM), which collects funds mainly from private benefactors in Canada and the Canadian International Development Agency (CIDA) to do charity work in the Darjeeling Hills³⁷. Hayden Hall is officially registered under the Society Act, and constitutes a separate

³⁶ The principal off-village employment was related to the military. Demand is due to the geostrategic location of the Darjeeling District, especially as a buffer with China.

³⁷ The Darjeeling diocese includes the hill sub-division of the Darjeeling District, the Indian state of Sikkim and the Kingdom of Bhutan.

institution within the Jesuits of North Bengal. The institution is composed of a Jesuit director, a general body (18 members) and a management committee. The Provincial of the Jesuits³⁸ appoints the members, with a quota of two third Jesuits.

Hayden Hall became involved in the Mineral Spring area without much planning when two of its members, also teachers in a Jesuit College of Darjeeling town, started to appeal to their students to do social fieldwork in the area, following the Jesuit educational philosophy. Coincidentally, one of the students from Lebong town sent the message that one village in the Mineral Spring area, Lower Harsing, was looking for physical help to reconstruct their school. The social work supported by Hayden Hall in the area was mainly driven to fulfill the College students' education. Hayden Hall never formulated any specific action plan in the area and no specific expertise (e.g., agriculture experts) was involved or available.

▪ Mineral Spring Tea Estate in 1972

In 1972, a survey of 65 households in Lower Harsing, carried out by the students revealed the harsh socio-economic conditions of the villagers. It is assumed that the situation in Lower Harsing also reflects the situation of Yangkhoo at that time. That said, the socio-economic situation in Yangkhoo might have been even worse because the village has been more isolated and distant to the market than Lower Harsing. According to the survey (Rai and Sarkar 1986), a century of tea monoculture practice rendered the soil infertile and did not enable people to maintain and develop their agricultural knowledge. Water scarcity due to the depletion of forest resources also aggravated the problems of land productivity. Most villagers had very low remuneration from milk: they were dependent on and indebted to a middleman. The middleman provided loans for the villagers to buy cows with a high interest rate (72-120%) but was also buying milk at a very low price. Villagers had serious health problems (malnourished, retarded and underdeveloped children), very low self-esteem and communication difficulties. A barren landscape characterized the settlement area with only a few trees left standing following deforestation events.

³⁸ The official in charge of the ecclesiastical province acts under the superior general of the Jesuit order.



PLATE 5.2: Group discussion with the villagers of Mineral Spring and one of the teachers involved in Hayden Hall (center R). (Photo taken for Miseria Lenten Campaign 1985)



PLATE 5.3: Villagers of Lower Harsing cultivating maize. Notice the deforested landscape on the background. (Photo Taken for Miseria Lenten Campaign 1985)



PLATE 5.4:
Villager in Lower
Harsing feeding
cows with fodder.
(Photo Taken for
Miseria Lenten
Campaign 1985)



PLATE 5.5:
Villager carrying
the milk. Old
bamboo bridge
linking Yangkhoo
to Lower Harsing
and Darjeeling
market. (Photo
Taken for Miseria
Lenten Campaign
1985)

▪ Mineral Spring in 1985

Over a 14 year-period, student camps funded by the Jesuits were organized twice a year in the area. The major activities also supported by Hayden Hall included: the creation of a milk cooperative with surrounding villages (Hayden Hall was buying the milk from the villagers) – Plate 5.5, loans introduction through banks (versus middleman) to buy insured cows³⁹, adult education (related to the masonry and carpentry trades, and agricultural techniques such as crop rotation, multi-cropping and terrace farming), food for work program (involving food and grains collected in Darjeeling exchanged for the construction of pony roads and stone cowsheds in the villages), and afforestation program in Lower Harsing. These activities introduced major socio-economic changes in Lower Harsing with impacts on the entire Mineral Spring area, Yangkhoo included, but to a lesser extent.

The Hayden Hall intervention encouraged the villagers to increase animal husbandry and fodder cultivation (*Amliso*) for milk production (Plate 5.4). They helped them to self-organize and decreased the dependence on the middleman. They also provided new opportunities such as more exposure to Darjeeling town and market, and helped building confidence and communication among individuals and nearby villages (Plate 5.2). Villagers progressively started to switch from subsistence crop to cash crops (cardamom, broom) -- Plate 5.3. They also started nurturing and planting trees in their own plots.

▪ Hayden Hall withdrawal

Between 1984 and 1985, the state government undertook a land survey in the area and granted formal land ownership to the villagers with provisional land paper agreements. Mineral Spring finally came under the Panchayat system in charge of implementing the government welfare programs⁴⁰ at the village level. Hayden Hall

³⁹ Buying cows was risky due to problems of transportation. Cows used to die on the way, which added to the financial burden of the villagers. Insured cows represented an important security for the villagers.

⁴⁰ Locally called "governmental schemes", they come from the block level and with limited quotas or from the DGHC and include for instance: National Old Age Pension for below poverty line households (NOAP), National Family Benefits Scheme for below poverty line households

withdrew from the area in 1985-86 due to a combination of organizational and political factors.

Hayden Hall did not have a long-term program and the project collapsed after the main initiators left. With the withdrawal of Hayden Hall and the political unrest, the milk cooperative collapsed in 1987. The milk cooperative was also facing corruption and mismanagement problems at a multi-village level. An opposition group in one of the Mineral Spring villages was trying to break up the cooperative for selfish motives in order to wrest personal control and benefit of the milk business away from the cooperative. Further, another main reason for the withdrawal of the NGO is the violent political unrest, which stopped all the projects in the region especially from 1986 to 1988.

1986-88: POLITICAL INSTABILITY AND VIOLENCE IN THE DARJEELING REGION

▪ The Gorkaland agitations

Various separatist movements have found resonance in Northern Indian Himalayan states over the years (e.g., Uttaranchal, Jarkland, Meghalaya). In the Darjeeling District, the Gorkaland agitations started in the 1960s-70s. For more than four decades, the poorest and landless of the Darjeeling Hills, led by the Gorkha National Liberation Front (GNLF, 1980), have been militating for the creation of a separate state of "Gorkhaland" outside of the state of West Bengal and within India in order to obtain recognition of their distinctiveness (Khawas 2002: 7). Since 1977 and until now, the government of West Bengal has had a long left-wing tradition led by the Communist Party of India (CPI), which played a role in supporting the separatist movement. During the peak of the insurrections in 1986-88, the Darjeeling Hills faced frequent and long strikes organized by trade unions, including a 40-day strike in 1986. Markets closed down frequently. The Central Reserve Police Force (CRPF), the armed force of the

(NFBS), National Maternity Benefit Schemes (NMBS), National Grant Rashin (NGR), Prime Ministers' Employment Scheme (Prime Minister's Rojgar Yozana – PMRY); at the DGHC level: Indira Housing Scheme (Indira Aawas Yozana – IAY), Prime Ministers' Rural Scheme (Prime Minister Gramin Yozana – PMGY), Relief scheme, scheme for deaf, widow pension etc. Also note that no consensus prevails on what "poverty line" means at an international level, especially between governments and development agencies.

Central government, was going into the villages to arrest the GNLF collaborators and its military wing, the Gorkha Volunteer's Cell (GVC). By the end of the violent period in 1988, the Darjeeling Hills formed an autonomous council, the Darjeeling Gorkha Hill Council (DGHC), with independent power. Facing financial mismanagement, the movement lost fire in the 1990s.

▪ **Deforestation and other adjusting strategies**

During the period of political unrest and violence, the villagers of Yangkhoo faced food crises as physical access to markets became dangerous and/or markets closed. Food availability and sales of cash crops (cardamom, ginger, broom) and milk were limited. These instabilities did not have impacts on the villagers as much as the crisis following the closure of the tea estate. Nobody died from starvation. They survived using the same strategies, but were better organized to cope with the crisis. They mainly relied on potatoes and maize from their own plots. Some villagers, however, remembered the problem of agricultural theft especially of ginger.

The adjacent government forest simultaneously became a source of income (sales of firewood, charcoal and timber), a place of refuge and shelter during the CPRF intrusions and arrestments in the village (locally called "CPRF races"), a location for food storage (i.e., roots, plants, wild vegetables), and a safety corridor to pass food from one village to another. Every household interviewed confirmed an important deforestation process took place during that time period. The absence of rules enforcement from the Forest Department further reinforced this process. Villagers also obtained socio-economic support from neighbors (system of labor exchange without cash involved called "parma system"), from relatives outside the village, and through remittances. Women could move around more safely than men: most of the time they went to the Sikkim border to get food – the Sikkim government was in favor of the GNLF.

1989-95: PERIOD OF RELATIVE STABILITY

▪ Reinforcement of livelihood diversification

After the political agitations, the villagers maintained their livelihoods with the same type of activities, but in more stable economic and political environments. The same livelihood trends were carried on and reinforced. Villagers started cultivating ginger as a cash crop that complemented the cardamom and broom crops and increased the cultivation of fruits (guava, orange) for local sale. As the focus on cash crops increased, villagers decreased their cultivation of subsistence crops (millet and soybean) except for maize, which is still cultivated to some extent. Interestingly, the reliance on forest resources continued to be significant after the agitations (more on this topic Chapter 6, section "maintenance of the commons") The number of middlemen, and therefore competition among middlemen in the area, also started to increase, thereby improving the villager's marketing options.

▪ Political decentralization and the beginning of infrastructure development

The change in the national legislative framework and the beginning of infrastructure development in the Mineral Spring area participated in reinforcing livelihood diversification. At a national level, the legal framework moved toward more self-governance with the 73rd Amendment of the Indian Constitution Act, 1993. The amendment aimed at strengthening the already existing village Panchayat (e.g., introduction of a system of reservation seats for scheduled tribes and women). In the village, opportunities for civil service and other white color jobs slightly increased due to government intervention (e.g., creation of a village library).

The creation of the DGHC, Darjeeling Gorkha Hill Council, was another attempt at decentralization. The major focus of the DGHC has been the construction of roads all over the Darjeeling District.⁴¹ In the Mineral Spring area, the construction of the paved road and bridges between the villages of Mineral Spring and linking Yangkhoo to Darjeeling started in 1994. The road construction did not come from any village

⁴¹ For a recent critic on the role of the DGHC in the Darjeeling Hills, see Mountain Forum 2005.

initiative. Rather, the project came from the director of the DGHC, Mr. Subhash Ghising, reputed in the area for his dictatorial and arbitrary decision-making. According to the villagers, Mr. Ghising has been particularly attached to the Mineral Spring area. Infrastructure development is becoming an important factor influencing change in the area.

Road construction constitutes an important livelihood activity for the majority of the villagers who tend to prefer short-term and secured income to long-term income from land cultivation with non-secured incomes (e.g., risks of crop failures due to weather and pests, risks of drop of the price of cash crops, etc.). Similarly, the attempts of political decentralization at the regional level also emerged in community work at an international level and influenced local NGOs in Darjeeling.

1996-ONWARDS: NGO INTERVENTION AND CASCADING EFFECTS

▪ DLR Prerna intervention

In 1993, the Canadian International Development Agency (CIDA) funded Canadian Jesuit International (CJI) to evaluate Hayden Hall. The recommendation was to put more emphasis on community development. The change of approach in the development world from individual charitable actions to more participatory approaches led to a new mandate and the emergence in 1993 of a new Jesuit institution, the Region Community Development Committee (RCDC). RCDC's mandate was to evolve and help implement suitable strategies for human development in the Darjeeling Region. The first project of the local NGO started in 1996 in the Mineral Spring area as some members of RCDC committee had already worked there in the 1970s through Hayden Hall. CJI and CIDA funded the project until 1999 with a total budget of 15,000 CAD. In 2001, CJI and CIDA did not renew their funds. The organization became an Inter-congregational and lay organization, and RCDC was officially renamed DLR Prerna (Darjeeling Lalenla Road Prerna). Today, DLR Prerna is mainly funded by national organizations (e.g., CARITAS India) and continues its involvement in the Mineral Spring area.



PLATE 5.6: Middle Yangkhoo (Center) and Eghara Number (L corner) in 1996. Notice the landslides areas (arrows) in the deforested area (center L, in between the two arrows). (Photo Navin Tamang taken for DLR Prerna)



PLATE 5.7: Middle Yangkhoo in 2004. Notice the increase of forested area compared to 1996 (Plate 5.6)

▪ **Mineral Spring in 1996**

In 1996, RCDC realized a socio-economic survey of 307 households in Harsing, Yangkhoo and Dabaipani. The survey analysis (RCDC 1996) showed the socio-economic conditions of the villagers in the area had not improved substantially since the last survey by Hayden Hall in 1985. According to the report, the villagers still had very low self-esteem and display an attitude of despair. They faced a lack of profit from milk and handmade tea due to the dependence on a few middlemen, low yields from subsistence and cash crops partly due to limited agricultural input, a lack of infrastructure and organization, and a lack of political awareness. Landuse intensification was increasing due to population growth and limited areas for agricultural cultivation. Landholdings were reported to be small and uneconomic. Plate 5.8 illustrates the increasing land intensification between 1961 and 1996 in the hamlet of Yangkhoo. Finally, the report pointed out deforestation problems in the government forest leading to the damage of agricultural crops by wild animals as deforestation practices disrupt the wildlife habitats (e.g., destruction of shelters and food) and pushes them towards human settlements. In fact, although the villagers finally had direct access to land property, they could not really benefit from it because of the lack of other assets (e.g., infrastructure, communication, human resources). RCDC's objectives were to help the community (including women and youth) to organize themselves toward self-reliance through the revival of the milk cooperative in order to create better revenues and returns from the revenues from the community products and to improve access to and benefit from rural credit mechanisms.

▪ **Small farmers organic tea cooperative**

The outcome of the 1996 survey was the creation of the Sanjukta Vikas Co-operative (SVC), ideally a community-based organization working in close collaboration with DLR Prerna. SVC started as a milk cooperative but since 1998 has been selling green tea leaves from each hamlet of the Mineral Spring area (448 household members in 2003) to a tea company, Tea Promoters of India (TPI), who owns organic tea estates in the Darjeeling Hills. Since 2002, the Institute for Market Ecology (Switzerland) has given a Producer Organic Certificate to the members of SVC. DLR Prerna intervention

has improved and better secured returns from tea resources in the Mineral Spring area by facilitating the creation and supervising the development of the tea cooperative.

DLR Prerna has also been fostering cross-scale institutional linkages (i.e., cascading effects). For instance, other collaborative activities of SVC/DLR Prerna include an afforestation program with World Wild Fund (WWF) (1998-99), the construction of drinking water tanks (2002), and the creation of a Savings and Credits Union for Women (started in Yangkhoo in 2001) with the Bank of India. Today, direct observation and interviews with key informants seems to show that the villagers of Mineral Spring are not more prosperous than the workers in regular tea estates. A recent study of small-scale organic agriculture in the Darjeeling Hills (including villages of Mineral Spring) with supportive observations from small-scale organic farming in Japan (Saxena 2004), also confirmed that the sustainability in yields and income from organic farming in the Darjeeling Hills is not better than in regular tea estates. The study, however, ponders and hypothesizes that in the long run the small-scale organic farmers may increase their benefits because right now organic farming is still relatively new (two to four years).

EPILOGUE: PREDICTION AND VISIONS

We are looking at predictions ("jokhana"). This time, we did not get a good prediction. Someone in the family will fall sick. If the bamboo gets cut cleanly, it is good. This is paying a mark of respect to the elders ("cir uthako"). (Villager explaining a ritual where the shaman reads bamboo and made predictions for the clan.)

In times of crisis and difficulties, people like us who worship ancestors, the father and mother aspect, it gives us problems, makes us sick, crippled, blind. We go and tell them [the shamans] what has happened and ask them for predictions. We take rice and tell them what has happened and request predictions. He/she [the shaman] looks through the rice and tells us which gods have been affected and comes to us for the treatment. (Villager explaining the role of the shaman in times of crisis)

In our ancestors' time, it is called "rashimi". Ancestors used to chant "rashimi" and reduce the power of the sun in the sky, and bring down banwan trees. But today we cannot because we are losing the knowledge every year. (Shaman explaining changes in the role of the shaman to the researcher.)

SUMMARY

“From crisis, we learn to stand on our own feet!” (Premsing Rai, villager, Yangkhoo)

To sum up, over a 50-year period, livelihood changes in Yangkhoo resulted from a combination of economic, social, ecological, institutional/organizational and political changes happening at similar and/or different spatial and temporal scales. What are the linkages between the different types of change and the different levels of change, and how have these dynamics affected livelihood change in Yangkhoo? Table 5.1 summarizes the chronology of livelihood changes with specific reference to the drivers of change and their impacts on the livelihood system. Change impacted Yangkhoo livelihood system in various ways, including vertical and horizontal dynamics, with various impacts (e.g., trigger effects, interacting effects and cascading effects). Vertical dynamics mainly capture external drivers and horizontal dynamics mainly capture internal processes.

▪ Vertical dynamics

Since the 1960s, the Darjeeling Hills encountered various economic changes, part of the global economic restructuring and globalization processes. Not being competitive at an international level, the Darjeeling tea industry started to decline, leading to instabilities and closures of various tea estates. At the same time, the Darjeeling Hills faced a significant population growth reinforced by successive waves of immigrations (especially from Nepal and Bangladesh). Another important social change was the increase in education levels all over the Darjeeling District, a trend that has continued. Migrant communities deprived of land assets nourished a regional identity crisis further exploited through political unrest. A separatist and violent movement in the Darjeeling Hills led by the Gorkha National Liberation Front militated for the creation of a separate state within India, but outside of West Bengal. The movement reached a peak of violence in 1986-88 and started losing fire in the 1990s. Consequently and since the 1960s, the Darjeeling Hills also faced increasing intensification of land use due to the growing population, and deforestation problems partly due to a lack of livelihood means and mismanagement by the West Bengal Forest Department. State land

reforms had minimal impacts on the Darjeeling Hills as more than half of the District is made up of Crown land (i.e., tea plantations and forest land).

It is those changes that further triggered local changes in the Mineral Spring and Yangkhoo areas. In that sense, and initially, the village went through changes that are typical of changes that other villages in the Darjeeling sub-district went through in the 1950-60s. The closure of the local tea estate was mainly the result of interacting effects between economic changes at an international level (i.e., decrease of competitiveness) together with mismanagement at the tea estate level. Second and consequently, the closure of the tea estate left space for external intervention, leading to an increase in the number of intermediaries (i.e., cascading effects involving multiple scales (e.g., international funds from CIDA) and multiple actors (NGOs, government agencies, and the private sector such as banks and a private tea company). Neither of the two NGO's interventions directly focused on Yangkhoo *per se*. Hayden Hall was mainly involved in one village with interacting and cascading effects on the surrounding villages, including Yangkhoo. DLR Prerna has been working at a hamlet level within the entire Mineral Spring area.

The process of political decentralization started at a regional level with the creation of a supposedly "independent" Hill Council after the political agitations, and at a national level with the delegation of power to the local panchayat responsible for implementing social programs at a village level. Importantly, infrastructure development started after the creation of the Hill Council. Road construction is becoming an important agent of change in the village as the majority of the villagers are focusing on short-term income related to the road construction and are neglecting their land and agricultural practices. Loss of land due to road construction is further reinforced by demographic changes with the increasing population and related parceling of landholdings creating even more uneconomic small landholdings. It is also becoming an incentive to search for off-farm jobs. Changes at a vertical level further influenced and got influenced by internal processes (i.e., horizontal dynamics).

▪ Horizontal dynamics

Yangkhoo went through major livelihood changes since the closure of the tea estate; especially during the period when the village progressively switched from a population made up of plantation workers to households maintaining agricultural livelihoods; from tea estate workers to autonomous tea farmers, and from an absence of landownership to *de facto* and then *de jure* landownership. Appendix VII provides a detailed summary of change in livelihood activities over the major period of change. The table is the outcome of two group discussions at a village level. It shows how the village progressively moved over a 50-year period towards ecological diversification (i.e., switch from subsistence to cash crops) and economic diversification (i.e., farm activities complementing off-farm activities). Other aspects of livelihood diversification include institutional diversification (i.e., village panchayat, controlled sales by a number of middlemen instead of a monopoly from one middleman, local library and school), and spatial diversification (i.e., switch from monoculture to polyculture, including intercropping and encroachment vis-à-vis a government forest).

The villagers, who used to *belong to* the tea estate enterprise, now *participate* in a community cooperative. This cooperative is trying to move toward fair trade tea marketing. Therefore institutional changes here also relate to spatial change wherein the villagers who used to depend on a power structure with a distant management center, are now trying to organize themselves with the nearby villages and the help of a local NGO. This is a unique case of an organic tea cooperative in the Darjeeling Hills.⁴²

Economic and institutional changes further introduced important social changes as people switched from a centralized and top-down structure (i.e., the tea estate as a strong hierarchical socio-economic structure where roles and power relations are well-defined and controlled) to a decentralized and more self-organized structure (i.e., small farmers mainly acting upon individual initiatives and operations as well as mutual cooperation). In the latter scenario, power relations are becoming more diffused and/or

⁴² Saxena (2005: 149) also reported a case of small-scale organic tea cultivation in one project village of NGO Project SERVE.

the spatial/hierarchical level of power is becoming polarized (e.g., creation of DGHC, empowerment of the village panchayats) -- at least legally speaking.

The villagers also faced important ecological changes after the closure of the tea estate and during political agitations. In particular, the lack of livelihood means before and after the final closure of the tea estate led to the deforestation of what used to be tea estate forests as well as to some extent deforestation of the adjacent government forest. The political agitations further triggered the process of deforestation: the government forest became a *de facto* open resource due to the absence of enforcement of forestry regulations by the West Bengal Forest Department during that time period. Conversely, afforestation practices have also been starting inside the village after the closure of the tea estate (Plate 5.7). A large majority of the villagers today have forested plots. Some of those forested plots used to be tea estate forest areas, but others are newly-forested plots. Finally, none of the villagers in Yangkhoo is using fertilizers and pesticides. All their products (i.e., tea, cardamom, ginger) are certified organic by a Swiss agency.

Overall, this chapter presents the evolution of Yangkhoo's livelihoods over time. The village moved from total economic dependence on a tea estate to the diversification of livelihood activities and a more self-organized socio-economic structure. History is not linear and livelihood changes are the result of complex processes (e.g., reminiscences, relationships, linkages, dynamics and feedback processes). Certain areas of the system experienced slow changes (e.g., closure of the tea estate, improvement of socio-economic conditions) and some abrupt changes (e.g., collapse of Hayden Hall and the milk cooperative), whereas other areas of the system have not changed (e.g., terrace farming and cow rearing practices). After the closure of the tea estate, the village of Yangkhoo was on the edge. As a subsistence village, it was highly vulnerable to any vicissitudes in climate and entirely dependent on the natural environment. Over time, it evolved on its own without much external intervention.

Today, Yangkhoo is not a subsistence village the way it was right after the tea estate closure. The local economy continues to have a subsistence component but it also

complements its income with some wage-paying jobs in and around the village (see Chapter 4). Over time, the course of livelihood diversifications, which was set in motion by the big jolt of the tea estate closure, has been altered by other smaller shocks and opportunities (e.g., landslides, political unrest, road construction). This chapter has illustrated the role of contextual factors in influencing livelihood changes. The next chapter introduces some nuances and focuses on the role of internal village dynamics and cross-scale institutional linkages both as causal and response factors of change. It shows how new vulnerabilities emerged locking the system into path dependency (e.g., corruption, low self-confidence and socio-economic disparities).

TABLE 5.1: Chronology of livelihoods change in Yangkhoo

Periods	Nature of change	Key drivers of change	Impacts/responses of the livelihood system
1953-1965	Socio-economic instabilities in Mineral Spring tea estate ⁴³ and final closure	▪ International and regional economic factors: general stagnation and then decline in the tea industry in the Darjeeling Hills due to lack of competitiveness at the international level ▪ Local policy climate: mismanagement in the tea estate	▪ Coping strategies: (1) plucking tea in nearby tea estates, (2) sale of tea leaves to neighboring tea estates during plucking season and sale of firewood and charcoal from tea garden forests ▪ 1965: end of the main source of livelihood
1966-1972	Period of limbo: continuous instability with no market and economic assistance	▪ Policy trigger factors: Mineral Spring area still legally considered as tea estate, political instabilities in the Darjeeling District ▪ Environmental trigger event: 1968 landslides and fires in Mineral Spring ▪ Socio-political trigger event: 1971 war India-Pakistan	▪ Socio-economic crisis: hard to get food and clothes, low yield from land, low remuneration from milk, health problems, low self-esteem ▪ Main coping strategies: (1) land grabbing process, (2) deforestation, (3) tea bushes partially uprooted, (4) cultivation of subsistence crops, (5) sale of hand made tea and milk ▪ Other coping strategies: remittances in nearby states, labor work outside Yangkhoo, economic support from social networks, sale of land
1973-1986	Local NGO intervention	▪ Individual initiatives within public educational institution: 2 teachers in a local College decide to confront students with social work focusing in a nearby village ▪ Heterarchy factor⁴⁴: 2 teachers also involved in a local Jesuit-funded NGO, Hayden Hall. One of the teacher is also involved in house cooperative projects in the district ▪ Socio-economic trigger factor: nearby village in Mineral Spring asked for help to reconstruct a local school	▪ Major changes introduced: creation of a milk cooperative with surrounding villages, introduction of loans through banks (versus middlemen) to buy insured cows, adult education (mason, carpenter, crop rotation, multi-cropping, terrace farming), food for work program, afforestation (Lower Harsing) ▪ Indirect impacts: exposure of the villagers to town/market; increase of animal husbandry, milk production, fodder cultivation; decrease of the dependence on the middlemen, increase of communication among villages, confidence building

⁴³ Tea estate here is understood as a productive unit as well as a social unit.

⁴⁴ Jen (2001:3) defines "heterarchy" as being "interconnected, overlapping, often hierarchical networks with individual components simultaneously belonging to and acting in multiple networks, and with the overall dynamics of the system both emerging and governing the interactions of these networks (e.g., human societies in which individuals act simultaneously as members of numerous networks)".

Periods	Nature of change	Key drivers of change	Impacts/responses of the livelihood system
1984-onwards	Governmental intervention (1984-onwards) and withdrawal of the local NGO (1986)	▪ Cultural and policy factors: corruption and mismanagement in the milk cooperative ▪ Institutional factor (Hayden Hall): change of director, lack of project action plan, end of the project initiators involvement ▪ Social trigger event: political unrest	▪ 1984-1985: formal recognition of landownership and beginning of governmental intervention (revenue village) ▪ 1987: collapse of the milk cooperative
1986-1988	Gorkhaland agitations ⁴⁵ : including 40 day strike (markets closed down, CPRF intrusions and arrestments ⁴⁶)	▪ Cultural, historical, political and economical factors: the Nepali of Darjeeling ask for the recognition of their distinctiveness outside of West Bengal but within India	▪ Food crisis: access to market dangerous and/or markets closed down (i.e., no food available, difficult to sell cash crops and milk) but no starvation ▪ Coping strategies: use of forest resources (government forest) for firewood and food (wild potatoes), remittances, social supports networks, agricultural thefts
1989-1996	Period of relative stability	▪ Political factor: creation of an autonomous development Hill Council, Darjeeling Gorkha Hill Council (DGHC) ▪ Beginning of infrastructure change: road construction (paved road linking Lebong to Yangkhoo (1994-2004) and village jeep road (2003-onward)) ▪ Interacting effects: legal decentralization (PRI 73rd Amendment, 1993)	▪ Main livelihood strategies: cultivation (e.g., green tea leaves sold to nearby tea estates) and milk ▪ Reinforcement of livelihood trends and progressive switch from subsistence to cash crops ▪ Impacts of road constructions: increase of off-farm activities, public services extension, reduction of size of landholdings
1996 - onwards	Local NGO intervention in Mineral Spring area	▪ Ideological climate: change of development agencies ideology at an international level from charity work to more participatory approaches and community development ▪ Institutional emergence: 1983 evaluation of Hayden Hall and emergence of a new mandate, "community development", and a new institution, RCDC ▪ Heterarchy factor: one member of RCDC was also one of the initiators of the Hayden Hall intervention in Mineral Spring ▪ Cascading effects: intervention of private sector (Tea Producers of India)	▪ Projects: Community-based cooperative (1997) including a tea committee (1998) and a women's self-help group (2001), construction of drinking water tanks (2000), afforestation with WWF (1998-99)

⁴⁵ Gorkhaland agitations refer to political insurrections happening in the Darjeeling District since the 60s-70s.

⁴⁶ CRPF stands for the Central Reserve Police Force. It is the armed force of the Indian government. A villager reported Yangkhoo suffered less from the CRPF "races" because it was less accessible than other places.

CHAPTER 6.

ROLES OF INTERNAL VILLAGE DYNAMICS AND EXTERNAL INSTITUTIONAL LINKAGES IN THE FACE OF CHANGE



PLATE 6.1: Villagers making planks with local “saw-mill” in their forested plots.

The village internal dynamics, external institutional linkages and cross-scale issues in light of past and new changes are described and discussed in this chapter. Those are key factors influencing the ability of Yangkhoo to increase its ability to deal with change in order to maintain and/or promote sustainable livelihoods. Indeed, over time, with infrastructure and market development, external linkages increased in Yangkhoo and will probably continue increasing. The chapter builds on primary data.

INTERNAL VILLAGE DYNAMICS

Part of the success of those external institutional linkages depends on the ability to understand and account for internal village dynamics and *vice-versa*. External interventions often override internal village dynamics because they tend to focus on problems, such as market development, perceived as more directly related to the survival of communities than internal village dynamics. Yet internal village dynamics are key to the long-term success of any external intervention. Internal village dynamics as covered in this section include: tea estate legacies, Rai customs, traditions and beliefs, poor people working for the more prosperous, changes in local institutions, signs of distrust toward the village leadership and weak maintenance of the commons.

▪ Tea estate legacies

The historical background of the tea estates left some legacies in Yangkhoo with economic and socio-cultural implications. In particular, the tea estate history contributed to the establishment of disparities between the tea estate area and the non-tea estate areas of the Darjeeling Hills (i.e., between the Darjeeling and Kalimpong sub-districts) as well as inside the tea estate itself among the various settlements (i.e., Yangkhoo, Harsing, and Dabaipani). First, the tea estate was instrumental in the immigration of Nepalese to the area and in the creation of today's relatively young settlements, compared to the other hills settlements in India and in the Himalaya. The tea workers lost part of their traditional livelihood activities and had to learn agricultural practices after the closure of the tea estate. It takes time to build up an agricultural base. Today, the techniques the villagers use to terrace their agricultural crops and to keep their livestock attest that they have not mastered

agricultural practices as other non-tea estate villages have. For instance, Chapter 4 described how the farming terraces of the villagers in Yangkhoo are very small. Walls barely appear because of weeds, or are non-existent. Many terraces are also falling down leading to increased erosion. Cows are kept in simple sheds sometimes without any walls. The cow manure is dumped to the side of the cowsheds and most of the valuable nutrients contained in the manure are lost. The lack of agricultural knowledge is probably a general trend in most of the Darjeeling sub-district, which is mainly occupied by tea plantations.

Conversely, the Kalimpong sub-district, on the East of the Teesta River, closer to the Bhutanese border, has had only a few tea plantations and has been more dominated by paddy rice cultivation. Historical differences partly explain the current socio-cultural and economic differences between these two parts of the Darjeeling District. Prior to the colonial period and until 1706, the King of Sikkim ruled the Darjeeling area, whereas the King of Bhutan ruled the Kalimpong area (O'Malley 1903). Since the British period, the majority of the Darjeeling sub-district's inhabitants has worked in tea plantations with no access to land ownership. Conversely, the inhabitants of the Kalimpong sub-division, mainly Lepchas, benefited from land ownership together with a longer history of non-interrupted agricultural practices in the area. Therefore, their agriculture is probably more settled and advanced than the agricultural practices of the people living in the Darjeeling sub-district, as suggested by local practitioners (DLR Prerna, personal discussion; Mountain Forum 2005). DLR Prerna reported that the villagers of Yangkhoo have a shorter-term and more money-focused than land-focused approach to agriculture in comparison to the villagers from the Kalimpong sub-district. Overall, further comparative studies need to be done on the differences between the Darjeeling and Kalimpong sub-districts. The topic is raised here more as a hypothesis than as an argument.

Second, another important historical distinction exists between the tea estate area and the non-tea estate areas of the Darjeeling Hills. The Kalimpong sub-district used to be on a trade route to Lhasa in Tibet. Trade provided locals with entrepreneurship skills in

ways that never happened in the tea estates.⁴⁷ The lack of experience with entrepreneurship might be another factor, which indirectly slowed down the process of building up an agricultural base in Yangkhoo. Indeed, tea estates are hierarchical and centralized structures and probably influenced peoples' attitudes towards life and work as well as their relations to those in authority and to external aid. The tea estate structure might have inhibited rather than developed the ability of the tea workers to take initiative, compete, and engage in business. Rather, the tea estate structure created mechanisms of socio-economic dependence, wherein the tea workers were entitled to receive a number of benefits, including rations.

For instance, it might have had an impact on the villagers' food habits. Although the villagers of Yangkhoo do not/cannot cultivate rice, but instead rely on millet, maize or soybean, rice still constitutes their main basic food whereas millet, maize and soybean are mainly cultivated as snack foods, as a base for the production of alcohol and as food for livestock. The villagers depend on the market to buy a large part of their basic foodstuffs. An ex-social worker in Mineral Spring from Hayden Hall remembers that during the time of the milk cooperative and at times of milk surplus on the market (i.e., the demand for milk fell after the tourism season), the villagers of Mineral Spring would not use the excess for their own consumption. They were still feeding their children with rice. The ex-social worker further comments that even today: "They are caught in a trap looking for an easier solution". At the same time, the tea estate background might have simply reinforced already existing social practices. Indeed, McDougal (1973: 211) in his study of a Kulunge Rai community (also a dominant group among the Rais in Yangkhoo) in an eastern valley of Nepal, already reports in 1965 (i.e., at the same time the tea estate closed down in Mineral Spring): "the Rais are not self-sufficient", and "small-scale trading [at the bazaar towns] is of some importance as a supplementary source of income".

⁴⁷ "This historic trade route between Kalimpong and Lhasa was responsible for building Kalimpong as one of the most prominent trade centers of Indian and Tibetans goods and raw materials until the early 1960s when the route was unexpectedly closed following the Sino-Indian war. [...] Mr. Satya Narayan Agarwal [from Kalimpong], aged 75 years old, still vividly remembers how he as a young retailer used to sell clothes and other semi-finished textiles to his Tibetan counterparts during the 1950s" (Khawas 2004)

Third, the tea estate history also contributed to influence socio-economic relationships inside the tea estate itself. For instance, caste and gender differences in Yangkhoo are not as strong as in other parts of India or Nepal. Chapter 3 mentions that whichever migrants, mainly the lower castes in Nepal, arrived first at the tea estate tended to get better assets. Women were also an important part of the tea workers population. At the same time, the tea estate was far from being exempt from socio-economic disparities. Chapter 5 described how many different types of workers were involved in the tea estate from daily waged tea pluckers to monthly waged clerks supervised by the management body at the top of the hierarchy; social stratification was evident. A centralized power structure, with corruption and favoritism as an integral part of the enterprise climate, used to control the workers.

Disparities inside the tea estate created socio-economic differences between Yangkhoo and the surrounding villages (Harsing and Dabaipani). Although the settlements neighboring Yangkhoo have a common history and shared experience in the tea estate, socio-economic differences prevail and are directly noticeable between villages (e.g., type and size of houses, size of land, and maintenance of the commons). Socio-economic differences among the villages are apparent through direct observation and confirmed by local perceptions. The villagers interviewed in Yangkhoo and in the surrounding villages as well as the key informants working (or who used to work) in Mineral Spring agreed that socio-economic differences make Yangkhoo a quite distinct and economically depressed village compared to neighboring villages.

Once again, the tea estate has been instrumental in establishing these socio-economic differences, which have also been reinforced by other factors (e.g., environmental factors including physical isolation of Yangkhoo far from markets). Dabaipani, a village adjacent to Yangkhoo (Fig. 4.2), was already more prosperous during the time of the tea estate. It used to be the economic and political power center of the tea estate. The main buildings (i.e., the manager's bungalow, the factory and the fermenting house) were located there. A ropeway⁴⁸ connected the factory to the rest of the tea estate.

⁴⁸ Local term for a cable car kind of arrangement to transport tea leaves.

Therefore, employees living in Dabaipani obviously had higher-level positions and better access to and benefit from assets because they were closer to the manager.

Overall, the tea estate background has been influencing the villagers' mindset and their socio-economic relations with land and agriculture creating some path dependency. The term "path dependency" is borrowed from Ostrom (1992: 61-62). The American political scientist (*idem*) especially comments on institutional change:

Because path dependence characterizes most processes of institutional evolution, all systems have limits to the degree and frequency of change that is feasible without destroying the advantages of predictable expectations created by a stable institutional process. The level of reformability that can be achieved in a set of rules varies from place to place. If the users of a set of rules do not have any *de jure* or *de facto* authority to change them, only strategic choices within the existing rules will be adjusted. This places a severe limit on the reformability of such systems over time.

Here, path dependency characterizes livelihood change from tea estate workers to villagers earning a living through farming and some wage paying jobs. Path dependency means that once the inhabitants of Mineral Spring have got used to a certain way of earning a living as tea workers, it is hard to accept new ways of earning a living, especially because cultivation generally implies long-term benefits rather than wage paying jobs with short-term cash benefits. One hypothesis is that the villagers are also more money-focused partly because they got used to monetarized relations in the tea estate. However, historical legacies are not the sole determinant of the current situation in Yangkhoo and the way Yangkhoo has responded to various changes over time. A combination of other factors is at play.

▪ Rai customs, traditions and beliefs

Cultural factors are important in shaping the villagers' responses to change. Rai communities are perceived as more conservative than other ethnic groups. Villagers interviewed outside Yangkhoo, but having strong connections to Yangkhoo (e.g., through relatives or businesses) reported that villagers were less competitive and were less entrepreneurial than in Harsing or Dabaipani. To reiterate, social aspects are just one factor, acting in combination with various other factors. The physical isolation of

Yangkhoo compared to Harsing and Dabaipani and the proximity of the Wildlife Sanctuary also played an important role in inhibiting the access to and benefit from new business opportunities.

Furthermore, the roles of various aspects of culture can be quite complex. The villagers in Yangkhoo also show room for creativity and flexibility. Traditionally, Rais worship ginger and millet. A taboo surrounds the cultivation of ginger in the village, but this taboo has changed over time mainly due to economic factors. It is not clear if this belief is specific to one of the Rais sub-caste or to the village. An elder in Yangkhoo described the story of change in the tradition of worshiping ginger. Four generations ago, only the head of the family was allowed to cultivate ginger. The other members were not allowed to grow or touch ginger, or even to enter the ginger plots. According to the belief, ginger was connected with gods and ancestors and villagers feared their punishment should taboos be broken -- this belief still exists. The villagers/Rais believed the transgression of those rules would make them sick. Access rights to ginger were limited and use restricted for the purposes of worship only. Today and since the late 1970s, the belief is still present, but the villagers have progressively started to grow more ginger and to cultivate it as a cash crop due to changes in the price of ginger (Plate 6.3). The head of the family still grows some ginger for the god in a small plot nobody else is allowed to touch. The households also offer the first harvest to the god.

Most probably, the ginger taboo was used to prevent theft. Another elder mentioned that thefts of ginger used to happen in the village and stopped when villagers received more employment opportunities, especially when road constructions started in the area. The change in the use of ginger shows the flexibility of customs and beliefs as the ability to adapt to and take advantage of economic opportunities when required. Increasing difficulties surrounding maize cultivation due to wild animal threats from the adjacent wildlife sanctuary might have further encouraged the expansion of the use of ginger from sacred food to cash crops -- wildlife does not attack the ginger.

Rais customs and beliefs allow for flexibility but also diversity. As mentioned earlier (Chapter 4), Rais follow their own traditional customs influenced by a mix of

shamanism and Hinduism (Plate 7.1). Traditional customs are part of self-organization in the face of change, but also in the face of the State policy climate since India only grants formal recognition to the Hindu, Muslim, Sikh, and Buddhist religions. The shaman represents holy power. He is the human link in contact with god who transmits oral history. As such, the shaman is an important part of the socio-cultural memory of the village: he/she is a sense-maker, a knowledge carrier and an interpreter. A central aspect of traditional customs is the worship of ancestors. Every Rai household has a prayer place made of three sacred stones. The sacred stones represent the grandmother and grandfather.⁴⁹ Ancestor worship is one way for the villagers to relate to the past. It provides them with some sense of a landmark in the midst of rapid changes. Simply put, both Hinduism and Shamanism, not only connect the villagers to the past, but also involve some kind of thinking about the future (e.g., the belief of reincarnation in Hinduism and practices of prediction in shamanism)⁵⁰. Along with those beliefs, the villagers in Yangkhoo developed many safety nets to deal with uncertainties (e.g., climatic, market uncertainties as well as uncertainties at the household level such as the death of the head of the family). Safety nets include diversifying crops, keeping seeds (cardamom, ginger), keeping livestock for sale (cows, pigs, goats), saving money, educating children, and keeping and nurturing trees in their own plots. On savings more specifically, of the 19 households interviewed, 10 households reported saving money and nine reported they could not although they wanted to. One reason households could not save money was related to the financial burden of the children's secondary education outside the village.

Interestingly, different knowledge systems are at play where traditional practices and beliefs (shamanism) cohabit with new economic practices as part of globalization processes (e.g., sale of fair trade organic tea for the international market). That said,

⁴⁹ No consensus prevails on the significance of the third stone and different groups within the Rais have different answers depending on their origin. The reason may simply relate to practical concerns since it also often served as a fireplace in the kitchen. Or, groups like Rais trace their roots to the Mother so one stone could represent the universal mother/grandmother (the Earth?) and the two other stones could represent the physical grandmother and grandfather. (Roshan Rai, DLR Prerna, personal communication, April 2005)

⁵⁰ One villager spoke about his belief in reincarnation (84 lives) in human, animal, insect, plant and seed form and the need to use the land for his own profit, but also in a way that enables him to live his 84 other lives. This statement can be interpreted as long-term sustainability thinking. For references regarding shamanism, see Chapter 5, section "Epilogue: predictions and visions".

some customs are also disappearing. The villagers interviewed see the loss of some traditions (e.g., traditional clothes and food) as a negative trend. The loss of customs is also evident in a villager's personal diary, which makes direct connections between the loss of traditions and sustainability issues:

We must follow our traditions and the ancestors' eating habits. Nowadays, people are not praying to their ancestors. We must pray for our ancestors and eat what we are supposed to eat according to our religion and caste. *Otherwise there will come the day when there won't be anything left for future generations.* (Autodidact villager, Tuffan's personal diary translated from Nepali, Yangkhoo. Added emphasis)

In his diary, Mr. Tuffan Rai relates the loss of traditions to an increase of socio-economic disparities among people.

▪ **The poor work for the more prosperous**

Most households have been diversifying their livelihoods over the years especially by complementing farm income with off-farm income (Chapter 5). Economic diversification is often associated positively as a mechanism of risk sharing for insurance building. At a village level, the switch from subsistence crops to cash crops is a general trend, but poor households with non-existent or little income from cash crops still rely on subsistence crops (especially maize) to complement wages from agricultural and non-agricultural labor. Therefore, access to and benefits from diversification mechanisms vary among households depending on their assets (e.g., education; type, amount and location of cultivable land; skills, and personal initiatives and social networks) and the occurrence of various ecological and social events (e.g., landslides, pests, diseases, changes in the social structure of households). Somehow, the same processes (i.e., some households manage to diversify better than others, contributing to socio-economic disparities) were also happening during the time of the tea estate, but the current structure is different (i.e., the State and Central governments replaced the tea estate management, and villagers are now left to their own initiative).

In Yangkhoo, land is not equally distributed and only a few villagers are educated. Poor households have access to temporary/seasonal jobs (e.g., labor on the road) whereas more prosperous households have better access to more secured jobs (i.e., government jobs). Furthermore, access to livelihood diversification does not always ensure benefits. For instance, the village road construction created new opportunities for livelihood diversification through the creation of new jobs and the improvement of market access. At the same time, the households closer to the road benefit from larger economic advantages for the sale of tea, milk and livestock. The road construction also took away the cultivable land of a few households without the return of any financial or material compensation. In theory, everybody has access to the benefits to be garnered from the road, but in reality not everybody is equally benefiting from it. Only a few people are more mobile than before the time of the road construction. Part of the reason is that the road construction also increases market options within the village (i.e., increase of the number of local shops). Overall, benefits from economic diversification are not equally distributed among the villagers. For instance, benefits may depend on a combination of factors such as the location of the household, as in the case of road construction, and on the socio-economic status of the household. In the latter case, the poor work for the more prosperous.

All the households interviewed ($n = 8$) report an increase of socio-economic disparities among villagers especially since 2000 and the start of the village road construction. Four households out of five also revealed a decrease of social cohesion in the village (comments from interviewees to describe this include: "lack of unity", "people do not get along so well", "trust is decreasing slowly"). Some villagers feel that a few villagers are increasing their standard of living through labor work and corruption at the expense of the majority. Another explanation of the increase in socio-economic disparities is also simply related to personal values and goals. Many of the villagers interviewed do not appear as profit-driven as others and seem satisfied with their "simple life". Some villagers explain that the increase in socio-economic disparities is partly due to the lack of entrepreneurial skills and spirit of competition, formulated pejoratively as "laziness". Finally, the relative social homogeneity of the village probably does not favor inclusion of the few minorities. One of the two Christian households in the village confesses:

"I am Christian and I have been removed from the panchayat. I have been made an outcast, but my youngest son is a member of the Samaj and in my daughter's wedding last year, the neighbors came to help us. Because I am Christian and considered an outcast I do not mix so much and also avoid the three stones considered holy by the Rais". (A villager, Yangkhoo)

Importantly, any portfolio of activities enabling livelihood diversification also requires adequate social support mechanisms to enable and secure access and benefits from livelihood diversification and livelihood sustainability.



PLATE 6.2: Villager showing local plant, "hardy". The rhizomes in orange are made into powder and used as natural pesticide. Local baskets ("doko") are made from bamboo.



PLATE 6.3: Seeds ginger terrace with tea bushes on the foreground and *Amliso* on the L of the ginger terrace. Farm trees on the background.

▪ **Changes in local institutions**

In case social support capacities are not there or are not functioning well, access and benefits from livelihood diversification opportunities are jeopardized especially for the poorest. Indeed, those institutions mediate, reinforce and/or inhibit mechanisms of exclusion/inclusion by controlling rules, norms, social relations, etc. Social support capacities in Yangkhoo include: (1) traditional system of labor exchange ("parma system"), (2) traditional religious and psychological support from shamans in the case of sickness, (3) conflict resolution mechanisms through the village society ("Samaj"), (4) access to loans from the Samaj in the case of marriage, funerals, sickness, and accident, (5) access to loans and credit from the village women self-help group, neighbors, and relatives outside the village, and (6) the ability to buy food and seeds on credit in the local shops. Social support capacities underwent a number of changes over time.

Traditional support systems still seem relatively strong in Yangkhoo especially in times of major social events and crisis (i.e., wedding, death, sickness), but less so for other aspects of economic life (e.g., cultivation and other businesses). Those traditional support systems are also becoming more vulnerable in the face of new changes. For instance, the system of labor exchange is decreasing due to the monetization of relationships. As pointed out by one informant: "today everyone is up to earn money!" In general, relationships between neighbors were reported to be limited to seed exchanges and physical help at times of marriage, death or sickness -- comments from interviewees to describe this include: "Everybody is living with their own problems", "there is less coming and going between houses and not much exchange of information and ideas, [...], people used to rely more on their neighbors before 1989-90". However, although a shaman reported the erosion of traditional knowledge, fieldwork reveals that shamans are still an important traditional social support system for the Rais, especially during specific social events and religious festivals.

The socio-economic support that used to be provided mainly by neighbors is now provided through the Samaj. The concept of village society as a community support system is not specific to Yangkhoo. Every village in the Darjeeling District has at least

one or more Samaj. In Yangkhoo, the Samaj was established in the 1950s and first started as a cultural committee. Today, it is a welfare society providing financial and logistical aid to the villagers for social events. But again it does not provide any support for cultivation purposes or other businesses. In comparison with the old Samaj, the current society is more formalized (i.e., elaboration of strict laws and registered status) and financially stronger (i.e., each member must make a financial contribution of 10 rupees per month). In 2004, 72 percent of the villagers were members of the society.

The villagers interviewed were happy and proud of their society especially because it is a relatively long enduring institution in Yangkhoo, which provides useful support in times of difficulty ("we should take care of the Samaj as our own house"). At the same time, more in-depth questions reveal some current internal problems with the Samaj including decision-making problems ("discussions among members should be necessary", "the president should listen to the participant", "not all fingers are equal"), lack of implementation/enforcement of rules, lack of accountability by the leaders (i.e., rumors of funds misuse), leading to a recent decrease in participation by villagers. One informant reports that the Samaj needed to be reformed or it may collapse -- In this case, the current high level of participation in the society, as mentioned earlier, is not representative of the internal frustrations. According to one villager, such a crisis in the village society happened in the 1980s. The apparent unity inside the society hides an absence of discussion and a monopoly by the leadership ("villagers follow the leaders blankly"). The crisis happening in the village society reflects signs of distrust in the current village leadership (see next section).

Some of the other recent support systems include the village women's self-help group introduced by the local NGOs, and the library. Some informants complained that the loans from the village women's self-help group are not provided in time to enable them to buy seeds and interest rates are too high. Direct observation during fieldwork and interviews show a decrease of participation in the women self-help group. Of the seven women interviewed, only three women were current members; two never joined, and two were members, but left the group. On the whole, women lack incentives to participate due to lack of time, lack of awareness, and most of all, due to the monopoly of a few women who are more economically powerful ("some women laugh at us",

“people are not good”, “they are not listening to what we are saying”, “the women who are smart and have more education tend to dominate and segregate the other members”). Another disincentive is the ability of the households to fall back on neighbors and relatives when really needed. During the time of fieldwork, the library seems more like a façade established by a few to benefit from job opportunities more than anything else. Even if sections of the library are still under construction, the library is not running regularly (if at all) and the villagers have little awareness about this. Importantly, the presence of social support capacities in itself is not enough; ideally, those support systems need to allow for active participation and involvement of the villagers in order for equitable circumstances to arise.

▪ **Signs of distrust toward the village leadership**

Key informants outside the village perceived Yangkhoo as being well united and organized in comparison to neighboring villages because of its “strong” village society. It might be true on the surface level but the villagers interviewed also let us sense issues in the balance of power relations showing the complexity of internal dynamics. The president and secretary of the Samaj, are elected by the villagers, and become the village leaders (collective leadership). They also monopolize all the important functions (e.g., president, vice-president, and secretary) in the other village organizations (e.g., political party, library, school committee). Most of the time, the more educated people of the village held those functions because it requires time, which the poor cannot afford to give, and administrative knowledge, which most of the poor do not have. This situation creates a vicious circle wherein the sharing of responsibilities is limited to a few. Further, elites commonly prevent others from learning as a way of excluding them and keeping power. It is, using the terminology of Diamond (2003), a case of perverse learning where the knowledge of a few, the leaders, is used at the expense of the majority.

Not only access to responsibilities is (non-deliberately and maybe deliberately) limited to a few but so is access to information. The leaders have a better economic status. They have secured off-farm jobs (e.g., as contractors or governmental jobs holders) and political connections outside the village. They are able to speak and carry

messages from one level of organization (the village) to another (political parties, NGOs) and take initiatives. The leaders are regularly going to Darjeeling town. The greater mobility of these individuals probably also contributes to increasing gap between them and the rest of the villagers. During fieldwork activity one of the leaders was most of the time absent.

The village society is strongly linked with the current political party, GNLF, in order to acquire funds. However, no regular political meetings are held and the villagers report that political meetings are limited to elections time only. Villagers interviewed on the existence of political organization in the village gave confusing answers. The leaders also have an indirect monopoly over the decisions taken by the current elected panchayat representative. Although this panchayat representative is supposed to consult with a Beneficiary Committee composed of local villagers to decide upon the allocation of the Government Welfare Schemes in the village, the representative consults only with the village leaders, because "it is hard to get a consensus". The current panchayat member is illiterate and shows a lack of knowledge about the panchayat structure (more on the problems of the local panchayat in the "cross-scale issues" section).

Local informants reveal distrust (and maybe jealousy) against the village leaders. Among various rumors, the leaders apparently raise strict rules regulating social conflict resolution and resource use through the village society. However, the villagers denounce the reality that, ironically, the leaders themselves do not follow those rules and are not penalized according to the rules established, therefore creating a lack of credibility and accountability, and decreasing their capacity to enforce rules. Whether or not the rumors are true, it is hard to say. The important point is that it demonstrates a certain lack of cohesion and distrust inside the village. Power imbalance is inherent to any socio-economic structures but local practices (and in some cases, external interventions, see next sections) can further reinforce power imbalance, as it seems to be the case in Yangkhoo.

A number of factors may contribute to an increase of imbalance of power at a village level, including: monetization process (especially since the road construction),

decentralization process (the creation of the village panchayat creates another level of administration and therefore must have influenced the village leadership), and local institutional change (i.e., loss of a key leader in 2000). Most ironically, although many informants complain about the current policy climate, they remain passive. Business is running as usual and villagers are just waiting for the next election. In fact, they seem caught in a trap of low self-confidence and fear of the power of the elite.

Overall, the general balance of power and social relationships in the village portrayed by the villagers interviewed, and experienced through direct observation, seemed rather fragile and appears to have deteriorated over the last four years. Rumors of corruption, increase in individualism, increase in socio-economic disparities, limited exchange of information between neighbors, among other trends, seems to characterize the village's socio-economic relations in the last few years. How do these factors influence the management of natural resources?

- **Weak maintenance of the commons**

The maintenance of the commons (i.e., water and forests) has been problematic in Yangkhoo. Six households out of eight interviewed, report facing regular water shortages. The situation seems all the more ironic since water, in theory, is relatively abundant in Yangkhoo. The villagers also benefit from the construction of a water tanks network by the government and the local NGO respectively in 1995 and 2002 (see Chapter 4). All the water tanks are connected through pipelines. Water problems are not new. Before the water tanks, households were getting water through individual bamboo pipes directly connected to water sources from the government forest and individual plots. Today, the main problem is still one of maintenance of the water tanks. Villagers, especially in middle Yangkhoo, report regular water stoppages due to deposits blocking the tanks at higher elevations. In the village, no one is responsible for maintaining the pipes and the village society did not take any action to improve the situation. Again, the villagers complain about the water situation, but lack personal initiative to correct water supply problems ("Even people who have problems don't go to maintain their tanks!"). Only one villager decided to build his own tank (Plate 4.5).

The villagers themselves say they are too selfish to maintain the tanks. (more on this in the "cross-scale issues" section)

Furthermore, the villagers of Yangkhoo have a close relationship with the adjacent government forest. Despite a history of restricted access rights (see Chapter 5), it can be defined as a *de facto* common. Over the years, they built up a vast knowledge of the different types and uses of wood (see local knowledge on the various types of on-farm trees, Chapter 4, footnote 21) and managed to transfer this knowledge in their private forested plots. Villagers, youth included, also became conscious of the importance of trees for the benefits of the entire ecosystem, including their water sources. Comments from interviewees to describe this include:

We learn from the radio and newspaper that the forest is important for the weather. We have occupied the land and protected the trees so that others don't cut them. It takes care of itself, we don't have anything to do (Premsing, Yangkhoo).

It is important to protect the forest for water. Within our knowledge, water has dried up due to deforestation and it is affecting our agriculture as animals like boars and monkeys are entering our fields and destroying our crops. We have stopped planting maize (Mahendra, Yangkhoo).

They report a degradation of the state of the government forest over the years and one informant mentions the extinction of a few mammals such as the goral (a small Asiatic goat-like mammal). The village society has also condemned the felling of wood from the government forest and has already tried to involve the villagers in afforestation practices. That said, unlicensed small charcoal and plank-making still constitute the main livelihood activities for a few households in the village (from nine to 18 percent of the households according to two different informants). Two informants report those households are poor, but also include more prosperous households who "just got used to this practice". The villagers are taking advantage of the weak enforcement of the Forest Department laws limiting timber cutting. However, today, the business is decreasing due to a decrease in demand and the increase of employment opportunities due to the road construction. Conversely, in their private plots, the villagers have learned to nurture the forest and to plant trees in areas that have experienced landslides. But the same sentiment of belonging does not exist for the

government forest and, therefore, incentives to preserve it are less ("It is their land", "We don't have right but we still benefit from it"). As an ex-social worker involved in Mineral Spring through Hayden Hall puts it:

"What belongs to the government, also belongs to me" is a thinking that is still not digested by the community. Instead of the idea of "community forest", there is an alien relationship between the government and men." (C.B. Rai, Darjeeling)

The relationships between Yangkhoo and the Forest Department show the importance of external institutional linkages in influencing the villagers' practices.

EXTERNAL INSTITUTIONAL LINKAGES

Although Yangkhoo developed without much external help following the closure of the tea estate, it is still important to understand the role and impact of past and existing external institutional linkages, especially because external linkages are playing an increasing role in today's globalized world. It is also important to understand the reasons and impacts of the *absence* of linkages at certain levels of the system. External linkages refer to any relationships between the village and outside groups or organizations. Institutional linkages, or their absence, are analyzed here for their ability to increase (or not) the ability of the village to deal with change and promote sustainable livelihoods.

Most of the time, institutional linkages are agents of change bringing new knowledge, ideas and technology to local people (Berkes and Seixas 2004). They can attenuate as much as they reinforce internal village dynamics (e.g., power relations, inequities). The previous chapters already set up some background information: Chapter 4 briefly mentioned the institutions currently involved in Yangkhoo and their roles, and Chapter 5 presented how various institutions got involved in Mineral Spring over time and their impacts on livelihood changes in Yangkhoo. This section describes the key external linkages currently at play in Yangkhoo, evaluates those linkages in relation to resilience building; and further analyzes cross-scales issues and related impacts in Yangkhoo.

▪ Limited formal linkages

Villagers' perceptions of external institutions show that these institutions provide limited external aid. When asked what external aid they had benefited from so far, the majority mentioned help from NGOs especially with the tea business, road construction and access to loans through village institutions and a self-help group. Table 6.1 gives an overview of the seven key external linkages influencing the livelihoods in Yangkhoo. Five key *formal* external links are between (1) the farmers of Mineral Spring and the local NGO, DLR Prerna, (2) the tea cooperative, SVC, and Tea Promoter of India (TPI), (3) Yangkhoo and the State government through DGHC, (4) Yangkhoo and the Forest Department, as well as (5) other departments from the Central government. Other key *informal* external linkages are between Yangkhoo and the neighboring villages, and the Forest Department.

Horizontal linkages at the village and local levels mainly promote the production of green tea leaves through the multi-village level cooperative in partnership with TPI and mediated by DLR Prerna. SVC is comprised of roughly 400 farmers in the Mineral Spring area. At the hamlet level, a villager is responsible for collecting the green tea leaves from individual tea farmers and delivers them to the Tea Committee, part of the cooperative. The green tea leaves are then sold and transported to a nearby organic tea estate owned by TPI, Selimbong Tea Garden, for processing. Each farmer gets a fixed price per kilogram for the green tea leaves all year round, no matter the variations in tea quality. The farmers are not linked with the marketing of the tea, which is sold by TPI to international markets. TPI and SVC function in a reciprocal relationship: the farmers get higher profits and more secured marketing of the green tea leaves than when they used to sell tea leaves directly to nearby tea estates; TPI manages to collect organic green tea leaves in sufficient quantity because the farmers are organized in a cooperative.

The DLR Prerna intervention in Mineral Spring started through international funding from 1996- 2000 and began with the milk cooperative. Financial support through training, technological, and administrative support has been consistent since 1996. After 2000, the funding sources were both national and international. Financial support

from TPI has also been consistent. TPI is financing the tea marketing; including technical training and organic certification. Prior to the inception of the tea cooperative project, the national policy context had opened up in favor of small tea farmers with the abolition of the multi-nationals' exclusivity rights for tea marketing. This political support was obviously key for the project to happen. Other vertical linkages include the role of DGHC, which is mainly responsible for road construction in the area, and the role of the Forest Department, which denies any access rights of the villagers to the adjacent Wildlife Sanctuary. The government still does not recognize the village school, now semi-funded by UNICEF and DGHC. Consequently, the teachers' salaries are low and the school's reputation is not as good as the schools in the surrounding areas. Yangkhoo does not yet have electricity either.

The partnership among tea farmers and between DLR Prerna and TPI has contributed to increased and expanded economic relationships with the neighboring villages (informal linkages). Social relationships have also increased. Today, for instance, most of the married women in Yangkhoo come from the surrounding area (rather than from within the village as it used to be). Another informal linkage includes the gathering of forest and non-forest products, small charcoal and plank making, and intercropping in the adjacent government forest (see previous section).

Overall, formal linkages are limited in nature (to green tea leaves versus other cash crops), in space (to horizontal versus vertical dynamics) and time (recent relationships). Indeed, outside of the small farmers' organic tea project, the farmers cannot yet market the rest of their organic cash crops. They lack the necessary equipment and linkages to market other products especially in the face of national and international competitions. Villagers depend on the middlemen to sell their cash crops (except tea). Middlemen themselves depend on the fixation of prices of cash crops in Delhi, prices that fluctuate. Furthermore, not every household has tea bushes and can therefore benefit equally from the partnership between SVC and TPI.

TABLE 6.1: Main external institutional linkages with Yangkhoo

	Key external linkages	Goals and tools	Nature	Dynamics	Mediators	Funds	Rules/commitments
Formal linkages	Farmers of Mineral Springs DRL Prerna <i>Since 1996</i>	Community development through educational, organizational and administrative supports	Non-profit relationship	Horizontal	Village leaders, animator, and progressive thinkers	- Until 2000: international (CIDA) - After 2000: mainly national (e.g., CARITAS India)	“(1) To organize the communities so as to make them self-confident, self-reliant and develop their potentialities, (2) to evolve gender empowerment measures, organize women and make them functionally literate, (3) to facilitate the communities to develop strategies to evaluate their earlier economic organization, Harsing Busty Dairy Union, and revive the co-operative, (4) to involve the youth in the co-operative movement” (RCDC 1996)
	SVC (tea committee)-TPI <i>Since 1998</i>	Business making through organic tea training, production and marketing	Business partnership	Horizontal	RCDC	Private	
	Yangkhoo-DGHC <i>Since 1988</i>	Regional development through state government power devolution regarding transportation, primary education, health services, forest area other than reserved forest, land except land reform and land acquisition and land under reserved forest	“Public”	Vertical	Community leaders – GNLF councilor	State government	
	Yangkhoo-Forest Department <i>Since settlement</i>	Reserved forests conservation through policies making	“Public”	Vertical	Forest guards	Central government	“Within this governmental forest area, any kind of trees and plants cannot be cut and you cannot fish. People will be punished if cut according to government rules” (Forest Department’ notice on the border between Yangkhoo and the Wildlife Sanctuary)

Informal linkages	Yangkhoo-Central government <i>Since 1984-85</i>	National development through policies making	"Public"	Vertical and horizontal (decentralization)	Panchayats	Central government	
	Yangkhoo-neighboring villages <i>Since settlement</i>	Sustain livelihoods through sale or exchange of products, jobs and social events	Business and non-profit relationships	Horizontal	Individuals	Individuals	
	Yangkhoo-Forest Department <i>Since settlement</i>	Sustain livelihoods through forest products and non-forest products gathering, small shifting of charcoal and planks making, intercropping	Business relationships	Vertical	Individual forest guards	None	"We don't have right but we still benefit from it" (a villager)

Compared to the local context, formal external linkages vary. For instance, the forest villages⁵¹ or the villages that are part of the Joint Forest Management (JFM) have access to various facilities. As explained by Chakrabarti et al. (2002c: 14), "the West Bengal Forest Department initiated the Joint Forest Management (JFM) in 1992 in order to ensure people's participation in the protection of the state forests. In doing so, two types of protection committees were created: (1) Forest Protection Committee to be constituted in villages that were in or by the side of Reserve forests, and (2) Eco-Development Committee (EDC) to be constituted in villages that were in or by the side to Protected Area forest." Interestingly, although Yangkhoo is adjacent to the Senchal Wildlife Sanctuary and is therefore eligible for the formation of an EDC, the Forest Department did not established an EDC in Yangkhoo (more on this issue later on). Access to the market depending on distances and road access also contribute to influence external linkages between one place to another. So far, the organic tea cooperative, SVC, has not yet been replicated in the Darjeeling Hills.

▪ **Complex networks of key players: linkages encouraging resilience building**

What lies behind the main institutional linkages are individuals or key players who influence the socio-ecological system of Yangkhoo directly or indirectly through their decisions and their positions in various networks. Sometimes forgotten, deliberately (i.e., confidentiality issues) or not, the key players are often the individuals acting within institutions instead of the institutions themselves. For instance, a project can collapse because a key player is leaving the organization, as was the case with the Hayden Hall intervention in Mineral Spring -- but the collapse of the project was also triggered by other political events (see Chapter 5). Of course, individuals become key players mainly because of their status within institutions and the resources they manage to mobilize and organize through those institutions. Institutions are not hierarchic and static structures. Investigating the positions of the key players inside organizations and among networks of organization reveal how individuals are often involved in more than one platform of actions. At a local level, for instance, diversity

⁵¹ A forest village refers to a settlement set up by the West Bengal Forest Department to do work in government forests. Laborers were coming from outside West Bengal (e.g., state of Bihar, Nepal) and were given land. Today, the forest villages have been defunct of work and many of them have been put under EDC.

and redundancy characterize the position of some key players involved in Mineral Spring, as well as the structures they are involved with. This section demonstrates how diversity and redundancy of functions and structures impact on Yangkhoo social-ecological system.

Diversity here means that key players are involved in different networks sometimes simultaneously and sometimes not. For instance, the two key people involved in Mineral Spring through the Hayden Hall intervention were also involved as teachers in a Jesuit College in Darjeeling. The teachers started student camps in Mineral Spring to confront their students with social work. Shortly after, they carried and further expanded this experience with Hayden Hall. In this case, the diversity of the individuals' functions (i.e., two people simultaneously involved as teachers in a college and as social workers in an NGO) enabled institutional linkages between the educational and the NGO spheres. Students carried on a socio-economic survey further used by Hayden Hall and contributing to knowledge exchange and the acceleration of institutional learning. One of the two teachers had also been involved in housing cooperatives in the Darjeeling District. This experience became the premise for the milk cooperative project in Mineral Spring allowing for knowledge transfer. The transfer of the cooperative model (both in terms of scale -- from one place to another, and type -- from housing to milk cooperative) showed room for experimentation and flexibility.

Key players are also involved in different networks at a different time *but* at the same place (i.e., Mineral Spring). For instance, the person currently working with the Selimbong Tea Garden and in charge of the small farmers' organic tea project in Mineral Spring used to work with the World Wildlife Fund. This person was involved in an afforestation program in the area. The diversity of functions over time in the same area (i.e., in this example, a person involved in Mineral Spring through an NGO and then through the private sector) increases knowledge transfer to the new institution the person is involved with. It can also consolidate trust building since the person established an experience of the place and its people over time and has increased familiarity with the local issues.

In the previous examples, the key players are involved in different networks, but all those networks are professional networks (i.e., NGO, private sector, public sector). Diversity can also mean that the nature of the networks the key players are involved in, are different (i.e., familial, political, economic, and professional networks among others). For instance, according to the villagers and a staff member of DGHC, the current charismatic leader of the DGHC, Mr. Subhash Ghising, has a personal attachment to the Mineral Spring area -- some said he has relatives in Dabaipani, and therefore invested lots of money in Mineral Spring especially for road construction. This example shows how a key leader can influence action at a local level not only because he is embedded in a political network, but also because of his social network (i.e., vested interests). Those examples illustrate the role diversity of functions; that is, how key players involved in different networks influence decision-making processes, and impact Yangkhoo directly or indirectly. It reveals the complexity of how people carry out actions at various levels and the related consequences. Not only are key players involved in diverse networks, but they are also involved in overlapping networks. The following illustrates the role of redundancy of functions and structures.

Redundancy here means that key players are involved in overlapping networks. Networks of key players can overlap at a functional level (i.e., redundancy of function). For instance, the project managers of DLR Perna and Selimbong Tea Estate in Mineral Spring come from different organizations (i.e., NGO and private sector), but tend to work together in the field to train the local farmers in composting, organic farming, and tea cultivation techniques. Redundancy of function (i.e., in this case training in organic farming) can favor knowledge exchange and help strengthen action at a local level, especially if the key players are connected to each other, as is the case in Mineral Spring.

Redundancy of function also happens at different scales. For instance, the Mineral Spring project managers of DLR Perna and Selimbong Tea Estate specifically focus their training on a few key farmers in Yangkhoo. They consider those farmers "progressive thinkers" able to transmit and diffuse their knowledge to the other farmers through a domino effect (i.e., if the other farmers see the positive effects of a new technique they will copy it) and informal learning networks. Those key local actors,

serve as knowledge carriers and reinforcers, and become a link between the rest of the farmers and DLR Prerna to experiment with and implement various techniques (e.g., compost). The role of the NGO and the local progressive thinkers overlap as both are trying to diffuse the same information.

Not only are the functions of some key players overlapping in Yangkhoo, but so does the structure they are involved in (i.e., structural overlaps or redundancy of structures). For instance, two of the key players come from the same family (i.e., father and son relationship), but were involved in Mineral Spring at different times (one through Hayden Hall as a social worker, the other through DLR Prerna as the Program Officer of the NGO). Redundancy also means that key players can build up continuity between institutions. For instance, one of the key players involved in Mineral Spring through Hayden Hall is now still involved within DLR Prerna. Another example of overlaps is the internal dynamics of DLR Prerna. DLR Prerna is a small local NGO working locally with local staff from Darjeeling itself. Some of the staff studied together and they know each other quite well. In these examples, redundancy of structure (i.e., familial or professional structures) has influenced the internal institutional dynamics and tended to favor and accelerate institutional operationalization and knowledge transmission.

Overall, the social and professional networks of the key players involved in the Mineral Spring area are also knowledge networks. Key players are involved in heterarchical systems⁵² with important impacts on capacity building and knowledge systems in Yangkhoo. Those are also some of the institutional linkages that tend to increase resilience building in the system. Similarly, such overlaps and redundancies can also produce inbreeding of ideas, rigidity, exclusivity etc... The next section investigates institutional linkages that tend to inhibit resilience building in Yangkhoo.

⁵² Jen (2001:3) defines "heterarchy" as "interconnected, overlapping, often hierarchical networks with individual components simultaneously belonging to and acting in multiple networks, and with the overall dynamics of the system both emerging and governing the interactions of these networks (e.g., human societies in which individuals act simultaneously as members of numerous networks)".

▪ **Dependencies, opportunism, exclusivism: linkages inhibiting resilience building**

Past and current dependency, opportunism and exclusivist tendencies characterize some linkages between Yangkhoo and external institutions, thus weakening relationships. Table 6.2 and 6.3 evaluate the main formal and informal external linkages.⁵³ The first part of this chapter already touches upon some dependencies inside Yangkhoo (e.g., between the villagers and the leaders, between non-educated and educated villagers). This section focuses on two different types of dependencies. Dependencies occur (1) between Yangkhoo and external institutions and (2) inside external institutions with impacts at the village level.

Dependencies of Yangkhoo toward external institutions are a combination of historical, politico-economic, financial and organizational dependencies. Historical events may have contributed to predispose Yangkhoo to dependencies toward external institutions. As Chapter 5 describes, the migrants forming today's Yangkhoo settlement used to be the slaves of a tea estate under the control of a tea estate manager. After the tea estate closed down, the former tea workers became dependant on one middleman to sell their milk. With the Hayden Hall intervention and the establishment of the milk cooperative, the dependency on the middleman decreased, but was replaced by a new type of dependency. As one of the ex-workers of Hayden Hall explains:

When we arrived in Harsing [one of the villages adjacent to Yangkhoo, which used to be part of the Mineral Spring Tea Estate, where Hayden Hall focused its intervention], we were looked upon as managers. We replaced the power in that community. We filled a vacuum. Now they are their own managers, but the whole mentality of authority is not gone. The notion of independence has not yet transpired (C.B. Rai, Darjeeling).

⁵³ Some indicators considered in this study for evaluating external linkages include: the implementation and enforcement of village rules, the degree of and trends in villagers' participation, the frequency of staff field visits, the continuity of money flow, the existence of previous experience with the villagers, the type of external institutions (e.g., young versus experienced organization, local versus foreign organization), the ability and willingness to provide a sustained investment (e.g., financial, institutional, technical), the level of trust established between the villagers and the organization, the internal dynamics of organizations (e.g., staff motivation, relationship between the field staff and the direction), pre-existing local knowledge, the transmission of information, institutional flexibility (adaptive management), the effects on day-to-day livelihoods etc. Table 6.2 and 6.3 evaluate key linkages through this lens.

Today, diversification in the number of middlemen allows for economic competition and better (i.e., fair) prices. Yet, farmers are dependant on far-distant markets and unpredictable price fluctuation for selling their cash crops (except for tea). The villagers are therefore highly dependent on global markets as well as on the Central and State government policies. They suffer from a lack of market access, a lack of local storage, a lack of processing facilities and a limited controlled market (see Chapter 4). The production and marketing of tea also depends on the villagers' relationship with DLR Prerna and TPI because the local tea factory was destroyed after the tea estate closure. The farmers dependant on Selimbong Tea Estate to sell their green tea leaves and are not connected to any other alternative tea markets. When asked how they would cope if DLR Prerna/Selimbong Tea Estate pulled out of the area, more farmers said they would go back to the old method of hand-made tea locally sold, and only a few said they would try to contact alternative buyers. Those aspects are examples of historical and politico-economic dependencies. Subsidization practices can also reinforce dependency relationships as financial assistance may inhibit local initiatives and the development of local strategies, therefore creating financial dependencies. For instance, both DLR Prerna and TPI stopped giving subsidies (i.e., DLR Prerna for the milk cooperative and TPI for the winter cultivation) due to the farmers' lack of interest.

Other types of dependencies between Yangkhoo and external institutions are organizational. Nine out of 14 villagers interviewed said they are expecting external help especially to provide job opportunities and electricity, to upgrade the school, to improve transportation, to provide access to loans, to reduce the price of basic needs, and to provide improved benefits from the sale of milk and cows. Generally, the villagers showed a positive attitude toward the local NGO DLR Prerna (e.g., "their help has been good so far for the village", "DLR Prerna makes us conscious about so many things", "they increase people's consciousness regarding agriculture"). That said, the villagers mainly assimilate DLR Prerna's help in the tea business (although the villagers are aware of other smaller projects, including projects that failed such as bee-keeping for instance).

The villagers that were interviewed showed optimism in their ability to cope if DLR Prerna pulls out of the area. They perceive it as a possible “loss of a guide”. Seven villagers interviewed (out of eight) said the impact of DLR Prerna withdrawal from the area will not affect them much because DLR Prerna is mainly related to the tea business, and they also rely on other crops and businesses. Comments from interviewees on the possible withdrawal of DLR Prerna included: “no big deal”, “it won’t affect us too much because DLR Prerna is related to the tea business”, “our life will continue, we will sell our tea ourselves in Third Mile (a nearby village)”, “people will manage on their own because DLR Prerna has shown them what to do”, “we will have to look for an alternative market”.

Therefore, the dependence on DLR Prerna from a villager perspective mainly relates to the marketing of their tea. When asked if the cooperative SVC could run without DLR Prerna, all the villagers interviewed ($n = 7$) said “yes”, but more than half ($n = 4$) also mentioned that the withdrawal of DLR Prerna may lead to accounting problems leading to the collapse of the SVC. Indeed, to date, DLR Prerna is still managing the accounts of SVC mainly because the NGO feels the villagers are not ready to take over. The manager of the Small Farmer Organic Tea project in Mineral Spring from Selimbong Tea Garden confirms and reinforces the villagers’ perceptions. According to him, the villagers, not only of Yangkhoo, but of the entire area, are dependant on DLR Prerna for mediating the meetings with TPI, dealing with SVC’s accounts, pricing the green tea leaves, drafting letters, and defending their collective interests in general.

Some of the reasons explaining those dependencies are the lack of pre-existing local knowledge and expertise. Previous to interventions by NGOs and the private sector, the villagers had no administrative experience (except maybe maybe a few villagers with clerical jobs in the tea estate, but it is likely that no one in Yangkhoo has had administrative experience – see this Chapter on tea estate legacies), no experience with marketing, no contacts to build professional networks, and no organic expertise. According to the TPI Executive Director, “now these people [also] have forgotten tea cultivation and they have to be taught again”. The lack of pre-existing local knowledge and the lack of education (see Chapter 4) also increases the lack of self-confidence, which still exist at a latent level since the crisis caused by the closure of the tea estate.

TABLE 6.2: Evaluation of the main formal external linkages

Key external linkages	Major projects/actions	Monitoring of the projects	Yangkhoo awareness and attitude	Yangkhoo participation in the projects	Yangkhoo rules implementation	Level of trust in project	Pre-existing local knowledge	Livelihoods impacts
<i>Farmers of Mineral Springs-RCDC-DLR Prerna</i>	▪ Cooperative (SVC) ▪ Women Self-Help Groups ▪ Drinking water tanks	▪ Cooperative by-laws ▪ Regular RCDC staff training and field visits ▪ Villagers training ▪ No monitoring of water tanks (NGO or villagers) ▪ No enforcement	▪ Generally medium (knowledge of the various projects but lack of knowledge on the NGO itself) ▪ Villagers generally showed positive attitude towards DLR Prerna but mainly assimilated and limited their intervention to “tea” ▪ Low awareness on the cooperative (role, function etc.) and of the idea of community organization	▪ Medium participation in cooperative ▪ Participation in women SHG is decreasing ▪ Good participation for construction of water tanks	▪ No maintenance of water tanks from the villagers	▪ Low in SHG ▪ Medium in cooperative	▪ Milk cooperative experienced with previous NGO	▪ Mainly impacted villagers with tea bushes ▪ Cooperative increased the socio-economic relationships with neighboring villages and outside
<i>SVC-TPI</i>	▪ Small farmers organic tea project	▪ Internal tea inspection at a hamlet (villagers) and SVC (TPI) levels ▪ TPI refuse tea if damaged ▪ Regular TPI staff training and field visits ▪ Villagers training (technical support) and meetings	Low-medium	▪ Good participation during tea plucking season, low otherwise ▪ Participation decrease with the road construction (immediate short term cash)		▪ Medium (fear that tea can be refused any time, a few suspicions of corruption at the level of SVC)		▪ Better marketing of tea ▪ Tea and the other cash crops are cultivated and certified organic

Key external linkages	Major projects, policies, actions	Monitoring of the projects	Villagers awareness of the projects and its rules	Villagers participation in the projects	Villagers rules implementation	Level of trust in project	Pre-existing local knowledge	Livelihoods impacts
<i>Yangkhoo-DGHC</i>	- Emergency Department (Roads construction) - Health Department intervention (e.g., vaccinations) - Contribute to fund part of the primary school - Library	- Health Department staff visits - Rare visits of the GNLF councilor (twice in the villagers lifetime) - Weak monitoring of the library project	High	- High participation in road construction - Increased awareness of the importance of education	High (administrative rules)	Low		- Created new jobs - Increased access to livelihood opportunities - Primary school services free of cost
<i>Yangkhoo-Forest Department</i>	Establishment of a Wildlife Sanctuary	Low rules enforcement	High	None: villagers are excluded from the reserved forest	Low	Low	?	Wildlife threats
<i>Yangkhoo-Central government (others)</i>	- Abolition of the multinationals' exclusivity rights for tea marketing - Integrated Child Education Scheme (ICDS) - Decentralization: panchayats	Lack of monitoring of the village panchayat work?	Low-medium (lack of knowledge of the village elected representative panchayat itself)	Beneficiary committee at the village level not consulted by the current elected panchayat representative	None?	Low: lack of accountability of the village elected representative panchayat	No	- Sale of tea legal 2 jobs creations - Immunizations, vitamins tablets for mothers, rice (but rations are irregular)

TABLE 6.3: Evaluation of the main informal external linkages

Key external linkages	Major actions	Monitoring of the projects	Yangkhoo awareness and attitude	Yangkhoo participation in the projects	Yangkhoo rules implementation	Level of trust in project	Pre-existing local knowledge	Livelihoods impacts
<i>Yangkhoo-neighboring villages</i>	▪ Socio-economic relationships (e.g., weddings, sales/exchange of livestock, seeds)	▪ Individual	▪ High	▪ Medium-High		▪ ?		
<i>Yangkhoo-Forest Department (Staff)</i>	▪ Grass, firewood, NFPs gathering ▪ Small shifting of charcoal and planks making ▪ Intercropping	▪ Individual	▪ High	▪ High	▪ High	▪ Low (divergence inside the village)	▪ ?	▪ Increase livelihoods options

Dependencies not only occur between Yangkhoo and external institutions but also *inside* external institutions with impacts at the village level. The latter situation is a case of institutional path dependency. For instance, an early report of DLR Prerna shows that DLR Prerna has a critical view of the Hayden Hall intervention in Mineral Spring. The criticisms leveled by DLR Prerna against the Hayden Hall project in Mineral Spring include: the creation of dependency mechanisms and the overriding focus on economic aspects of development versus socio-cultural aspects.⁵⁴

Interestingly, DLR Prerna somehow reproduced most of those criticisms leading to a sort of path dependency in the NGO's interventions in Mineral Spring. One of the reasons is Mineral Spring was the first project organized by the young NGO DLR Prerna. Today, discussions with some of the DLR Prerna staff as well as some of the DLR Prerna reports such as the DLR Prerna Monthly Meeting of January 6-7, 2005 show that DLR Prerna is still learning-by-doing and is very much aware of the limitations of its intervention in Mineral Spring. DLR Prerna has learned from its experience in Mineral Spring and has transferred those lessons to other places in the Darjeeling Hills where the NGO has projects. However, and interestingly, DLR Prerna acknowledges the difficulties of feeding those lessons back to Mineral Spring itself. Dependencies are not the only characteristic of relationships between Yangkhoo and some of its external linkages. Villagers' ignorance and tendencies toward opportunism translate into a lack of participation in and implementation of some projects/rules. For instance, although the formal participation (i.e., in terms of membership) in SVC is high in Yangkhoo -- In 2003, the membership reached 82% of the total number of households (DLR Prerna 2004, the informal participation (i.e., in terms of actual practices) in meetings is intermittent. Participation is high during the tea plucking season and low otherwise. The manager of the Mineral Spring project from Selimbong Tea Garden confessed: "people are also opportunists: if there is no direct financial

⁵⁴ "Our analysis looks into the methodology of intervention adopted by Hayden Hall institute. Firstly, the community had become *dependant* on the Institute to run the union, so, collapsed as soon as it withdrew. A false sense of profitability had crept into the union because of various *subsidies* borne by Hayden Hall Institute. The people benefited from various other projects like Mother and Child Care, Food for Work schemes and Paramedical outreach programs. This, the people believe to be a part of the dairy union. The methodology adopted was a top down approach and people's participation in planning, implementation, monitoring, and evaluation was not order of the day. Essentially, the program had its main focus on economics and did not encompass the totality of development. The ideal of co-operative as a way of life was never given thought or practiced." (RCDC 1996: 8, Emphasis added)

benefit they show a lack of interest and don't participate", "people are not too serious", "they lack incentive", "people are not taking up composting seriously", "people just listen and forget". According to him, the villagers' "lack of conviction, interest and confidence" in participating in SVC, occurs because people are "casual, they don't take advice seriously", some are also "lazy". Opportunism may also be encouraged because none of the external projects were mobilized directly by the village except for the building of the local school.

The villagers' involvement with the village road construction project further confirms that most of the villagers are more interested in immediate short-term cash than long-term incomes from cultivation practices. Their participation in the tea business within SVC has been decreasing since these new job opportunities became available, and villagers have started neglecting their cultivable land and tea bushes. Interviews also reveal a lack of awareness about the general structure and the broader role of SVC. Only a few villagers understood that SVC is or aims to be a community organization. The lack of awareness is reinforced by a general lack of self-confidence due to the lack of education and the imbalance of power among socio-economic groups. The project manager from Selimbong Tea Garden confirms: "people do not bring their issues/concerns to the tea committee meetings or mention them at the SVC level. They complain at an individual/village level only", "people don't ask questions", "people are not confident enough to go to the meetings", "people complain but don't try to change the situation". The attitude of the organizations involved in Yangkhoo might further reinforce the villagers' lack of participation in projects and/or in the implementation of rules (whether it be in SVC or in other projects such as the women's self-help group) – see next section "gaps and biases" on this issue.

Aside from aspects of dependency and opportunism, exclusivism also characterizes the linkages between Yangkhoo and some external institutional linkages. For instance, the villagers are excluded from the adjacent wildlife sanctuary. An interview with the current Divisional Forest Officer responsible for the area revealed that no study has been done in the area to evaluate the impacts of the sanctuary on the villages that are on the edge of the sanctuary, which is not part of a forest village or an EDC structure. Overall, external institutional linkages have positive and negative effects in Mineral

Spring with impacts on Yangkhoo. Some linkages can further limit the spin-off effects of projects and erode projects' staff motivation for instance. The next section further examines some cross-scale issues.

CROSS-SCALES ISSUES

Some linkages can reinforce cross-scale issues and *vice-versa*. This section further describes cross-scale issues such as scale mismatches, time lags, gaps and biases influencing Yangkhoo's social-ecological system.

▪ Scale mismatches

The capacity of Yangkhoo's social-ecological system to increase its ability to deal with change partly depends on how effectively one scale (e.g., scale of intervention) matches with another (e.g., scale of processes). Some scale mismatches influencing Yangkhoo are administrative, organizational and socio-cultural. Administrative mismatches can refer to dissonances between the physical and socio-economic characteristics of Yangkhoo and its administration by the State government. For instance, although Yangkhoo is adjacent to a wildlife sanctuary and although an important part of its livelihood activities relates to the forest, the Forest Department did not provide the village with an EDC. Only one village in Mineral Spring benefited from an EDC. The villagers of Yangkhoo reported that they called meetings with the Forest Department to ask for an EDC, but the Forest Department never came and no impact assessment has been done. As the Divisional Forest Officer responsible for the Senchal Wildlife Sanctuary mentions: "They [the people of Yangkhoo] are dependent on the forest, only the quantum of dependency has to be determined". So, although Yangkhoo fits the criteria required for the establishment of an EDC (i.e., proximity to the sanctuary, degree of impacts of the village on the forest), the Forest Department is not obliged to form an EDC; not to mention that the Forest Department also faces a limited funding situation.

Not only has Yangkhoo been refused any formal access and benefit from the government forest, but the villagers also face wildlife threats, which destroy their crops.

Interviews with the villagers reveal that the Forest Department does not communicate about these issues and how to deal with them. According to the Divisional Forest Officer, Wildlife Division I, Darjeeling, the Forest Department provides compensation for damage to agricultural crops caused by wildlife such as elephants and tigers, which obviously are not found in the hills or not anymore. This scenario shows that the Forest Department does not account for the biophysical specificities of the Darjeeling Hills in comparison to the plains. So the villagers are left on their own to deal with the adverse effects on their lives of a sanctuary they are excluded from. In this case, the scale of the Forest Department's administration (the wildlife sanctuary) does not match the scale of processes (i.e., the wildlife movements do not stop at the border between the forest and the village).

Another example of the dissonance between the physical and socio-economic characteristics of Yangkhoo and its administration by the State government is the physical distance and isolation of Yangkhoo from its local administrative center. Yangkhoo together with the Mineral Spring area are part of the Bijanbari block office. Yet, Mineral Spring is also physically distant and disjoint from the rest of the Bijanbari block. In other words, Yangkhoo is not contiguous with the other villages under the same Bijanbari block. The villagers have less incentive to participate in and inquire about any administrative factors (e.g., government schemes) due to the travel distance required to get to the block office.

Further and more generally, administrative mismatches influencing Yangkhoo (but not just specific to Yangkhoo) reflect dissonances between government policies and local realities. For instance, the challenges faced by the elected panchayat representative in Yangkhoo illustrate the tensions between central laws and on-the-ground realities. Indeed, as already mentioned (Chapter 5), India has a history of a centralized political system, but new opportunities for participation and decentralization emerged at a legal level especially through the creation of the village panchayat including quotas for participation by women. An interview with the current local panchayat representative showed, for instance, her lack of awareness about the panchayat system. It is also typical of a dissonance between the bureaucracy at the grassroots level and the elected representatives. According to the DLR Prerna experience, ideally, the

bureaucracy at the grassroots level is supposed to support the elected representative. In reality, the same bureaucracy is running the entire process. Usually, government officials are from urban areas and are more educated.

The case of Yangkhoo shows that helping women gain access to participating in the political sphere is not sufficient. To go beyond "politically correct" actions (i.e., to really allow women to actively participate in the political system) factors other than simple access to political positions through reserved seats also need to be secured (i.e., women's education, awareness, experience, self-confidence). Otherwise, female elected representatives, as shown by the current situation in Yangkhoo, are just the marionettes of some leaders (and these leaders are all men).

Another example of the dissonances between government policies and local realities affecting Yangkhoo is the help provided by the Relief Department to households in the case of landslides. A villager comments: "I got help from the relief department after a landslide happened on my land. I obtained a free tarpaulin, but the cost of travel was not compensated." Again, access to the tarpaulin does not mean that the household is going to benefit from it if the cost of travel to get the tarpaulin becomes a significant financial burden for the household.

Other types of scale mismatches affecting Yangkhoo are organizational in nature. An example of an organizational mismatch that influenced Yangkhoo refers to a dissonance between international funding and a development project. In 2000, DLR Prerna got international funds to construct drinking water tanks in Mineral Spring. In this case, international funds came first and pre-determined the nature of the project. In other words, the NGO had to fit the project to the criteria set by the benefactor for the use of the funds, leaving the villagers meant to benefit from the fund outside of the process (however, the villagers did participate in the construction of the water tanks). So DLR Prerna was somehow "forced" to spend the money to be accountable to the funders and had to match outside deadlines versus local ones. The project did not come from an evaluation of the community.

In fact, in the beginning, the villagers of Yangkhoo were not interested in the project because “they did not have sufficient water scarcity that they were motivated to invest in organizing themselves”⁵⁵. Dependence of local NGOs on external funds can lead to projects that do not match local needs, especially when international funds define and precede the inception of local projects. Importantly, and in the long run, those projects may also contribute to create impacts on the villagers’ mentalities by creating dependencies on the NGO especially because the sense of belonging of the project is low. Indeed, as mentioned in the first section of this chapter, the level of maintenance of water tanks by villagers is very low in Yangkhoo. Conversely, in the adjacent village of Dabaipani, where water needs were more acute, the maintenance of water tanks is less of a problem.

Aside from administrative and organizational mismatches, the village of Yangkhoo together with the Mineral Spring area in general is also facing a cultural mismatch. The cultural mismatch in this case refers to a dissonance between the application of an external model, in this case the cooperative model, and the local socio-cultural context this model is applied to. For instance, the history of Mineral Spring described in the previous chapter shows how the cooperative concept was transferred twice in Mineral Spring, the first time through the Hayden Hall intervention (“Harsing Dairy Union Cooperative”) and the second time through the DLR Perna intervention (“Sanjukta Vikas Cooperative”). The replication of the cooperative model has been multi-dimensional, including spatial transfer (from one place to another in the Darjeeling District), institutional transfer (from one institution to another), economic transfers (from house to milk to tea businesses), and state transfer (collapse and regeneration). Today, interviews with the villagers and key informants working in Mineral Spring (or who used to work in Mineral Spring) reveal that the cooperative spirit is still not present. As the manager of the small-scale farmers’ organic tea project in Mineral Spring summarizes it:

People don’t think that they are part of SVC. They don’t realize that SVC identity is also because of me, my participation as a member. They think that SVC is like an NGO that comes and works for them. The people have not realized that SVC is theirs. People have not been able to organize proper meetings to convince the farmers. [...] They [DLR Perna] thought they could

⁵⁵ Ostrom 1992: 44

register SVC as a cooperative to get benefits from the government, but they think the people won't be able to run it on their own. A few people are trying to extract personal benefits.

Participation in the cooperative is mainly limited to the periodic supply of green tea leaves. In fact, the villagers picture the cooperative solely from an economic viewpoint and not as a broader way of life. It is the same limitation that contributed to the collapse of the milk cooperative during the Hayden Hall intervention as reported by an ex-social worker in the area. Obviously, the idea of a "cooperative" is not innate and may need to be taught. Is the cooperative model appropriate in the Mineral Spring area in general and Yangkhoo in particular, considering past and present socio-cultural structures? It is hard to say, but one cannot assume that the cooperative model can be replicated everywhere.⁵⁶ At the same time, the cultural mismatch between the model and the reality does not mean that the match is wrong. As always, it also requires the proper elements to make it work such as adequate training to change mentalities. It is possible that at the moment, it is not transparent to the villagers that the same people who will bear the costs of establishing the cooperative will also accrue the benefits. Simply but importantly, it first of all takes time to build up a cooperative spirit. Time lags also contribute to reinforce scale mismatches at the administrative, organizational and cultural levels.

⁵⁶ This is also confirmed by Irvine (2000: 41) reflecting on the role of a local NGO, PUMAREN, in South America: "NGOs often think of a pilot project in conservation and development as a stand-alone model and assume it will be self-replicating once it is shown to work. PUMAREN suggests that the model has to fit the needs of the community implementing it and mesh with a larger matrix of social structures if it is to survive and replicate".



PLATE 6.4: Middle Yangkhoo from the Senchal Wildlife Sanctuary looking north toward Sikkim. Lower Harsing settlement on the L and tea estates in the center distance



PLATE 6.5: Yangkhoo elder (71 years old) wearing traditional jewelry and carrying a bamboo wicker basket ("doko") for firewood, fodder and crops

- **Time lags**

The capacity of Yangkhoo's social-ecological system to increase its ability to deal with change partially depends on how effectively the villagers and related institutional linkages manage to reduce time lags in perceptions of change, and in decisions and responses to change. Again, internal village dynamics and external institutional linkages can attenuate and/or reinforce those time lags. For instance, the history of the closure of the tea estate shows a time lag of 20 years between the socio-economic crisis in Mineral Spring and the beginning of government interventions. At the same time, the loose feedback loop between the villagers and the government might create an incentive for the former to find creative solutions and increase their own self-reliance. Other examples are: the time lags between the enactment of laws and the low degree of implementation in India in general as the history of Mineral Spring reveals (Chapter 5), and time lags due to institutional experience building. For instance, when the executive director of TPI was asked what was the major lesson he learned through the Mineral Spring project, he answered: "it takes time to organize the farmers!" Further, time lags also contribute to reinforce various information, implementation and monitoring gaps, among others, that influence the situation in Yangkhoo.

- **Gaps and biases**

The capacity of Yangkhoo's social-ecological system to increase its ability to deal with change partially depends on how effectively the villagers and related cross-scale institutional linkages manage to fill gaps in implementation, communication and monitoring and minimize various biases, inherent in any activities and even more so to any external interventions. Gaps can be concrete (e.g., the absence of an adequate institution) or more abstract (e.g., the absence of linkages between activities in a project). Gaps can also occur at various scales. In the case of Yangkhoo, those gaps take place (1) among the villagers, (2) inside external institutions, and (3) between those external institutions and the village. First, most of the gaps among villagers have already been expressed throughout this study. To sum up, some of those gaps include: gaps in the organizational power among villagers (including educational,

communication, awareness, motivation, and socio-economic gaps), accountability gaps between the leaders and the villagers (i.e., gap between what the leaders of the village are saying and what they are doing), confidence gaps between what the villagers are thinking/saying and what they are doing. Biases also can reinforce those gaps. For instance, the villagers are biased toward short-term benefits instead of looking for long-term benefits (however, this does not mean that they do not have any expectations for the future/ "do not plan for the future" – on "future thinking" see Chapters 4 and 5).

Second, some of the gaps influencing Yangkhoo are also gaps inside institutions. For instance, direct observation and interviews in the village revealed an enforcement gap of the Forest Department laws in the wildlife sanctuary by the forest guards. Some villagers reported that some forest guards are corrupt. Furthermore, an interview with the Forest Officer responsible for the Senchal Wildlife Sanctuary revealed the Forest Department is still grounded in "scientific" conceptions of forestry. This scientific bias led to narrow approaches (e.g., "When we feel that we are not benefiting why should we undertake an EDC?", Divisional Forest Officer, Wildlife Division I, Darjeeling) and the exclusion of important social issues indirectly related to the activity of the Forest Department (e.g., "We do not venture into activities that are social in nature and that do not have a direct impact on the forest.", Divisional Forest Officer, Wildlife Division I, Darjeeling).

Some gaps inside organizations are ideological. The local NGO DLR Prerna illustrates an ideological gap between the office and the field workers, reflecting the universal tension between concepts and realities. Of course, the distinction between field workers and office workers does not mean that office workers never go to the field and *vice versa*. Interviews with the members of the NGO show that some field workers tend to miss the broader picture and are not able to put the project into perspective and reflect on the limitations of the project. Indeed, the sense of project ownership is also higher for the field workers who are directly and constantly involved in the field compared to the office workers. Conversely, office workers are more removed from the on-the-ground realities and related difficulties of working on a regular basis with rural, and mainly illiterate, communities.

Other cases of ideological gaps inside institutions influencing Yangkhoo are conflicting interests within organizations such as the private sector, NGOs and government. For instance, although TPI argues that Mineral Spring is a social project, the tea company is also searching for long-term financial profit. As the project manager of the small farmer organic tea project puts it: "everything is monetary!" The tea company seems to have a biased view of the local farmers' land management arguing: "they are cultivating everything but nothing!" In other words, from the tea company's perspective the current farmers' land management is not efficient, but from the farmers' point of view it may be simply part of their adaptation strategies in the face of uncertainties. The tensions between social and business factors also creates misunderstanding and tensions between the field workers in Mineral Spring and the management body of TPI who keeps repeating to the current field workers: "you are not an NGO!", yet convincing the farmers that organic practices require social and development work. Another example is the conflicting interests faced by the two main actors involved in the Hayden Hall intervention in Mineral Spring between the students' education and the villagers' social development. As an ex-social worker of Hayden Hall confesses: "It [the Hayden Hall intervention mainly through the involvement of two teachers] was almost a kind of a selfish motive, to fulfill some ideological content of our college education. We did not really look into the long-term ramifications of it all."

Third and finally, some of the gaps influencing Yangkhoo are also gaps between external institutions and the village. Interviews with DLR Prerna staff involved in Mineral Spring reveal some communication and monitoring gaps including: lack of integration of the existing local institution (Samaj) in the projects, top-down approach (due to lack of local knowledge, exchange of information seems to be mostly a one-way process, wherein DLR Prerna comes into the village to "teach them (the villagers)"), lack of understanding of and account for internal village social dynamics. On the latter point for instance, some villagers complained that tea collection and/or measurement is manipulated. From the NGO's viewpoint, tea records are open to any villager to check. Obviously, access to records *per se* is not enough to dismiss the lack of trust. Indeed, lack of self-confidence, lack of education, lack of time and/or fear of some people might prevent some villagers from checking the records. Moreover, the NGO recognizes the lack of interest and the decrease of involvement by the villagers,

but the NGO does not ask itself "why?" Obviously, the tendency is to blame the villagers instead of questioning the institution's practices (e.g., ability to account for balance of power inside the village).

Aspects of the milk cooperative and water tanks projects also illustrate an engineering bias in DLR Prerna. DLR Prerna acknowledges that these two projects mainly focused on technical aspects without accounting for internal village dynamics including power relations and socio-cultural factors. When DLR Prerna revived the milk cooperative, they bought equipment to enable the villagers to make and sell cheese. Today, nobody is making cheese and no trace of the equipment can be found (the villagers probably sold it). Similarly, DLR Prerna focused on the construction of the water tanks without accounting for the village's internal dynamics -- the local NGO was also trapped financially as demonstrated previously. This engineering bias is leading to perverse incentives as today nobody in the village maintains the water tanks.⁵⁷ Again, access to physical equipment *per se* is not enough to secure access to benefits from external investment. How do these dissonances interact and reinforce each other, or do they? Overall, these mismatches, time lags, gaps and biases are interrelated and reinforce each other. Most of the time, they are also simply the manifestation of different, sometimes contradicting, interests creating ambiguities, and therefore creating further room for the dissonances to occur.

To sum up, this chapter shows how a *combination* of factors related to internal village dynamics and external institutional linkages have been influencing and shaping Yangkhoo's social-ecological system. It is just not sufficient to talk about the importance of village dynamics and external linkages; the processes happening at different scales (e.g., local, regional, national) and between scales need to be explicitly explored and analyzed. Identifying the key processes shaping village dynamics and

⁵⁷ Ten years ago, Ostrom (1992) already underlined this issue of engineering bias. She wrote (1992:5): "the initial plans for many of the major irrigation projects in developing countries have focused almost exclusively on engineering designs for physical systems. Distribution of water to farmers and subsequent maintenance were frequently not addressed (Chamber, 1980; Bottral, 1981). In the Sri Lankan Mahaweli project, planning focused exclusively on the physical systems and ignorance regarding organizational questions. [...] The engineering bias rapidly triggers perverse incentives for irrigators".

external linkages is important to understand which processes are under the control of the villagers and which are beyond their control. History, culture and traditions, economic and ecological diversification, social capital, leadership, access to and benefits from natural resources, and partnerships have all played key roles in responding to the politico-economic perturbations. This chapter shows that building relationships and experience takes time and requires improved educational opportunities and training facilities and capacities. The cooperative model applied in Yangkhoo and Mineral Spring might work better if the villagers relate to the model as a way of life instead of purely as an economic structure.

CHAPTER 7.

CONCLUSION



PLATE 7.1: Villagers during Puja festival decorating their house with marigolds.

To recap, the study seeks to understand how communities can increase their ability to deal with change and create sustainable livelihoods. Communities do adjust to change, but not all adjustments are sustainable. Evaluating attempts to build resilience in a community subject to change is one way to investigate the "sustainability" of a social-ecological system in the face of change. In this study, resilience building refers to *increasing* the ability of a social-ecological system to absorb perturbations, and to adjust, learn, self-organize and re-organize in response to change for sustainable livelihoods. The process of building resilience in a community facing change in order to sustain livelihoods was investigated through the documentation of the dynamics of livelihoods change. The objectives of the study were: (1) to describe a livelihood system, (2) to identify key drivers of change and evaluate the impacts of these changes on a livelihood system, including institutional responses; and, (3) to derive policy lessons for managing resource-based livelihoods with regards to power relations, cross-scale linkages and resilience building.

The village of Yangkhoo in the Darjeeling District, Eastern Himalaya, India, provided a specific case study to document the dynamics of livelihood change over a 50-year period and to evaluate resilience building in the context of change. The village was selected by considering: (1) the occurrence of past crises, shocks, and/or stresses to enable the study of change, (2) the access to land ownership in order to examine the complexity of livelihood options and responses, and (3) the openness of the village (e.g., access to markets, external interventions) in order to examine the role of cross-scale institutional linkages.

Field data were collected over a period of four and a half months (September 2004 to mid-January 2005) using Rapid Rural Appraisal including semi-structured interviews, mapping, group discussions and visual records. In the village, a sample size of 36 households (53%) was obtained from a total of 68 households. All the questions and answers were translated to or from Nepali and English by a local person. Key informants outside the village (NGOs, governmental agencies and private sector) were also interviewed in English (n = 13). The process of video making at the end of the fieldwork enabled further data verification and provided a feedback to the village and villagers.

Key findings from Objectives 1 and 2 related to the current livelihood system in Yangkhoo and the major drivers of change, impacts and responses are reviewed in the first two sections of this Chapter. The third section links objectives 1 and 2 with the research question that guided the orientation of the study, that is: how to increase the community's ability to adjust to change and create sustainable livelihoods? Policy lessons for managing resource-based livelihoods are then suggested to address the third objective. The Chapter ends with further research implications.

CURRENT LIVELIHOOD SYSTEM IN YANGKHOO

The first objective of this project was to describe the current livelihood system of Yangkhoo. The study shows that the social-ecological system is more complex and diversified than meets the eye. Its livelihood system has its specific points but is generally typical of others in the Darjeeling District. Therefore, the case study provides some degree of general applicability to other villages in the district.

1. Yangkhoo's livelihood system is more complex and diversified than meets the eye.

In 2004, the villagers of Yangkhoo were making a living through a variety of activities. They diversify their income sources through farming activities (intercropping of subsistence and cash crops, stall-fed livestock) complemented with jobs mainly inside the village (i.e., agricultural laborer, government service holder such as teacher or clerical positions in village organizations, and private business holder such as shopkeeper or contractor). Other livelihood strategies include: drawing upon social and family relationships (e.g., to borrow money, to exchange information, labor, seeds), drawing upon forest resources (from farm trees and government forest), developing agro-forestry (e.g., villagers nurture "*sirish*" and "*utish*", trees that provide a microenvironment favorable to the growth of cardamom), producing manure, selling assets (livestock, cash crops, milk, fruits, vegetables, seeds), participating in village institutions (e.g., to access credit) and other institutions such as the tea cooperative at a multi-villages level.

The livelihood system in Yangkhoo becomes more complex as one investigates the combination of factors influencing access to and benefits from those various livelihood activities. Key factors at the scale of the household include: level of skills and education, geographical location (i.e., distance from roads), personal initiative, social networks, and the amount and nature of land. Other factors which modify access to and benefits from the range of livelihood activities are beyond the scale of the household. These include: nature of the village leadership, fluctuation of prices in local markets, natural cycles of plants, crops and livestock (e.g., milk production, bamboos blossom), diseases affecting crops and livestock, village and other external institutions (e.g., local NGOs and tea private sector is teaching the villagers about composting methods) and policies (e.g., law enforcement by the Forest Department) and the way those rules are combined or not with one another. This livelihood system is not (and has never been) isolated from the outside.

- 2. Yangkhoo's rural livelihood system has some differences but is generally typical of others in the Darjeeling District. Therefore, the case study provides some degree of general applicability to other villages in the district.**

Yangkhoo, together with other settlements in Mineral Spring area, are the only villages of the Darjeeling Hills to be part of an organic tea cooperative with institutional linkages to international markets. Other villages have linkages through other commodities with international markets (e.g., sale of flowers). Generally however, the Yangkhoo livelihood system is similar to others in the Darjeeling District. Most villages that are not part of tea plantations are also living off the land from subsistence crops and vegetable gardens, supplemented by cash crops and forest products. They complement their livelihoods with some wage-paying jobs. Villages in the Darjeeling Hills are starting to undergo rapid change especially with the road construction throughout the area, which facilitates access to markets and therefore access to livelihood diversification.

KEY DRIVERS, IMPACTS AND RESPONSES

The second objective of this study was to identify key drivers of change in the Yangkhoo social-ecological system and evaluate the impacts of these changes on the

livelihood system. Indirectly, this objective raised the question: to what extent does the history of change and livelihood responses in Yangkhoo shed light on its current livelihoods system and its ability to better respond to future change? In other words, what does the past teach us about the present for building sustainable livelihoods? In theory, the range of diversified livelihood activities the villagers developed in Yangkhoo should provide a relatively high capacity for resilience building. However, the investigation of contextual factors revealed some nuances.

3. **Under the driving forces of a local tea estate closure followed by external interventions, political unrest, and infrastructure development, the post-1965 subsistence economy has progressively turned into a market economy, a shift that has increased agrobiodiversity in the village, as compared to the pre-1965 tea monoculture period.**

The Yangkhoo social-ecological system underwent important changes over the past 50 years. Key direct drivers of change (including responses to change) in Yangkhoo were mainly political, economic and institutional. They include: the closure of a local tea estate, external interventions, political unrest, and infrastructure development. Following the closure of a local tea estate in 1965 – a drawn out process starting in the mid-1950s, some of the livelihood changes consisted of shifts from (1) dependence on plantation monoculture to reliance on polyculture and off-farm activities, and (2) no landownership to *de facto* and then *de jure* landownership. After the closure of the tea estate, Yangkhoo was a subsistence village entirely dependent on existing resources. Over time, it evolved without much external intervention. The local economy became largely subsistence crops oriented and has gradually experimented with cash crops and became integrated into a market economy. Access to land was a critical factor in allowing the villagers to diversify their livelihoods.

The implications of these livelihood changes in Yangkhoo for sustainable livelihoods (i.e., livelihood security and environmental sustainability, including resilience building) are therefore quite complex too. Over time, the villagers learned to diversify their livelihoods options to better face institutional and climatic uncertainties. In case a shock or a crisis happens and limits access to and benefit from one livelihood activity, the villagers have the flexibility to fall back on other activities for livelihood security. For instance, villagers learned to protect and nurture farm trees. During crises, the

villagers mainly fall back on government forest resources but new livelihoods opportunities (and a decrease of the demand for charcoal and planks on the local market) are helping to decrease, to some extent, its use. Some households in Yangkhoo are able to invest in education and cash crops (e.g., buying new tea bushes, trying new cash crops such as turmeric), while others are surviving without much investment. A few villages in the Darjeeling District (e.g., Simanatar) have the same tea estate closure background and have also learned to diversify their livelihood activities, living from the land and from off-farm jobs.

4. In other Himalayan villages that have been studied, the same shift from subsistence economy to market economy has been happening, but it has often led to a decrease of local agrobiodiversity.

A recent comparative analysis of rural Himalayan livelihoods (Saxena et al. 2005) also shows similar trends between Yangkhoo and other Himalayan villages, including the replacement of traditional subsistence crops by cash crops. As Saxena et al. (2005: 26) found: "unlike some other areas where policies promoted cash crops [...], expansion of cash crops in the Himalaya seems to be an indigenous initiative driven by a socio-cultural change from subsistence to market economy, comparative ecological advantages for these crops in uplands, changing food habits and supply of food grains at subsidized price by the government [...]". Saxena et al. (2005) argue that compared to the traditional crop-livestock mixed farming of the Himalaya region, this trend leads to a decrease of agrobiodiversity in the Himalaya.

Yangkhoo, at least so far, is different. It is a relatively recent social-ecological system compared to other settlements in the rest of the Himalaya, having emerged about 150 years ago as a tea plantation. In contrast to the general trend (Saxena et al. 2005), the agrobiodiversity within the village has increased since the closure of the tea estate, showing the capacity of the social-ecological system to bounce back, mainly without external help, from the previous monoculture state. A comparison of Yangkhoo with the study done by Saxena et al. provides evidence that depending on the scale of observation, the results (in this case the environmental impacts of livelihoods transformation processes) can be interpreted completely differently. If the trend observed by Saxena et al. holds in Yangkhoo as well, it may be hypothesized that over time the agrobiodiversity will be reduced in Yangkhoo as well.

5. **Although Yangkhoo has a tea estate background, the villagers only took about two decades to develop adjustment strategies. In Yangkhoo, as in many other places in the Himalaya, livelihood changes and adjustments provide the villagers with new opportunities and new vulnerabilities.**

Saxena et al. (2005: 30) conclude their analysis of livelihood change in the Himalaya by saying: "such changes [i.e., emphasis on market economy, "maximization of profit" motive] have benefited local people in economic terms but, at the same time, increased their vulnerability to environmental and economic risks". Interestingly, new trends in Yangkhoo seem to lead to the same conclusion that livelihood changes are simultaneously creating new benefits and new vulnerabilities for the villagers. Smaller perturbations and opportunities, mainly external (i.e., external interventions, political unrest, infrastructure development), have been influencing over time the course of livelihood diversification set in motion by the big jolt of the tea estate closure.

The case study shows how the process of livelihood diversification contributed to create new socio-economic disparities within the village and new dependencies between the village and outside markets and organizations. For instance, villagers have better access to markets and have developed a wider range of income sources. At the same time, some villagers have started neglecting their land to earn rapid and short-term cash income. In a literature review on livelihood diversification in sub-Saharan Africa and in Asia, Hussein and Nelson (1998) confirm that the effects of livelihoods diversification are complex and do not necessarily lead to more "sustainable" livelihoods. In Yangkhoo, further research is required to understand if/how much livelihood diversification is invested in production that enables the villagers to move beyond survival strategies, and to what extent the short-term benefits of livelihood diversification can be transferred into long-term benefits.

INCREASING THE COMMUNITY ABILITY TO DEAL WITH CHANGE

The research question that guided the orientation of the study was "how can communities increase their ability to deal with change for sustainable livelihoods?" Evidence provided by the case of Yangkhoo, as shown above through objectives 1 and 2, suggests that it is very difficult to draw general conclusions about how communities can increase their ability to deal with change for sustainable livelihoods

especially because answers are context specific. However, the case study gives some insights into the process of resilience building. It demonstrates how certain parts of the system have built resilience more than others, at different scales.

6. **At the scale of the household and the village, where people have access to landownership, they have been able to build resilience into their livelihood systems since the closure of the tea estate. Over the 50-year period, resilience building has been accomplished mainly by ecological and economic diversification.**

Four clusters of factors are contributing to increase resilience building in Yangkhoo in the face of change. These include:

- **Cultural safety nets (local level).** Although traditions and cultural practices can cause resistance to change (e.g., caste system), the case study shows that they also constitute a strong social support system in times of crisis. This support system helps the villagers to make sense of the world and self-organize in the face of rapid changes. At the same time, traditions and cultural practices are not frozen. First, and in contrast to stereotypes, traditions are embedded in past, present and future thinking. Second, the villagers demonstrate the ability to integrate new elements (e.g., integration of other religious aspects with Hinduism, integration of economic change leading to the evolution of superstitions and taboos), illustrating cultural creativity and flexibility.
- **Social safety nets (local level).** Access to land ownership has further contributed to a sense of place and belonging of the villagers, which reinforced investment in livelihood diversification and environmental conservation.
- **Economic safety nets (local level).** The villagers have diversified their livelihood activities in the face of economic and ecological uncertainties and in order to spread risks (see Chapter 5). For example, they learned the importance of crop diversification, seed banking (cardamom, ginger), care of livestock for sale (cows, pigs, goats), savings, children's education, and trees' cultivation in household plots. Informal linkages also allow for those activities to happen (e.g., informal uses of the government forest).

- **Institutional and organizational safety nets (local, regional and national levels).** Some aspects of cross-scale institutional linkages also help to strengthen the Yangkhoo social-ecological system. Specifically, the interventions of NGOs, and especially some key players and their overlapping networks, opened new opportunities (e.g., milk and tea cooperatives) and enabled external organizations and villagers to speed up and increase learning opportunities. NGOs also created bridges for other organizations from the private sector (i.e., TPI) to work with the community. Today, villagers manage to sell organic tea to international markets as a result.

7. Within the village, some households have more control over their ability to benefit from landownership. This ability depends on their access to other assets (e.g., social, economic). However, the villagers do not have direct control over a number of external factors influencing their livelihoods, and these may be barriers to resilience building.

At least five clusters of factors are creating barriers to resilience building in Yangkhoo social-ecological system. These are:

- **Environmental barrier (local level).** Physical isolation and a rugged topography (i.e., steep slopes, potential for erosion, thin and rocky soil) have limited the village's access to market and agricultural returns. An apparent paradox is that physical isolation might in fact be a positive factor in resilience building leading to less external impacts and forcing people to self-organize. That said, the village has never been completely isolated from the outside.
- **Historical barrier (local level).** During the time of the tea estate, the villagers did not develop their agricultural knowledge and the level of personal initiative was locked into a very hierarchical and centralized structure. The structure influenced the villagers' agricultural practices and mentalities, and contributed to the creation of dependencies.
- **Politico-economic barriers (local, regional and national levels).** Yangkhoo is part of the broader Indian and international politico-economic context

influencing access and benefits from markets. Not only is Yangkhoo part of one of the poorest states in India, but it is also part of the disregarded hill district of West Bengal. Today, the Darjeeling Hills and Yangkhoo suffer from a lack of infrastructure development. New policies try to improve access to assets (e.g., land assets, political assets) while access to the benefits from those assets is still not secured. A few seem to benefit at the expense of the majority, leading to an increase in socio-economic disparities mediated and reinforced by power relations inside the village.

- **Institutional and organizational barriers (local, regional and national levels).** Paradoxically, new institutional linkages with NGOs, government organizations, and the private sector have also created new weaknesses. These include: problems of scale mismatches for instance between the scale of intervention and the scale where the processes are taking place, lagged responses between the occurrence of an event and external interventions, and finally gaps and biases within organizations themselves. Those cross-scale issues contribute to create loose feedback loops, distrust or at least lack of awareness and participation between the village and external organizations, which can erode the staff motivation over time.

The study demonstrates the necessity of placing adjustment strategies into context to determine whether or not they are “sustainable” and how to make them more so. The distinction between factors enhancing resilience building (“safety nets”) and inhibiting resilience building (“barriers”) might be, in reality, less obvious than described previously. Most factors might in fact bring both positive and negative aspects in regards to resilience building. For instance, the case study shows that both livelihood diversification and cross-scale institutional linkages can have positive and negative impacts for sustainable livelihoods. Interventions need to identify and secure the factors of resilience building and to understand and minimize which factors contribute to limit resilience building; keeping in mind that a factor contributing to resilience building today might become a factor that inhibits resilience building tomorrow because of the changing contexts.

The case study also demonstrates that it is not enough to have a good understanding of the current livelihood system. Without falling into some determinism and again depending on the system under investigation's context, the role of history and its multiple shocks reveals the dynamics of rural livelihoods and how some legacies might continue to impact on people's mentalities and the environment for instance. Further, the case study shows how people manage to respond/adapt to change and how fast. After 12 years of economic uncertainties and following the final closure of the local tea estate, it took about seven years and 20 years respectively for the first NGO and for the government to intervene.

POLICY LESSONS FOR MANAGING RESOURCES-BASED LIVELIHOODS

The third objective of the study was to derive policy lessons for resources-based livelihoods with regard to power relations, cross-scale linkages and resilience building. Although those policy lessons also apply to village level institutions, district level organizations and government agencies working toward improving livelihoods at a village level, this section specifically addressed policy lessons to NGOs. Indeed, this study focused more on the role of local NGOs than on national and international policies that influenced/are influencing the local level. Some also argue that the role of NGOs is increasing as a result of a lack of response from governments that tend to characterize the "developing world". That said, local NGOs are themselves dependent on external funds that limit/dictate their action. Fieldwork further provided a small space of cooperation between the academic world and the NGO world, revealing that a bridge between the two is still generally lacking. The implications raised by this case study can be summarized in four major policy lessons for managing resources-based livelihoods facing change.

- **A combination of short-term *and* long-term livelihood supports may be necessary for the community's ability to sustain its livelihoods in the face of change.**

The case study demonstrates the need to focus on and monitor for long-term capacity building ("long-term treatment") *together with* short-term livelihood supports ("emergency treatment"). Communities' ability to deal with change in the long run can

be increased by focusing more on capacity building in the long-term than by only providing livelihoods support in the short-term. Indeed, short-term livelihood improvements do not always transfer into long-term livelihood improvements. Improving the economic aspects of livelihoods alone for instance cannot be sustainable unless the focus also includes improvement of socio-cultural, organizational and political aspects for capacity building, learning, self-organizing, etc. This is a real challenge because policies tend to be more short-term focused due to dependence on external funds and internal organizational changes. The case study shows that the creation of the cooperative was not enough and/or did not help the villagers to increase their capacity to manage it. More importantly, the absence of long-term policies to improve livelihoods might also contribute to create and/or reinforce opportunist behaviors, which then may jeopardize the success of future projects led by the same or other external organizations.

- **Community histories, internal dynamics, and priorities need to be understood and accounted for in order to secure access to, but also benefits from, long-term livelihood support strategies.**

Creating and fostering long-term livelihoods supports implies the need to understand and account for the specificities of the place under investigation in order to secure not only access to assets but also benefits from those assets. These specificities may include: the community's histories (including the community history with other organizations), the community's internal dynamics (i.e., power relations and existing institutions) and priorities. On the importance of history for instance, how to define (i.e., delimit and simplify) a social-ecological system in space and time is very important and depends on the study contexts and objectives. In the context of this study, a 50-year period allowed the understanding of the dynamics of multiple and cross-scale changes and drivers of change in the system under investigation. The study suggests that the tea estate background has been influencing on people's mentalities by creating socio-economic disparities and dependencies mechanisms. On the importance of power relations, the case study shows that in certain cases difference in power does not derive from caste differences but from historical differences in landholding and access to resources. On the importance of existing institutions, the case study shows that the village society, Samaj, needs to be strengthened to be more involved in the economic aspects of the village (e.g., tea cooperative, water tanks maintenance). The local NGO

might gain by better incorporating the Samaj into their projects. Even if existing institutions are not working toward equity, NGOs can better account for those inequities by working through the existing institutions instead of creating new ones – inequities are most of the time inherent to any institutions in any case!

- **The focus on isolated instances of stress, shock or crisis, is not sufficient in itself to understand the impacts of change on a specific community and to formulate policies. Many such systems are subject to multiple and cross-scale influences, so that focusing on anyone stress is always going to be insufficient.**

This study demonstrates that the livelihood framework and the resilience approach can be meaningful approaches in guiding policy-makers to better account for multiple and cross-scale influences. The livelihood framework provides key entry points to help the understanding of a specific social-ecological system. The focus on livelihood assets for instance also appears to limit the prospect of a value-laden assessment (i.e., it is asking “what *is* there?” instead of “what *should* be there?”). Despite the fact that various meanings and perceptions are now given to the term and concept of “resilience”, this study also demonstrates that the resilience approach can make a contribution to policies.

As defined in this study, resilience building complements the livelihood framework. However, resilience building in itself does not necessary lead to a more “sustainable” system. Other attributes and processes need to be simultaneously in place (dictatorships can also be very resilient systems!). The definition of “sustainable livelihood” (see Chapter 1, p. 13) includes aspects of resilience building. But in many livelihoods studies, resilience building is not investigated in depth, and research tends to focus on a static picture. The resilience perspective enables researchers to advance the livelihood framework further by asking not only “what are the details of your lives?” and “what successes can you replicate?” but also “how can you increase your ability to deal with shocks, stresses, and crisis?” Thus, the resilience approach in itself does not provide the blueprint to design policy towards sustainable livelihoods. But it does provide an additional perspective to investigate social-ecological systems in the context of change and demonstrate the need for policy makers to account for multiple and cross-scale influences.

- **From a development NGO point of view, monitoring and evaluating projects and related institutional linkages, are as important as the inception of the projects and linkages themselves because they can lead to learning and adaptive management.**

Because of funding and time constraints, NGOs tend to focus more on the goals of a specific project rather than the process to reach the goals. NGOs need to develop awareness programs together with close monitoring program. For instance, the case study shows that the villagers need to be taught more about the cooperative, so they can learn to conceive it as a way of life and not purely as an economic structure. One way to improve monitoring and evaluation processes is to improve the dialogue within the organization between fieldworkers and office workers, including capacity to reflect upon earlier actions and learn from them. This is the essence of adaptive management.

Institutional linkages also need to be monitored and evaluated because the study shows they can lead to both positive *and* negative outcomes. According to the contexts, some actions might be done better at different levels. NGOs need to keep improving and strengthening positive synergies through cross-scale institutional linkages with key local actors, the private sector and government agencies. Further, most NGOs do not have the time to do the important background work in the communities and/or their involvement is limited both from a financial and temporal perspectives. NGOs therefore need to develop new linkages with researchers to help in documenting and analyzing processes from a broader perspective.

FURTHER RESEARCH IMPLICATIONS

This study raises further research questions. Comparative case studies would be useful to investigate more in depth the role of drivers of change, including the role of the tea estate legacies and the role of road construction, in influencing the capacity of communities to build resilience.

- **To carry out a comparative case study to evaluate the extent to which the legacies of the tea estate management influenced the current livelihood system and its ability to adjust to change and build resilience.**

A comparative case study in the Kalimpong area, which does not have the plantation legacy, and/or with another plantation village that collapsed would shed more light on the role of tea estate legacies. This would require choosing a comparative village study with relatively similar variables (e.g., distance and access to market) but without the tea estate legacy. The comparative case study could also be done through a multi-village questionnaire study. One hypothesis might be that the people from Kalimpong area have built more resilience because they have been more independent from a socio-economic viewpoint. They might be more entrepreneurial and relate differently to the land.

- **To investigate what are the short-term and long-term socio-economic and environmental impacts of road constructions in Himalayan villages.**

Although the impact of roads as drivers of change was not a major part of the current study, roads bring major change both positive and negative. Road construction is increasing in the Darjeeling District and in the Himalaya generally. It is often associated with development. However, not much research has been done to evaluate the long-term social, economic and environmental impacts of road constructions in the Himalaya. Rawat and Sharma (1997: 125) in a study of Almora District in Central Himalaya suggest that the “establishment of a road network has a significant impact on the development of infrastructure and other facilities”. Kreutzmann (2004: 208) in a comparative study on Northern Pakistan’s traffic infrastructure and linkages with its neighbors in the Hindukush-Karakoram-Himalaya, concludes: “although improved accessibility remains the preferred path to development it is evident from an analytic point of view that a further inspection of socio-economic frame conditions is required to determine the effects of road construction”. This study shows that the road construction contributed to the improvement of the marketing system (e.g., through increasing the number of middlemen, which created more competition inside the village; and through facilitating the sale of green tea leaves to the nearby tea estate). But again, access to road construction in itself is probably not sufficient to ensure benefits. The villagers were still lacking storage facilities for instance. The road construction probably helped with market integration, but seems to have introduced new vulnerabilities as well, leading to an increase in socio-economic disparities inside the village.

APPENDIX I. RESEARCH TIMELINE

Objectives	Methods	Timeline
Selecting the study site	▪ Contact with local NGOs (Hayden Hall, DLR Prerna, ATREE), research institutes (CREATE -Darjeeling; University of West Bengal –Siliguri, Departments of Sociology and Political Sciences, Center for Himalayan Studies) and the Jesuits community ▪ Visiting local libraries (North Point College, Darjeeling; University of West Bengal, Siliguri) and search for benchmark studies ▪ Participation in DLR Prerna meetings especially to meet project coordinators and village animators (Kalimpong) ▪ Village visits (Kalimpong subdivision (Kidang), Darjeeling subdivision (Yangkhoo, Rampuria, Bungkulung)	End of August - September
Collecting and verifying data in Yangkhoo	▪ Participant observation ▪ Mapping exercises ▪ Household semi-structured interviews ▪ Group discussion ▪ Shooting video footage	End of September - mid-January
Collecting, analyzing and verifying data in and around Darjeeling	▪ Key informants' interviews (Hayden Hall, DLR Prerna, Selimbong Tea Estate, forest officers) ▪ Collection of secondary documents: e.g., maps, old pictures ▪ Video shooting, capturing, editing	September –Mid-January
Giving feedback	▪ Video screening in Yangkhoo	Mid-January

APPENDIX II. INTERVIEW GUIDE

SEMI-STRUCTURED QUESTIONS WITH VILLAGERS [n = 37] – 8.09.04-19.12.04

▪ General household data

- (1) Age
- (2) Educational level: (a) primary – up to class IV, (b) secondary - classes V to X, (c) higher secondary – classes XI and XII, (d) higher secondary – passed, (e) higher secondary – drop out
- (3) Place of birth (women only)
- (4) Location of parents' house before closure of the tea estate (men only)
- (5) Main sources of income (cash crops, animal husbandry, agricultural labor, work on road side, service holder, pension, sell of wood, alcohol, seeds, vegetables, fruits)
- (6) Loans and savings
- (7) Skills (e.g., carpenter, mason, handicraft)
- (8) Participation in women SHG, political meetings, Samaj
- (9) Subsistence crops: how much maize do you grow? Do you get?
- (10) Private forest: when did you start private forest? Why? what are you planting? How often? For what purposes?

▪ Attitude towards cultivation and animal husbandry

- (11) What are your major problems/challenges to earn a living now (cultivation, animal husbandry, employment)? In the past? (e.g., employment, education of children, cultivating, selling cash crops)
- (12) What is more difficult: producing cash crops (tea, ginger, cardamom, broom) or selling it?
- (13) Do you think you get fair prices for your crops?
- (14) What are you doing to face those challenges?
- (15) How are you trying to improve the productivity of your crops (e.g., manure)? Milk?
- (16) What do you think about terrace farming? Does your practice of terrace farming is different than it used to be? Why? What do you do to improve it?
- (17) What do you do to protect your crops against pests? Natural calamities? Wildlife?
- (18) Why do you do polyculture? Would you have a choice would you switch to monoculture? Why?
- (19) Do you collect non forest products: mushrooms, nuts, flowers, fruits, medicinal plants, needles, fodders
- (20) Do you always replant the same type and amount of crops in the same amount of land? Why?
- (21) On what basis and type of information do you decide to plant a certain type and amount of crops?
- (22) Do you ever seek for advices regarding plantations? Prices? To whom?
- (23) On what basis and type of information do you make choice and do you take decisions regarding your cultivation (production and marketing system, i.e., buying/cultivating seeds, planting, harvesting, selling)?
- (24) Is there any crops that you are growing now and not before? How this happened? Any new activity?
- (25) Have you ever tried to grow a crop and/or start a different/new activity and it didn't work? Explain (trial-and-error method?)
- (26) What do you do to create new livelihoods opportunities for you and your family?
- (27) What are you doing now to be able to cope with a possible perturbation tomorrow?

▪ **Agents of change**

- (28) Who is helping you? Who helped you in the past? How? (Gram Panchayat, DGHC, DLR Prerna/Hayden Hall, family, Samaj)
- (29) What type of programs/services did you and/or are you benefiting from the government and/or the Gorkha Hill Council (as a household and as a member of the village community)?
- (30) Are you expecting more external help to improve your life? (sanitation, employment, education, electricity, transportation, health, marketing system, landslides, wildlife, etc.)
- (31) What do you do to improve your life and the life of your children?
- (32) What does the government should do to improve your life and the village?
- (33) Can you guess any difficulties that you may have to face in the next future? (e.g., lack of land, lack of employment, landslides, drop of the price of ginger, political instabilities, closure of Selimbong TG)
- (34) What is your biggest fear?
- (35) What do you do to anticipate those possible difficulties? What could you do?
- (36) What would be the consequences in your life of:
 - (a) a sudden drop of the price of
 - (b) Landslide in your landholding
 - (c) RDCD pull out from SVC
 - (d) Closure of Selimbong TG
 - (e) Closure of nearby TG
 - (f) Change in forest policy: governmental forest becomes community forest
- (37) What would you do to cope with these changes?
- (38) What is your idea of wealth and development in Yangkhoo?
- (39) When/what was the happiest and hardest moments of your life in Yangkhoo?

▪ **Identity, sense of place and belonging**

- (40) Do you consider yourself as a farmer? Are you happy to be a farmer? Or would you migrate in a tea estate if you could? Why?
- (41) Would you like your children to stay here?
- (42) Have you ever lived/work outside of Yangkhoo? Where? Why? How long?

▪ **Political assets**

- (43) How do you get informed regarding political activities?
- (44) Do you have contact with any political leaders (e.g., councilors, panchayat pradhan, panchayat office)?
- (45) Do you know who could carry your request/problems to the councilor?
- (46) How many times have you ever seen the councilor?
- (47) What do you expects from your political leaders?

SEMI-STRUCTURED QUESTIONS WITH THE PANCHAYAT ELECTED MEMBER – 27.10.04 and 17.12.04

- (48) What is your position in the panchayat?
- (49) Which panchayat are you from?
- (50) What are the activities that you are doing for the panchayat?
- (51) How do you take decisions?
- (52) Who decide who get contracts?
- (53) How much money approximately is allocated in the village by the DGHC per year?
- (54) What are the main problems the village is facing?
- (55) What are her main challenges as a panchayat elected member?

(56) Are you going to stand for the next election?

▪ **Environmental assets and sustainability**

(57) What do you do to take care of your land?

(58) What do you do to protect your cultivable land from (a) landslides, (b) pest and wildlife?

(59) What are you doing to keep your private forest healthy? --- what is a healthy forest?

(60) What are you doing to keep the jungle healthy so that your children will also be able to use it in the future to get wood, plants, vegetables, water?

SEMI-STRUCTURED QUESTIONS WITH 2 VILLAGERS REGARDING USE OF GOVERNMENTAL FOREST (4.11.04, 5.11.04; 2.12.04, 18.12.04)

(61) How often are you going to the jungle/week?

(62) When the coal business started to decrease?

(63) How many bags of coal did you used to sell before, when it was your main source of income?

(64) How many people in Yangkhoo are involved in coal/planks business? Used to be involved?

(65) Do people from outside the village also come here? From where are they coming from?

(66) Is there other business related to the forest? (e.g., extraction of colors, sell of flowers)

(67) Is there any type of rules among local people regarding the use of the forest (i.e., restrictions, taboos)?

(68) Are there any conflicts around forest resources between Yangkhoo people and people from outside? Among Yangkhoo people?

▪ **Local institutions, degree of expectation and satisfaction**

(69) Are you happy with:

(a) SVC/tea committee

(b) Child Education Center/Library

(c) Women organization

(d) SAMAJ

(e) Wildlife sanctuary

(70) Do you think it runs properly? Do you feel that people are strongly involved? How to improve it?

▪ **Cultural assets and traditions**

(71) What kind of "superstition" do you have related to natural resources (e.g., water, land, forest, specific types of crops)? Are they still in use today? If not why?

(72) Do you have your own Rai traditions, which are not followed by other Nepali castes?

(73) Have you been starting new traditions in your day-to-day life or for special occasions?

(74) What is your knowledge of those traditions?

(75) How do you teach them to your children?

SEMI-STRUCTURED INTERVIEW WITH SHAMAN (during worshipping days) – 17-18.12.04

(76) In the early days, did the "bijoua" go around and preached in the villages?

(77) Did you give knowledge to the people?

(78) In the olden days, what would the "bijoua" do?

(79) Do you teach what you know to the others?

▪ **Impacts of the closure of the tea estate and of the political agitations**

- (80) Do you know any stories about poverty in this village?
- (81) What was the settlement pattern during the time of tea estate? Where was your house before the closure of the tea estate?
- (82) Can you talk about the process of land grabbing and land distribution?
- (83) Is there any time when you have not been able to meet your basic needs (food, water, clothing, shelter, health care, education)? Which one? Why? What happen?
- (84) Did the neighboring communities were farming communities during and after the closure of the TG?
- (85) What is your major challenge in terms of livelihoods?
- (86) What happened in the village during ----?
- (87) What was the settlement pattern during the time of the TG?

▪ **Economic assets**

- (88) what did you do during the time of crisis to survive (e.g., migration, remittance, new cultivation, etc.)? where did you get food? What actions did you undertake to improve your situation? Did you manage to innovate?
- (89) Did some people manage to predict the crisis/stress? If no, why? if yes, who? What did they do to anticipate the crisis/stress?
- (90) what kind of cultivation and/or other activities did you do during the time of crisis/stress/shock?
- (91) Did you manage to sell some products? Where?
- (92) Where you able to meet your basic needs? Which one (food, water, clothing, shelter, health care, education)?
- (93) What was the facilities/services you were getting when the tea estate was running (e.g., education, food, health, estate)?
- (94) Do you know if other villages were better able to cope during that time or not? Do you know why?
- (95) Did change create new opportunities for your family and/or the village in the long run?

▪ **Institutional assets**

- (96) How did your access (and benefit!) to (1) land, (2) forest, (3) drinking water, (4) credit and loan change during/after crisis?
- (97) Who did you have contact with to enable you to sustain your livelihood activities after crisis/stress? (e.g., social relations/networks, institutions (rules, customs, markets, associations, NGOs, local administrations, state agencies) Who helped you? How?
- (98) Who did you rely the most in times of crisis/stress (e.g., yourself, household, family, village, government, NGOs)? Please rate. Choice?
- (99) Did the number and network of local services providers (transportation, water, electricity, shopkeeper?) increase or decrease during/after change?
- (100) How people managed to have access to information (e.g., prices, political meetings, governmental programs) before/during/after the crisis?
- (101) How did you keep informed?
- (102) What would you do differently if you had to live the same situation again? What successes can you replicate in your life and/or teach to your children or other community facing such change/crisis/stress?
- (103) From your personal experience, how do you try to (1) predict crisis/stress, and (2) cope in times of crisis (e.g, savings, food preservation system, looking for information and key informant, ways of cultivation, ways to increase productivity).

(104) What food storage mechanisms do you have? Grains, vegetables etc.

▪ **Environmental assets**

- (105) Do you know any proverbs/stories about landslides? Floodings?
- (106) After crisis/stress, did you notice any change in (1) forest cover, (2) water access, (3) soil fertility, (4) soil erosion, (5) wildlife? Reasons?
- (107) Where did you use to collect firewood before/during/after the crisis/stress?
- (108) Before/after crisis/stress, do you think people used the land "properly"? why?
- (109) What land is used for what? e.g., specific type of land required for cultivation of tea? Cardamom? Ginger?

IMPACTS OF ROADS

- (110) Do you use the road? How often? For what purpose?
- (111) Do you go to the market more often than before?
- (112) Does the metallic road participate in improving the communication inside the village? Between villages? Between village and market? Give examples.
- (113) Who benefits the most/the less from the road inside the village?
- (114) Did economic disparities increase in the village after the road construction?
- (115) What new business started during and after the road construction? Permanent and temporary?
- (116) Did the social structure of the village changed after the road construction?
- (117) Did your livelihood change after the road construction?

**SEMI-STRUCTURED INTERVIEW WITH THE CONTRACTOR OF THE VILLAGE ROAD
(also questions related to the metallic road) – 18.10.04, 13.12.04**

- (118) Who funded/is funding the road?
- (119) How the road construction has been initiated/stared? Did anybody ask for the construction of the road? Who promised/initiated the road construction? When?
- (120) Who are/were the contractors?
- (121) Who is in charge of maintaining the road? Any problem?
- (122) Do you remember any problems occurring during the construction of the metallic road? (problem of maintenance etc.)

**SEMI-STRUCTURED INTERVIEW WITH THE ROAD PROJECT MANAGER IN MINERAL
SPRING, DGHAC, EMERGENCY DEPARTMENT**

- (123) Why not yet electricity in this area?
- (124) Why the project is taking longer?
- (125) It seems that the road is on a landslide area. Did you do a survey of this area before starting the road construction?

YOUTH GROUP DISCUSSION: VISION ABOUT THE FUTURE [N= 5] – 21.11.04

- (1) What would you like to change in the village? Why?
- (2) What would you like to keep? Why? (e.g., traditions and customs, services, agricultural practices, uses of governmental forest etc.)
- (3) What is your idea of development in Yangkhoo?
- (4) What would you like to do in the future to keep (a) the land of your parents healthy, (b) the governmental forest healthy?
- (5) Impacts of outside education in the village: are the youths who are studying outside of Yangkhoo progressively losing knowledge of the land and of cultivation practices?

YOUTH GROUP DISCUSSION: IDENTITY AND SENSE OF PLACE [N= 3] – 21.11.04

- (1) Are you happy to be from Yangkhoo? Why?
- (2) Do you want to raise your children in Yangkhoo? Why?
- (3) Do you see yourself living the same life as your parents? Why?
- (4) What do your parents encourage you to do/to be? Why?
- (5) Would you migrate in a nearby tea estate if you could? Why?
- (6) What are your options to move out of Yangkhoo (study and work)?
- (7) What is your biggest fear, major difficulties/problems? Why?
- (8) Do you feel that Yangkhoo is different from other nearby villages (e.g., Dabaipani, Lower Harsing)? Why?

SEMI-STRUCTURED INTERVIEW WITH TWO EX-SOCIAL WORKERS OF HAYDEN HALL IN MINERAL SPRING – 29.10.04, 12.11.04, 14.12.04

- (1) How did you get involved in the Mineral Spring Area in 1973 (role and position in Hayden Hall and North Point College)?
- (2) Who is Hayden Hall?
- (3) Who initiated the project? Who funded the project? Who participated?
- (4) Why Hayden Hall/N.P. College started their intervention in Lower Harsing? To which extend this intervention expanded to Yangkhoo and Dabaipani villages?
- (5) What kind of changes Hayden Hall introduced in the area especially in terms of livelihood changes?
- (6) What programs have been implemented in the area and in Yangkhoo especially?
- (7) What were the role of Hayden Hall regarding the milk cooperative and the tea business?
- (8) Where does the idea of a cooperative come?
- (9) Did Hayden Hall encourage villagers to grow new crops? To switch from subsistence crops (maize, millet) to cash crops (ginger, broom)?
- (10) How were the villages when Hayden Hall started and after regarding (a) socio-economic conditions, (b) sense of place, belonging, identity, (c) social communication, cohesion, (d) tea estate forest, (e) governmental forest, (f) road network, (g) cultivation, terrace farming, soil fertility, (h) livestock
- (11) How did people learn to cultivate?
- (12) What were the differences between Lower Harsing, Yangkhoo and Dabaipani regarding (a) degree of involvement/participation/initiatives related to Hayden Hall intervention, (b) socio-economic disparities)
- (13) What was the level of disparities among people during time of tea estate?
- (14) To which extend the people became dependant or not on Hayden Hall?
- (15) How was Hayden Hall intervention from a community perspective?
- (16) Why did Hayden Hall pull out in 1986?
- (17) Why did the milk collapsed after the retrieve of Hayden Hall?
- (18) What are the lessons that you, as an institution, learned from this experience?
- (19) How this experience has been used, or not, by other NGOs in this area?

SEMI-STRUCTURED INTERVIEW WITH FOREST OFFICERS – 26.11.04 and more...

- (1) Is Yangkhoo part of an EDC?
- (2) To which extend do you think the people of Yangkhoo were dependant on the forest after the closure of the tea estate?
- (3) Under what regulation and criteria can some villages become part of an EDC? What kind of facilities villagers are getting when they are part of an EDC? What are the main challenges of the forest department in the context of establishing EDC?
- (4) What are the rights of a forest village?
- (5) Did the forest department carry out an survey in the area?

- (6) Can you give me some information regarding the Senchal Wildlife Sanctuary?
- (7) To which extend the forest department is dealing with the issue of wild animals that damage people's crops in Yangkhoo? Who is responsible for taking this problem in charge?
- (8) How many guards are working in the forest?
- (9) What are the main challenges of the villages that are close/adjacent to the sanctuary, yet not part of any EDC?

SEMI-STRUCTURED INTERVIEW WITH DLR PRERNA PROGRAM MANAGER IN MINERAL SPRING, 18.12.04

- (1) What is your role in DLR Prerna?
- (2) What was the socio-economic situation of Yangkhoo when DLR Prerna arrived in Mineral Spring?
- (3) What are the changes you have been noticing from 96 until now in terms of socio-economic development and social cohesion?
- (4) Can you talk about SVC and what are the major problems you are facing with SVC?
- (5) Do you think that everybody in the village benefit from SVC?
- (6) For the people who do not have tea, how are they managing and how much DLR Prerna is helping them?
- (7) What are the other projects and activities of DLR Prerna in Mineral Spring?
- (8) To which extend the villagers are maintaining the water tanks?
- (9) Do you think the people of Yangkhoo are dependent on DLR Prerna?
- (10) What are the major difficulties you are facing while working in this area?
- (11) To which extend do you think the villagers are thinking at an individual and collective level?
- (12) What are the major problems of this area?
- (13) How the village of Yangkhoo is similar and/or different from other villages in the Darjeeling District?
- (14) If DLR Prerna pulls out from this area, will the villagers be able to organize themselves?
- (15) What are the next projects DLR Prerna has in this area?

SEMI-STRUCTURED INTERVIEW WITH SELIMBONG TEA ESTATE PROJECT IN CHARGE SMALL FARMER ORGANIC TEA PROJECT, MINERAL SPRING – 6.12.04 and more...

- (1) What is your role in Selimbong Tea Estate?
- (2) Can you present Selimbong Tea Estate?
- (3) Did the farmers of Mineral Spring use chemical before?
- (4) Who introduced TPI to the village?
- (5) Can you explain the process of tea collection and how the tea is carried to Selimbong?
- (6) What are the major advantages and inconvenient of having a cooperative for the farmers and for Selimbong?
- (7) Is there other places where Selimbong could buy organic green tea leaves in the Darjeeling District?
- (8) Do you feel the farmers have this "collective spirit" or do you find it is still difficult to work with the community?
- (9) Do you feel that the farmers have a sense of ownership of SVC as a collective?
- (10) To which extend do you think the farmers are dependant on Selimbong and SVC? If Selimbong retrieve from Mineral Spring, how the farmers are going to respond?
- (11) What are the major problems and challenges you are facing?
- (12) Can you talk about the marketing system of the different crops?
- (13) Is there any new project that Selimbong is thinking to start in Mineral Spring?

- (14) Do you have something to say regarding Yangkhoo, especially in comparison to other busties?
- (15) Can you talk about land management in Mineral Spring?

APPENDIX III. MAPPING EXERCISES AND GROUP DISCUSSIONS AT A VILLAGE LEVEL (BETWEEN 2- 4HRS.)

Objectives	Method	N	Location
▪ Break the ice ▪ Re-construct the history of the village ▪ Identify key changes, crises, stresses ▪ Identify key informants ▪ Observe group dynamics	Historical timeline	13	Yangkhoo, School
▪ Break the ice ▪ Get to know part of their livelihood activities ▪ Identify stresses	Seasonal calendar	16	Yangkhoo, School
▪ Get to know the organization of settlements and castes, the distribution of major crops and water tanks ▪ Obtain a map to walk in the village and conduct interviews	Geographical/social maps	3	Yangkhoo, a villager's house
▪ Roles and impacts of the road	Mobility map	6	Yangkhoo, a villager's house
▪ Understand young people's sense of place and identity	Youth group discussion	3	Yangkhoo, school
▪ Understand young people's vision of Yangkhoo	Youth group discussion	5	Yangkhoo, school
▪ Bring villagers together to discuss livelihood changes among themselves ▪ Build a dynamic picture of livelihood change over time ▪ Come up with a general consensus ▪ Confirm, correct, verify and expand on the information collected through semi-structured interviews	Livelihoods changes I (1952-72) - focused on the evolution of economic diversification	6	Dabaipani
<i>Same as above</i>	Livelihoods changes II (1973-2004) - focused on the evolution of economic diversification	28	Yangkhoo, School

APPENDIX IV. EXERCISES AT A HOUSEHOLD LEVEL (30 MIN. TO 1 HR.)

Objectives	Method	N
Understand the interaction between different resources for livelihoods (focus on farm activities)	Agro-ecosystem map	1
- Get a general idea of people's income and expenditure - Get an idea of economic disparities inside the village - Explore how villagers fill their income gaps	Income-expenditures	6
- Explore similarities and/or differences between livelihood change at a village and at a household level - Explore similarities and/or differences among different households	Livelihoods changes II	4
Explore the level of social capital in the village	Social capital assessment	2

**APPENDIX V. SEMI-STRUCTURED INTERVIEWS WITH KEY INFORMANTS
OUTSIDE YANGKHOO [N = 13]**

Institutions and function	Area of inquiry
▪ Director and teacher, Yangkhoo school,	▪ Education ▪ Social capital
▪ Panchayat officer, Dabaipani	▪ Role of the panchayat ▪ Rai culture
▪ Shaman (Kulung clan) coming from Mongpu Labda	▪ Himalayan Rai shamanism
▪ Local sellers from outside and shopkeeper in Yangkhoo, living in Dabaipani	▪ Social capital
▪ Villagers in surrounding villages	▪ Samaj ▪ Comparing Yangkhoo with nearby villages
▪ Ex-in charge in Hayden Hall, Darjeeling, for CRS programs (Catholic Relief Services), and Adult Education Programs	▪ Impacts of the closure of the tea estate ▪ Impacts of Hayden Hall (natural assets, cultivation and animal husbandry, social capital) ▪ Rai culture
▪ DLR Prerna, Darjeeling, Program Manager	▪ Roles and impacts of DLR Prerna ▪ Rai culture
▪ DLR Prerna, Darjeeling, project manager in Mineral Spring area	▪ DLR Prerna projects in Mineral Spring area
▪ Selimbong Tea Estate, Darjeeling, project in charge Small Farmers Organic Tea Project Mineral Spring	▪ Small Farmers Organic Tea Project
▪ TPI, executive director, Darjeeling	▪ Small Farmers Organic Tea Project ▪ SVC
▪ Divisional Forest officer, Wildlife division, Darjeeling and ex-forest officer, Darjeeling	▪ EDC ▪ Forest villages ▪ History
▪ DGHC, Emergency department, project manager	▪ Village road construction
▪ University of North Bengal, Department of Economics, retired professor	▪ Darjeeling district, tea estates

APPENDIX VI.A. TEA BUSH (*CAMELLIA SINENSIS*) FARMING SYSTEM

History and uses	Characteristics	Production system ⁵⁸	Marketing system
- Introduced crop by the British between 1840-50 - Organic green tea leaves sold to a local organic tea garden - Home-made tea consumed at home and/or locally sold	- Grow from 600-2000 meters - Requirements: mild temperatures (ideally 18-20C), sufficient humidity (between 70-90%), a large amount of nutrients (especially nitrogen), good air circulation, and shade but not too much - Leaves growth comes in flushes - Highly nutrient exhaustive - Vulnerable to pest attacks - Highest yield generally given when bushes are 30-40 years aged. - Decreased productivity of bushes after 50 years old and increased vulnerability to pests and diseases. (Chhetri 1999: 43) - Weeding, sickling, plucking, and pruning regularly required	- Organic process - Plucking seasons: April-August - From 40 to 2'000 tea bushes per household - Yield: 3 to 355 kg per household per year - Techniques of organic fertilization management: green manure from plants (e.g., intercropping with Guatemala grass), other cash crops, and returning material from tea bushes; cow manure⁵⁹; compost; diversification of the crop system - From tea seeds it takes 7 years to produce results	- Certified organic tea - Organic green tea leaves collected through a local cooperative (tea committee) and sold to a local organic tea garden for international market since 1998⁶⁰ - Market price: 20rs/kg fixed price all year around - After plucking, green tea leaves requires immediate processing - Absence of process facilities in the area - Problem of transportation time and distance to the tea garden factory - Problem of quality (no financial incentives to improve the quality)

⁵⁸ Household data from RCDC Approved Farmers List 2003 with n: 54 (members of SVC)

⁵⁹ According to Naturland, "if the tea's nitrogen demand (on average around 60 kg) is to be met entirely from composed cattle manure, around 2 cattle per ha of cultivated tea are required.

⁶⁰ Selimbong Tea Garden buys the green tea leaves from the community cooperative, SVC. The certification is given in the name of SVC (not at an individual basis - so people need to become a member of SVC to send their tea). The holder of the certificate is Tea Promoter of India (TPI, Calcutta), the proprietor of Selimbong Tea Estate. The Institute for Market Ecology (IMO), Switzerland, is the certifying agency. TPI is paying every year for the certificate.

APPENDIX VI.B. GINGER (*ZINGIBER OFFICIALE*) FARMING SYSTEM⁶¹

History and uses	Characteristics	Production system	Marketing system
▪ Indigenous crop ▪ Fresh raw ginger used to be sold in small quantity in the surrounding area about 2 decades ago ▪ Fresh raw ginger now sold to regional market (Siliguri) via local middlemen ▪ Rest used as seed and for domestic consumption and worship practices (taboo used to be/is attached to ginger) ▪ By-product given to cows after harvest ▪ Villagers used to steal ginger	▪ Seasonal crop ▪ 2 varieties: old and new varieties - more profit with old one ▪ Requires dry land and open area ▪ Nutrient exhaustive ▪ Crop rotation required (replaced by maize and vegetables) ▪ Multiple cropping not allowed ▪ Yield: 40- 1'400kg per household per year ▪ Not highly perishable commodity ▪ Labor intensive (annual planting, harvest and maintenance)	▪ Organic process ▪ Planting season: Feb/March ▪ Harvest season: September - October ▪ Cowdung mixed with grass and leaves used as fertilizers ▪ Vulnerable to soft rot disease (new disease), "furquepi" (also locally called "yellow disease"), "morua", and worms ▪ Use of natural compost again pest (e.g., "banmara", "titaypaty", "dhokray") but lengthy process ▪ Monkeys don't eat ginger ▪ 40kg of ginger requires 20 dokos of compost (1 doko = 20kg) ▪ From 2 maunds (1 maund = 40kg) of seeds farmers can get 7 maunds of ginger ▪ System of ginger seeds conservation (to avoid ginger getting rotten): pit>dry leaves>ginger seeds>dry leaves>soil - can use seeds after 2 months ▪ Substantial seeds requirement. Use of seed material from previous year's harvest but keeping seeds requires proper climate (not too humid) ▪ Seeds are expensive. Price of ginger seeds (within the village) varies between 600-1000rs/maund	▪ Certified organic ginger ▪ Fresh raw ginger collected by middle men and sold locally (Siliguri) because no international market (lack of infrastructure) and limited national market (competitive market) ▪ International market closed (idem cardamom) ▪ National market limited: very competitive (South India is a major concurrent) and transportation problems (loss of moisture and get rotten = lower price) ▪ Price on the market: 20rs/kg ▪ Absence of storage facilities: farmers have to sell the produce immediately after harvesting, which make them even more vulnerable to price fluctuations (Datta et al. 2002: 30) ▪ Problem of space and loss due to soft rot during storage ▪ Traditional storage method: ginger is dumped in a pit and covered with soil and plastic ▪ Absence of farmers organizations, no coordination among the growers spread all over the region (Datta et al. 2002: 30) ▪ Traders in the Delhi market dictate the priced in Siliguri (Datta et al. 2002: 31) ▪ Output not graded sold in raw form (non-existence of agro-processing facilities) ▪ No access and existence of a regulated market network (The only regulated market in the district is Siliguri). ▪ Problem of glut in the local market and subsequent crash in prices

⁶¹ See Datta et al. 2002

APPENDIX VI.C. CARDAMOM (*AMOMUM*) FARMING SYSTEM

History and uses	Characteristics	Production system ⁶²	Marketing system ⁶³
- Native plant of Sikkim used by the native ethnic communities since time immemorial⁶⁴ - Fruits (or capsules, or rhizomes) are dried and sold, bulb from fruits can be used for manure, and old plant is cut and used for roof making	- Requires perennial water flow and shade, cool climate, and high moisture requirement 2 varieties - No fertilizer needed (self-fertilization) - Production of the large cardamom starts from the 3rd year after planting and then declines considerably after the 20th year - Well adapted to local soil conditions - Example of sustainable slope land use management (Sharma and Sharma 1997)	- Harvest season: August - October - Cardamom agroforestry system: cultivation under tree cover (natural forest or managed alder plantations, a nitrogen fixing tree), almost closed, self-sufficient system, independent of external input - Low input crops in comparison to other crops (labor intensive free, family labor) - Low nutrient exhaustive - Cultivated by (1) rooting out the old bushes and planting the stem, or (2) buying/keeping new seeds - Seeds start to be affected by disease and some farmers have to buy seeds from surrounding villages - Diseases: "chirkey", "foorkey" (old diseases); "surke", "morua" (new diseases) - Vulnerable to wildlife attacks (e.g., "kala") - Yield per household: 1-100 kg/year	- Certified organic cardamom - Rhizomes dried in traditional oven. About 800kg/ha of wood are required to cure 200kg/ha of the finished product. (Sharma et al. 2000: 110) - Dry cardamom collected by middle men and sold locally (Siliguri) - International market closed because of the lack of infrastructure/equipment (lack of drying facilities and no electricity). Sun dried or smoke dried cardamom are not accepted. - National market highly competitive and therefore limited - Price: around 100rs/kg - High income value compared to maize-potatoes dominated systems⁶⁵ (Sharma et al. 2000) - Low volume, non-perishable (after traditional drying process)

⁶² Data from RCDC Approved Farmers List 2003 with n: 54 (members of SVC)

⁶³ Average price in 2003 collected from semi-structured interviews and income-expenditure exercises

⁶⁴ "The Lepcha tribe in the Sikkim mountains was the original custodian of this crop. This tribe identified the large cardamom in forests and domesticated it. Cardamom farming practices developed through innovative experimentation by Lepcha farmers. Now cultivation of large cardamom has spread into the adjoining hills of Darjeeling, Bhutan, and eastern Nepal. Improving this technology was initiated through a farmer-to-farmer network. This crop has been doing well in terms of both varietal development and crop management without research or extension support from other institutions." (Sharma and Sundriyal 1998:1)

⁶⁵ A study that compared two systems, one dominated by large cardamom and the other by maize and potatoes, showed that household income per person per day income almost double in the large cardamom system (Sharma et al. 2000: 109).

APPENDIX VI.D. KUNTZ (THYSANOLAENA MAXIMA) FARMING SYSTEM

History and uses	Characteristics	Production system	Marketing system
▪ Indigenous plant locally called "broom" or "amliso" ▪ The flower (blossom) is dried for brooms, leaves are given for fodder to cows, the stem is used for firewood	▪ Grows up to 1800m ▪ Perennial shrub propagated by suckers (old plant cut off and new plant will grow) ▪ Colonization species ▪ Not labor intensive ▪ Low nutrient and water requirements	▪ Plant flowers during November-December ▪ Harvest season: January-March ▪ Yield: 15-100kg	▪ Brooms are sold to regional market (Siliguri) via local middlemen ▪ Average price: from 8 to 15rs/kg ▪ Instability of prices

APPENDIX VII. EVOLUTION OF LIVELIHOOD DIVERSIFICATION IN YANGKHOO AT A VILLAGE LEVEL

Livelihood activities ⁶⁶	Before instabilities in the tea estate	Instabilities in the tea estate and final closure (1952-65)	Limbo period (1966-72)	NGO and government intervention (1973-85)	Political instability and violence (1986-88)	Period of relative stability (1989-95)	NGO intervention (1996-2000)	Village road construction (2000-04)
Tea garden labor	XXX	X	O	O	O	O	O	O
Agricultural labor								
(a) Inside Yangkhoo	O	O	O	O	XX	XX	XX	XXX
(b) Outside	O	O	O	O	O	O	O	O
Other wage labor ⁶⁷								
(a) Inside Yangkhoo	O	O	O	XX	XX	XX	XX	XX
(b) Outside	O	X	X	X	O	O	O	O
Civil service and other white color jobs ⁶⁸	X	X	X	X	X	XX	XX	XX
Pensioners ⁶⁹	X	X	X	X	X	X	X	X
Private business (local shops and brewery)	X	X	XX	O	X	X	XX	XX
Cash crops								
(a) Tea	O	X	XX	XX	XX	XX	XX	XXX
(b) Cardamom	O	O	X	XXX	XXX	XXX	XXX	XXX
(c) Ginger	O	O	O	X	XX	XX	XXX	XXX
(d) Kuntz ⁷⁰	O	O	X	XXX	XXX	XXX	XXX	XXX
Subsistence crops								
(a) Maize	X	XX	XXX	XXX	XXX	XXX	XX	XX
(c) Millet	X	XX	XXX	XX	X	X	X	O
(d) Soybean	X	XX	XX	X	X	X	X	X
Vegetables (locally used or sold)	X	XX	XX	XX	XX	XX	XXX	XXX
Fruits	O	O	O	X	X	XX	XX	XX
Animal husbandry								
(a) Milk	X	XX	XX	XXX	XXX	XXX	XX	XX
(b) Livestock	X	XX	XX	X	X	XX	XXX	XXX

⁶⁶ With "X" equals "minor livelihood activity", "XX" equals "medium livelihood activity", "XXX" equals "main livelihood activity" and "O" equals "not part of livelihood activities".

⁶⁷ For instance: wood, road and house construction

⁶⁸ Locally called "service holders"

⁶⁹ This border area has lots of civil servants and militaries

⁷⁰ Locally called "broom" or "Amliso", a multipurpose plant.

Livelihood activities		Before instabilities in the tea estate	Instabilities in the tea estate and final closure (1952-65)	Limbo period (1966-72)	NGO and government intervention (1973-85)	Political instability and violence (1986-88)	Period of relative stability (1989-1995)	NGO intervention (1996-2000)	Village road construction (2000-04)
Government forest	(a) Firewood	XX	XX	XXX	XXX	X	XX	X	X
	(b) Charcoal	O	O	O	X	XXX	XXX	XX	X
	(c) Timber	O	O	O	X	XXX	XXX	XXX	X
	(e) Grass/fodder	O	O	X	XXX	XXX	XXX	XXX	XX
	(f) Cardamom	O	O	O	O	O	O	X	XX
	(g) Broom	O	O	O	O	O	O	X	X
Tea estate forest	(a) Firewood	XX	XXX	-	-	-	-	-	-
	(b) Charcoal	O	O	-	-	-	-	-	-
	(c) Timber	O	X	-	-	-	-	-	-
	(d) Bamboo	O	X	-	-	-	-	-	-
	(e) Grass/fodder	X	XX	-	-	-	-	-	-
	(f) Cardamom	XX	XX	-	-	-	-	-	-
	(g) Broom	X	X	-	-	-	-	-	-
Private forest ⁷¹	(a) Firewood	-	-	XXX	XX	XX	XX	XXX	XXX
	(b) Charcoal	-	-	O	X	O	X	X	O
	(c) Timber	-	-	XXX	X	O	XX	XX	X
	(d) Bamboo	-	-	X	XXX	XX	XX	X	X
	(e) Grass/fodder	-	-	XX	XXX	XXX	XXX	XXX	XX
	(f) Cardamom	-	-	XXX	XXX	XXX	XXX	XXX	XXX
	(g) Broom	-	-	X	XXX	XXX	XXX	XXX	XXX

⁷¹ After the final closure of the tea estate, the villagers converted what was left from the tea estate forest into private forest.

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GLOSSARY OF LOCAL TERMS, PLACES AND ACRONYMS

Amliso – refers to an indigenous plant cultivated for multiple purposes. The flower is dried for brooms, leaves are given for fodder to cows, and the stem is used for firewood. Appendix VI.D provides details of the plant characteristics, its production and marketing systems.

Beneficiary committee – a advisory committee composed of local villagers to help the village panchayat representative to decide upon the allocation of the Government Welfare Schemes.

Bijanbari Block -- within the Indian administrative land division, each state is divided in "districts", "subdivisions", "blocks" and finally "Mouzas". The Gram Panchayat represents the Mouza level, Panchayat Samit represents the block level and Zilla Parishad Panchayat represents the District level.

Bijoua – see "shaman"

Busty -- connotes a rural and relatively remote settlement.

Central Government -- refers to the Indian Government.

Charcoal and planks business – refer to activities considered as illegal by the West Bengal Forest Department; but considered as common practices by the villagers in order to sustain their livelihoods.

Dabaipani busty – refers to a village adjacent to Yangkhoo within Mineral Spring area. It also used to be part of Mineral Spring Tea Estate.

District – refers to the second level of land division after the state within the Indian land administration system. The state of West Bengal for instance is divided in 17 districts including the Darjeeling District.

DLR Prerna – stands for Darjeeling Lalendra Road Prerna, see "RCDC"

DGHC -- stands for Darjeeling Gorkha Hill Council, an autonomous council with independent power from the West Bengal Government formed in 1988 after the Gorkhaland agitations.

Doko -- local basket made of bamboo with a strip to carry on the forehead and used to carry firewood and grass. It is also a local measure. One doko equals 20kg.

EDC -- stands for Eco-Development Committee, one type of protection committee part of the Joint Forest Management (JFM) of West Bengal Forest Department constituted in villages that are in or by the side to Protected Area Forest.

Forest reserves – refer to government forest where nobody is allowed to do anything except with permission (licence).

Forest village – refers to a settlement set up by the West Bengal Forest Department to do work in government forests. Laborers were coming from outside West Bengal (e.g., state of Bihar, Nepal) and were given land. Today, the forest villages have been defunct of work and many of them have been put under EDC.

Gram Panchayat -- the lowest level of self-governance within the Indian Constitution (73rd Amendment, 1992).

Government Welfare Schemes – refers to socio-economic governmental programs coming from the block level or from the DGHC. Some of the Government Welfare Schemes include for instance: National Old Age Pension for below poverty line households (NOAP), National Family Benefits Scheme for below poverty line households (NFBS), National Maternity Benefit Schemes (NMBS), National Grant Rashin (NGR), Prime Ministers' Employment Scheme (Prime Minister's Rojgar Yozana – PMRY); at the DGHC level: Indira Housing Scheme (Indira Aawas Yozana – IAY), Prime Ministers' Rural Scheme (Prime Minister Gramin Yozana – PMGY), Relief scheme, scheme for deaf, widow pension etc. -- Note that no consensus prevails on what "poverty line" means at an international level, especially between governments and development agencies.

Lower Harsing -- refers to a village close to Yangkhoo within Mineral Spring area. It also used to be part of Mineral Spring Tea Estate.

Kirant -- a Tibeto-Burman branch of the Sino-Tibetan language group mainly located in the mountains of East Nepal, but also numerous in Sikkim, Darjeeling and Assam. No consensus has emerged on the origin of the Kirant identity (Schlemmer 2004). People from the kirant branch are called "kirantis".

Lebong – the closest market 5km away from Yangkhoo, standing at 1809 meters below Darjeeling town (2134 meters). One of the first experiments of tea cultivation in the Darjeeling District between 1840 and 1850 started on the Lebong slopes because of its warmer climate (about 10 degrees differences with Darjeeling town). Today, Lebong benefits from secondary schools, small shops and a military camp.

Non-revenue village -- refers to a landownership situation where people do not have ownership right on land and make most of their living working in forest reserves and tea plantations (Chakrabari et al. 2002a).

Gorkhaland agitations -- see "political agitations".

Panchayat Elected Representative – refers to a person within the village elected by the villagers to represent the villagers at the Gram Panchayat. Villagers have to elect this panchayat representative according to the system of reservation seats for scheduled tribes and women. According to this system, the current representative in Yangkhoo had to be a woman.

Parma system -- system of reciprocal labor exchange among households

Political agitations -- refer to political insurrections that started in the Darjeeling District since the 1960s. The movement lost fire in the 1990s.

Puja – a Hindu worship

Rai -- an ethnic group of Nepali origin. The traditional activity of the Rais is agriculture and animal husbandry. The majority of Yangkhoo is Rai.

RCDC – stands for Region Community Development Committee, a local organization based in Darjeeling and created in 1996 to implement suitable strategies for community development in the Darjeeling Hills. RCDC was a Jesuit institution funded by CJI (Canadian Jesuits International) and CIDA (Canadian International Development Agency) up to 2001. It then became an inter-congregational and lay organization mainly funded by national organization, and was renamed DLR Prerna.

Revenue village -- people have ownership rights on their land and pay land revenue tax to the government.

Samaj – refers to a village society in the Darjeeling Hills. Each village might have one or more than one Samaj.

Senchal Wildlife Sanctuary – refers to a protected area forest, adjacent to Yangkhoo, which falls under the West Bengal Forest Department jurisdiction.

Shaman – a local priest (man or woman) in the village who led religious and socio-cultural ceremonies. The shaman still constitutes a traditional support system in time of sickness, death and birth. The shaman also transmits oral history and traditions.

Siliguri – the largest city within the Darjeeling District in the plains, 80km away from Darjeeling town. It is also the only regulated market in the District (Datta et al. 2002).

State Government -- refers to State of West Bengal within the Indian

Sub-district – refers to the third level of land division after the state and the district. The Darjeeling District is divided in three hill sub-districts, Darjeeling, Kalimpong and Kurseong, plus one sub-district in the plains, Siliguri.

Subdivision – see "sub-district"

Tea estate -- a socio-economic unit producing and processing tea in a limited area and including workers settlements. The term "estate" is used instead of "garden" because the former refers to a larger tea enterprise in terms of surface area than the later (i.e., less than 40 hectares).

Tea estate forest – refers to forested land inside tea estates. The land in the tea estates is leased by the government to the tea estate company.