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Anu Kumari Lama

Understanding
Institutional Adaptation
to Climate Change



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to Climate Change

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R. Baumhauer, B. Hahn, H. Job, H. Paeth, J. Rauh, B. Terhorst

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Anu Kumari Lama

Understanding Institutional Adaptation to Climate Change

Social Resilience and Adaptive Governance Capacities
of the Nature Based Tourism Institutions in the Annapurna
Conservation Area, Nepal



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Anu Kumari Lama

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Abbreviation

ACA	Annapurna Conservation Area
ACAP	Annapurna Conservation Area Project
ADB	Asian Development Bank
APM	All Party Mechanism
CAMD	Conservation Area Management Directive
CAMR	Conservation Area Management Regulation
CAF	Cancun Adaptation Framework
CAMC	Conservation Area Management Committee
CBA	Community Based Adaptation
COP	Conference of the Parties
DAG	Disadvantaged Group
DADO	District Agricultural Development Office
DCC	District Coordination Committees
DDC	District Development Committee
DNPWC	Department of National Parks and Wildlife Conservation
DSCO	Disctict Soil Conservation Office
EFLGF	Environment Friendly Local Governance Framework
EFGDCC	Environment Friendly Governance District Coordination Committee
EFGVCC	Environment Friendly Governance Village Coordination Committee
FGDs	Focus Group Discussions
FMsC	Forest Management sub Committee
GEF	Global Environmental Facility
GGMOA	Good Governance Management and Operation Act
GoN	Government of Nepal
HES	Human Environment System
ICDP	Integrated Conservation and Development Programme
IPCC	Intergovernmental Panal on Climate Change
IUCN	Internation Union for Conseravtion of Nature
LAPA	Local Adaptation Plan of Action
LDCs	Least Developed Countries
LDO	Local Development Officer
LGCDP	Local Governance Community Development Programme
LFP	Livelihood and Forestry Programme
LRPs	Local Resource Persons
LSGA	Local Self Governance Act
LSGR	Local Self Governance Regulation
MDAs	Multilateral Development Agencies
MDGs	Millenium Development Goals
MGs	Mothers Groups
MHC	Marphy Horticultural Centre
MoSTE	Ministry of Science, Technology and Environment
MoCTCA	Ministry of Culture, Tourism and Civil Aviation

MoEST	Ministry of Environment, Science and Technology
MoFALD	Ministry of Federal Affair and Local Development
MoFSC	Ministry of Forest and Soil Conservation
NAPA	National Adaptation Plan of Action
NBT	Nature Based Tourism
NGOs	Non Governmental Organizations
NPC	National Planning Commission
NPWCA	National Parks and Wildlife Conservation Act
NRCO	Natural Resource Conservation Officer
NRCA	Natural Resource Conservation Assistant
NTNC	National Trust for Nature Conservation
NTB	Nepal Tourism Board
OIC	Officer in Charge
PAs	Protected Areas
PAR	Participatory Action Research
PRSPs	Poverty Reduction Strategy Papers
TMsc	Tourism Management sub Committee
UCO	Unit Conservation Office
UCPVA	Underlying Causes of Poverty and Vulnerability Analysis
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNWTO	United Nations World Tourism Organization
VDC	Village Development Committee
VRC	Village Reformation Committee

Abstract

The global-local sustainable development and climate change adaptation policy, and the emerging political discourse on the value of local adaptation have positioned the local institutions and the governance space within the strategic enclaves of multilevel governance system. Such shifts have transformed the context for sustainable Nature Based Tourism (NBT) development and adaptation in Nepal in general, and its protected areas, in particular. The emerging institutional adaptation discourse suggests on the need to link tourism development, adaptation and governance within the sustainability concept, and also to recognize the justice and inclusive dimensions of local adaptation. However, sociological investigation of institutional adaptation, particularly at the interface between sustainability, justice and inclusive local adaptation is an undertheorized research topic.

This exploratory study examined the sociological process of the institutional adaptation, especially the social resilience and adaptive governance capacities of the NBT institutions, in 7 Village Development Committees of the Mustang district, a popular destination in the Annapurna Conservation Area (ACA), Nepal. Using the sphere (a dynamic social space concept) and quality of governance as the analytical framework, the integrative adaptation as the methodological approach and the case study action research method, the study investigated and generated a holistic picture on the state of the social resilience and adaptive governance capacities of the NBT institutions.

The findings show institutional social resilience capacities to be contingent on socio-political construction of adaptation knowledge and power. Factors influencing such constructions among NBT institutions include: the site and institutions specific political, economic and environmental dispositions; the associated socio-political processes of knowledge constructions and volition action; and the social relationships and interaction, operating within the spheres and at multiple governance levels. The adaptive governance capacities hinge on the institutional arrangements, the procedural aspects of adaptation governance and the governmentality. These are reflective of the diverse legal frameworks, the interiority perspective of the decision making and governance practices of the NBT institutions.

In conclusion, it is argued that effective local adaptation in the Mustang district is contingent on the adaptation and institutional dynamics of the NBT institutions, consisting of the cognitive, subjective, process and procedural aspects of the adaptation knowledge production and its use.

Zusammenfassung

Die Politik im Bereich der nachhaltigen Entwicklung und der Anpassung an den Klimawandel sowie der Diskurs über die diesbezüglichen Adaptionsnotwendigkeiten auf lokaler Maßstabsebene, tangieren die Institutionen vor Ort und deren Position im Rahmen eines multi-skalaren Governance. Durch diese Umgewichtung wurden die Rahmenbedingungen für den Naturtourismus in Nepal verändert, insbesondere in den Schutzgebieten. Der sich daraus ergebende Governance-Diskurs hinsichtlich der institutionellen Anpassung betont die Notwendigkeit, Regionalentwicklung allgemein und speziell die Entwicklung des Naturtourismus im Sinne des Nachhaltigkeitskonzepts ganzheitlich zu betrachten. Sowohl die Dimension der Gerechtigkeit wie auch die Inklusivität lokaler Adaptionsnotwendigkeiten gilt es somit gleichrangig zu würdigen. Die sozialwissenschaftliche Erforschung der institutionellen Anpassung an der Schnittstelle zwischen Nachhaltigkeit, Gerechtigkeit und inklusive der lokalen institutionellen Adaptionsnotwendigkeiten, stellt bisher ein theoretisch unzureichend erfasstes Thema dar.

Diese explorative Studie untersucht diesen sozialwissenschaftlichen Prozess der institutionellen Anpassung, insbesondere die soziale Resilienz und die adaptiven Governance-Kapazitäten der Naturtourismus-Institutionen in sieben Dorftwicklungscommittees des Mustang Distrikts, einer beliebten Destination in der Annapurna Conservation Area, Nepal. Den Analyserahmen stellen der Wirkungsbereich (innerhalb eines dynamischen sozialen Raumes) und die Qualität des Governance-Regimes dar. Methodologisch auf dem Ansatz der integrativen Anpassung basierend, wird die Forschungsmethode der „case study action research“ gewählt. Die Arbeit analysiert dabei den Status der sozialen Resilienz und adaptiven Governance-Kapazitäten der örtlichen Naturtourismus-Institutionen, mit dem Ziel, ein ganzheitliches Bild derselben zu präsentieren.

Die Ergebnisse zeigen, dass die Kapazität im Bereich der sozialen Resilienz bedingt wird durch die sozio-politische Konstruktion von Wissen und Macht. Zu den Faktoren, welche diese Konstruktionen bei den Naturtourismus-Institutionen im Annapurna-Gebiet Nepals beeinflussen, zählen unter Anderem: orts- und institutionenspezifische politische, ökonomische und umweltbezogene Bedingungen; die darauf beruhenden sozio-politischen Prozesse der Wissenskonstruktion, sowie soziale Beziehungen und Interaktionen, die innerhalb des dynamischen sozio-politischen Raumes und des Governance auf verschiedenen Maßstabsebenen wirksam sind. Die adaptiven Governance-Kapazitäten hängen u.a. vom institutionellen Aufbau und den verfahrenstechnischen Aspekten der politischen Steuerung der lokalen Institutionen ab. Sie spiegeln unterschiedliche rechtliche Rahmenbedingungen, die Innenperspektive der Entscheidungsfindung und die Governance-Praktiken der Naturtourismus-Institutionen wider.

Zusammenfassend wird argumentiert, dass effektive lokale Klimawandel-Adaption im Mustang Distrikt Nepals abhängig ist von den spezifischen institutionellen Dynamiken der Naturtourismus-Institutionen, welche sich aus den kognitiven, subjektiven, prozess- und verfahrensorientierten Aspekten der Generierung von Adaptions-Wissen und seiner konkreten Anwendung zusammensetzt.

1 Introduction: Nature based tourism and climate change adaptation

1.1 Problem Statement – Navigating development and adaptation within NBT sustainability

1.1.1 Discursive fields of nature based tourism, development and adaptation

Climate change issue is one of the most important sustainable development debates. In Nepal, conditions, such as the fragile mountain ecosystem and extreme variability of climatic pattern (Sharma, 2009), are important contexts in triggering the vulnerability situation. Being the 4th most climate vulnerable country in the world (Gogoi, 2014; Wiseman and Chhetri, 2011), its sensitivity to vulnerability is very high by the fact that its economy and livelihood of rural mountain communities are very much dependent on resources sensitive to climate. Tourism, especially nature based tourism (NBT) is the classic case in point. The changing climate has transitioned the country to a new regime, requiring the country to respond to its impacts of both short and longer terms (Adger et al., 2005).

In answer to this, Nepal has embarked on a various climate change adaptation initiatives, the latest being the Rara Declaration on Climate Change and Environmental Threats (2014) (MoSTE/KIRDARC, 2014). This declaration recognizes critical role the local institutions play and their capacity, in addressing climate change issues. It also recognizes climate change as human rights and justice issue. Such politically transformative understanding is inspired from the constitutional provisions, in which the guarantee of the fundamental resource use rights of the rural and socio-economically marginalized communities and promotion of participatory democratic governance based on equity, justice and plurality is insinuated (Constituent Assembly Secretariat, 2015). The National Climate Policy (2011), conceptualizes climate justice issues within a broader goal of environmental conservation, human development and sustainable development, while National Adaptation Programme of Action (NAPA) and Local Adaptation Plan of Action (LAPA), recognize adaptation as part of a critical response strategy for addressing climate change at the national and local levels (Khatri et al., 2013; MoEST, 2012; GoN, 2011). Within these contexts, adaptation governance and the role of various institutions in creating enabling environment to facilitate effective adaptation response has become major development discourse (GoN, 2011).

However, for many least developed countries (LDCs), climate change is only one of a host of problems posed by multiple stress factors of the global environmental change (Chaudhary et al., 2007; Nightingale, 2003; Leichenko and O'Brien, 2002; Smit and Pilifosova, 2001). Being a LDC, the sustainable development challenges in Nepal are also accentuated by the already existing development issues, such as poverty, environment protection (Ludi et al., 2014; Lama, 2010) and the ongoing political instability. Politically, the decade long Maoist conflict and the end of two and half

a Century long Monarchy had transitioned the country from Kingdom to the federal democratic republican form of governance regime (Sharma, 2011; Budhathoki, 2003). Since the root causes of such conflict lie in rural poverty and resource governance related agendas (Paudel et al., 2010), the government response with inclusive policy change, such as Environmental Friendly Local Governance Framework (EFLGF) (2013), Local Self Governance Act (1999) and Local Governance Community Development Programme (LGCDP) (2008), not only shaped Nepal's local governance landscapes from state to local, but also heralded the transformative governance processes (The Asia Foundation, 2012; MoLD, 2011). Transformative in the sense that such shift has made local and informal governance space as cornerstone of political transactions. However, the major stumbling block in advancing the sustainable development agendas and also for effective tourism institutions' adaptation, is the failure in institutionalization of such transformative shifts. Continued political instability and the state rebuilding process and stalemate political consensus among multiple parties, have stalled the effective development and governance mechanism in the country.

Beside such local challenges affecting Nepal's sustainable NBT development, there are also challenges arising from the forces of global development and environmental change contexts. On a broader scale, the dominant development and climate change discourses include: the 20th century rise of modernism, neoliberal mode of development and social and economic injustice and inequity; the 21st century's series of, and successive historic turbulent and disruptive developments in the field of climate and socio-politics; especially the failure of the world to agree on limiting greenhouse emission to a safe level (Stokols et al., 2013; Hamerling et al., 2011; Gunderson and Folke, 2011; Ayers and Forsyth, 2009; Stokols et al., 2009), and the conclusion that even the most stringent mitigation efforts would not avoid further climate change impacts in the poor and vulnerable society (O'Brien and Hochachka, 2010; Ford, 2008; IPCC, 2007). In the light of this scenario, adaptation has gained significant scientific and political attention both at the global and local levels of decision making. It has also become a critical factor for sustainable NBT development.

The emerging development trends and thinking within the sustainable development and climate change contexts indicate a shift in the development and adaptation approaches to sustainability. The year 2015, in due regards to the United Nations Sustainable Development Summit and the Conference of the Parties (COP) 21, has become a pivotal political moment for negotiations on reframing sustainable development and climate change adaptation goals via establishment of Agenda 2030 for Sustainable Development Goals and the signing of a legally binding universal agreement on climate change (UNFCCC, 2015a). The sustainable development approach is aimed at addressing income inequality, social exclusion and environmental protection; while the climate agreement also recognizes the notion of justice and inclusive approach. The agreement recognizes the value of, and places emphasis on, in the inclusion of local decision makers, non-state actors and collaborative approach to facilitate a climate resilience development path. The success of sustainable development is clearly appended on the climate agreement at COP 21.

These emerging trends clearly indicate the inherent links between climate change and sustainable development, between human and environment system (HES) and the need for the locally driven collaborative development and adaptation initiatives. Many scholars and policy makers have begun questioning the humans' capacity to deal with converging environmental and societal perturbations (Stokols et al., 2013), and stress the need to enhance capacity for both short term resilience and longer term sustainability of the HES. The need to enhance HES resilience, reconnecting development to the socio-ecological system services and social innovation for transformations towards global sustainability (Gunderson and Folke, 2011), are the emerging discourses in the field of climate change adaptation and sustainable development.

1.1.2 Sustainable NBT and adaptation

Development and adaptation are two of the most important spheres of sustainability where climate and tourism development intersect and where climate change challenges the policy makers and practitioners working within this field (Boyd et al., 2009). Nepal's tourism is primarily a nature bound recreational activities mostly conducted within the Protected Areas (PAs). Its Himalayan regions, home to world's most iconic PAs (such as the Annapurna Conservation Area and the Everest National Parks), are important NBT destination areas. But such Himalaya being a part of the third pole of the world, its vulnerability to climate change (NPC, 2011a, b), including those of livelihoods and biodiversity (Karki, et al., 2009), make the PAs very sensitive HES (Nyaupane et al., 2014). Tourism societies and economies, being a part of the HES, function and evolve within the fluctuating climate variability and change (Smithers and Smit, 1997). These processes influence the vulnerability across the destination regions, the implication of which is felt on the sustainable development efforts.

The challenges of promoting sustainable NBT in the mountain destinations of Nepal's PA, have never been so difficult and daunting, than in recent years. Specific to this research interests are those being experienced in the Annapurna Conservation Area (ACA), Nepal. Recent studies done by research scholars (Becken et al., 2013; Lama, 2010; Nyaupane and Chhetri, 2009), show that the NBT in the ACA is highly vulnerable to climate change. In the Mustang district, ACA's most popular mountain destination area, NBT has come under tremendous pressure in due regards to an unprecedented rate of transformations driven by socio-economic, political and climate change (Lama and Job, 2014). In terms of climate change, multiple factors, such as warmer and drier winters, intense and erratic rainfall, extreme events (e.g. flood and landslides) and seasonal anomalies are exerting pressures on tourism resources and services (Becken et al., 2013; Lama, 2010). According to Lama and Job (2014), the dynamics of changes brought by the global-local nexus of nature conservation and development in the region are complex, varied and at multiple scales. Understanding institutional adaptation within the broader global-local contexts of sustainable tourism, adaptation and governance is important for the NBT sustainability in the Mustang district.

The vulnerability of NBT and the need for tourism to respond to climate change are important policy issues; first, it is promoted as a sustainable development strategic tool to address the moral dimensions of environmental conservation and development in Nepal. This has also led to its recognition in promoting green development concept and in enhancing the resilience capacity of the institutions against climate change impacts (NPC, 2013b; MoEST, 2012). Second, the growing recognition of the role of NBT and the value it carries mean that its vulnerability is being perceived to threaten the existing sustainable development. As a result of this, social resilience and sustainable development as the emerging adaptation discourses have gained greater prominence in recent studies and policy initiatives (Ford, 2008; Pettinger, 2007; Pielke et al., 2007; Parry et al., 1998).

The local sustainable development imperatives of global climate change impacts and the need to enhance the social resilience, have opened important development and adaptation approaches, such as the mainstreaming of climate adaptation into development planning (Ayers et al., 2014; Pervin et al., 2013) and scaling up adaptation initiatives for a long term sustainability (Kates et al., 2012; Tarhule, 2012). Such evolution in adaptation thinking is followed by the change in adaptation assessment approach, moving beyond impact assessment to reducing vulnerability that is responsive to diverse political, social, economic and environmental contexts (Burton et al., 2002). The emerging adaptation literature and policy initiatives along these lines indicate shifting of adaptation approach from addressing impacts of climate change to social vulnerability by enhancing resilience capacity of the vulnerable communities for the HES sustainability (Adger et al., 2011; Burton et al., 2002).

Since HES (such as NBT in this case) operates within a larger socio-economic, political and ecological setting (Ostrom, 2007), and through the interactions of the diverse institutions; adaptation challenges are linked to the global-local nexus of sustainable development, resource governance and political institutionalization brought by the political, social, economic and environmental change factors. Given these contexts, the question of how to bring the climate change and development together, especially the sustainable NBT development, adaptation and governance (compounded by the dimensions of dominant global-local political ecology of environmental and development governance in the PAs, and the on going political instability), and how to reconcile the political and social discourses emerging out of the human-environment relations, is an unprecedented challenge.

These discussions highlight three important points: first, sustainable NBT development and adaptation problems in due regards to their global-local nexus and interaction contexts are systemic in nature, second, the value of local institutions, their role and capacity are immense, in improving the NBT resilience against both climate and non-climate factors and third, the shifting of development and adaptation governance to transformative governance reality (Bulkely and Schroeder, 2011). The increasing scholarly and political debates now concentrate on the need for an alternative paradigmatic and development approach, the one that frames sustainable NBT development and adaptation governance problems from the social dimensions. Despite the growing policy and practical importance of the social dimension of adaptation within the sustainable development (Eriksen

et al., 2011), the value of local institutions, social resilience and transformative adaptation governance, the concepts of sustainable tourism development and adaptation are neither defined, nor examined within these contexts. Scholars of political ecology, post-modernism, post-development, critical and human geography, and new political economy to tourism, development, adaptation and governance have argued about, and are calling for an alternative research agendas, policy and development approaches along these lines of debate (Urie, 2014; Naughton, 2013; O'Brien, 2012; O'Brien and Hochchka, 2010; Silvey, 2010; Forsyth 2008; Escobar, 2007, 2004, 1998; Radcliffe, 2005, 2004; Farrell and Twining-Ward, 2003; Ostrom, 2012, 2010; Stonich, 1998).

1.2 Rationality

The values of this research topic lie in the fact that sustainability of NBT within climate change context, is tied up with the livelihood of the local community, their resilience to social vulnerability and adaptive governance capacity. Adaptation being the executive, management and justice issues, understanding sociology of institutional adaptation framed within the contexts of the ACA's NBT sustainability, through the tourism institutions' perspectives, deserves special attention. For this, the case of the NBT institution in the study area of the Mustang district is selected. The case characteristics and the context within which NBT institutions embed include: the development imperative in Nepal and the ACA, such as the combination of poverty and the relative state of underdevelopment; its trend, such as the historical and gradual process of exposure and adjustment of the institutions to the global-local forces of development and environment governance; the vitality of NBT and its sustainability challenge brought by climate and non-climate forces of change, including the ongoing political instability; and finally, the global-local politics of adaptation in Nepal in general, and Mustang district, specifically. These trends and changes indicate the shifting of NBT development, adaptation and governance contexts that are of political, social and systemic nature. In understanding 'how' to integrate NBT development, adaptation and governance within the sustainability triad concept, there is a need for, and the value, in examining the institutional adaptation in the context of global-local discourses on adaptation and NBT sustainability, within the evolving tourism, development and climate change paradigmatic and governance contexts. The rationales for this study within this context emerge from the theoretical, empirical and practical imperatives into researching the sociological understanding of the institutional adaptation to climate change.

Theoretically, adaptation from the social dimension of vulnerability and response action is an under theorized concept (O'Brien, 2012). Adaptation being endogenous to society (Adger et al., 2009), it is about how humans perceive threats and takes action (O'Brien, 2009b), the effectiveness of which depend on the capacity of those adjusting the social and functional activities to the external forces of change (as discussed

in section 2.2.2). Such capacity hinges on various intangible processes of adaptation understanding, decision making and governance contexts (Jones et al., 2010; O'Brien and Hochchka, 2010). It is about the social construction of adaptation knowledge and power dynamics within human environment relationships. Thus, there is a need for theorizing the adaptive capacity from social resilience and adaptive governance perspective for a deeper theoretical understanding of the social processes of adaptation, and the interplay between knowledge and power dichotomy of adaptation governance at multi-level scales upon which HES sustainability hinges (Vink et al., 2013; Folke et al., 2006; Walker et al., 2004). For this there is a need to converge diverse theoretical foundations and debates on sustainable tourism, adaptation, governance and HES dynamics to provide a consolidated theoretical basis for the study.

From the empirical standpoint, NBT in the PAs are subjected to changing global-local development and adaptation contexts, leading to the shifts in both disciplinary and political thinking. The NBT in the Mustang district provides an excellent case in point. There is thus a need for a new understanding of the link between the three key thematic areas: NBT development, adaptation and governance for NBT sustainability. However, tourism is a blind spot when it comes to climate change adaptation and sustainability, especially in developing countries (Becken and Scott, 2010). More precisely, the research on the institutional adaptation to climate change suffers from two important lacunae.

The first gap arises from the lack of conceptual clarity related with NBT development, adaptation and governance within the sustainability context, inhibiting the understanding of systemic nature of the problem, and the integrated approach that is required to respond. Becken and Job (2014) while trying to understand PA management and governance issue arising from global-local nexus of change for tourism, suggest the lack of advanced conceptual model underpinned by strong theory on resilience, adaptive capacity and governance, as the major challenge. Others suggest that the limited understanding of systemic and complex human environment interaction is what causing the poor and inadequate state of the 'knowledge of' adaptation (Swart et al., 2014; Moss et al., 2013; O'Brien, 2012; Görg, 2011). Hence there is a need of both comprehensive conceptual model and the understanding of adaptation framed within the systemic construct of resilience, adaptive capacity and governance.

The second gap is related to the first gap, i.e., the deficit of the 'knowledge of' adaptation, is a fundamental issue for the 'knowledge for' effective adaptation approach (Swart et al., 2014). The knowledge for effective adaptation hinges on the 'organization of knowledge production and application' known as the boundary organization (Kirchoff et al., 2013; Nilsson and Swartling, 2009) and adaptive governance, which in the given circumstances is less understood and under researched.

From the practical standpoint, the relevancy of the study stems from the three important imperatives. First, it contributes to addressing the lacunae in the field of tourism and adaptation research, i.e., very little work has been done explicitly at the interface of tourism and climate change adaptation in Nepal, in general and Mustang district, to be precise. This highlights the need for a grassroots and place-based knowledge for the NBT adaptation. Second, it contributes to generating new knowledge of, and for, tourism institutions' adaptation to climate change. The emerging

shift in global-local climate change adaptation discourse, especially the linking of the 'top down' – 'bottom up' approach to climate change adaptation planning in Nepal, via NAPA and LAPA, has now opened doors for the local community to play crucial decision making roles, and their scopes in the political landscapes. And this means that community/place based approach to climate change adaptation, their actions to deal with climate vulnerabilities will be crucial in advancing the adaptation political and policy agendas. LAPA being an offshoot of the NAPA, tourism is a neglected field of research and political interest within its approach. Given that both NAPA and LAPA approaches are designed to provide a process for LDCs to identify, communicate and respond to their most "urgent and immediate" adaptation needs; and integrate them within the local development plans, the lack of scoping of tourism in this context is a major shortcoming and is likely to relate to a national lack of basic information on tourism vulnerabilities and opportunities for effective adaptation development. Focusing on tourism in the Mustang district is an important starting point along this line. Third, while adaptation to climate change is inherently social and organic processes of human environment relationships, exploring and analyzing the sociological understanding of institutional adaptation, especially from the social resilience and adaptive governance capacities is critical to effective institutional adaptation and tourism sustainability.

Against this background, there is a strong need to developing coproduction of the 'knowledge of adaptation', and 'knowledge for adaptation', informed by social resilience and adaptive governance capacities perspective for NBT sustainability. Within this premise, sphere and qualitative governance serve as analytical lenses to unpack and investigate how adaptation knowledge, power and process of governance align to socio-political processes of institutional adaptation (Kooiman et al., 2008; Pelling et al., 2008).

1.3 Objectives and Research Questions

The purpose of this exploratory study lies in the sociological understanding of the NBT institutions' adaptation to climate change with special focus on the social resilience and adaptive governance capacities of these institutions. The specific research objectives and research questions guiding the study include:

Objectives

1. To advance socio-political understanding of institutional adaptation in relation to sustainable NBT development
2. To generate empirical knowledge about social resilience and adaptive governance capacities of the NBT institutions
3. To contribute to a better informed process of understanding and analysing institutional adaptation to climate change

Objective 1:

To advance the socio-political understanding of institutional adaptation in relation to sustainable NBT development.

1. How is adaptation conceptualized within the sustainability dimension of tourism development and governance discourse?
2. What are the disciplinary and methodological discourses of institutional adaptation to climate change?

Objective 2:

To generate empirical knowledge about social resilience and adaptive governance capacities of the NBT institutions

3. How is social resilience capacity understood in the study area?
 - What kind of NBT institutions exist in the study area?
 - What are the structural and functional characteristics of the NBT institutions?
 - How are the NBT institutions responding to vulnerable NBT resources?
4. How is adaptive governance capacity understood in the study area?
 - What kind of management culture exists among NBT institutions?
 - How are the NBT institutions governing the adaptation in the study area?

Objective 3:

To contribute to a better informed process of understanding and analysing institutional adaptation to climate change

5. What is the theoretical, empirical and methodological implication of the study?

1.4 Thesis Structure

Chapter 2 conceptualizes NBT institutions' adaptation to climate change for social resilience and adaptive governance capacities within the PA sustainability perspectives. The aim of this chapter is to establish theoretical grounding to map out analytical framework for the study. For this, the concepts of tourism development, adaptation and governance are theorized and framed within the HES sustainability concept to show the relationships among the three. The sections of NBT and adaptation begin with revisiting the definitions of tourism and adaptation. Using the post development and post modernism perspectives on development, adaptation and NBT sustainability, critical review of the literatures on sustainable tourism, climate change adaptation and governance is carried out. The breadth of the thematic reviews range from conceptual and disciplinary evolution of these themes, to

those associated with the approaches and paradigms, from historical to present day. Through this process, the concepts of tourism, development, adaptation and governance are deconstructed to highlight the unfolding institutional adaptation issues and emerging conceptual uniformity. Followed by this, the analysis and linking of these divergent themes into a convergent theoretical framework, within the HES sustainability concept is carried out. Such theoretical grounding provides the basis for the analytical framing of social resilience and adaptive governance capacities of the NBT institution. This framework and the sphere and qualitative governance concepts as the analytical lens, provided the basis for sociological understanding of tourism institutions' adaptation to climate change.

Section 2.1 explores and analyses the role of NBT as a sustainable development strategy in the LDCs, and especially within the PA, by investigating how it is promoted; the evolving conceptual, disciplinary and the development approach, and its management implication. Critical analysis of the term 'sustainable tourism' within the strategic and management rubric of sustainable tourism development shows that the concept has evolved from an economic growth oriented tool to a broad all-encompassing strategy and a system. Such shift indicates the value of discursive approach to understanding tourism development sustainability. Parallel disciplinary and development thinking is also observed in the governance field, shifting the roles of the institutions from facilitating participatory, to enabling collaborative partnership; and tourism places, as politically contingent participatory spaces. The changing shift is explored by situating NBT and climate change issues within the sustainability aspect of HES, with the example from the ACA, Nepal.

Section 2.2 illustrates on the evolution of adaptation concept, discipline and approaches within the wider political ecological debate about the sociological dimension of adaptation issues. Critical review of global adaptation and development discourses and Nepal's experience, is carried out to locate the state of adaptation within the emerging political discourse. Adaptation as a dynamic concept with its processes contingent on socio-political construction of knowledge and power, is presented to highlight the relevance of the need to understand adaptation from discursive perspective. The section also reflects on the preceding discussion (section 2.1) to link the the divergent themes, such as the development and adaptation into a convergent theoretical framework, and to frame adaptation governance context (section 2.2.4).

Section 2.3 frames institutional adaptation within NBT sustainability perspectives. The concepts of social resilience and adaptive governance capacities are explored and analysed, using sphere and qualitative governance as analytical lens. Within the sphere, the construction of adaptation knowledge as a socio-political process, operating within social space, and power as the political processes of resource governance, operating within the political arena, is operationalized. The qualitative governance is conceptualized as the combination of the process of governance and governmentality, to offer analytical lens for understanding adaptive governance capacities.

Chapter 3 discusses methodology, in particular, the research approach. It explains the reasons for conceptualizing methodology to facilitate the examination of the institutional adaptation holistically and in integrated manner. Followed by this,

the framing of integral approach that accommodates methodological plurality and takes account of the big picture, is carried out. The chapter on the methodological plurality explains the reason for adopting narrative and diagnostic queries. The chapter then describes the use of qualitative methods, research materials and data collections.

Chapter 4 presents the case study area. It provides an overview of the study area with the special focus on bio-physical, conservation, institutional, climatic characteristics and the vulnerability contexts. It also presents the distinctive feature of the study area as the PA and its dynamic HES characteristics.

Chapter 5 presents findings of the study. It looks into the big picture of understanding institutional adaptation with specific goals of understanding the social resilience and adaptive governance capacities of the NBT institutions. Using a systemic approach, the study investigates and explains the adaptation of the NBT institutions to climate change, within the context of global-local political ecology of sustainable tourism policy, planning and implementation, against the broader spectrum of the development, environment and climate change. It begins with the investigation of the study site to demonstrate its plurality constructs, beyond scientific and spatial construct. The chapter then presents the investigation and analysis of NBT institutions, their response actions and adaptation governance capacities. It provides a holistic overview on institutional social resilience and adaptive governance capacities, looking at what knowledge of adaptation, whose knowledge, how they are operationalized and what the challenges are, while responding to climate variability and change impacts. These are presented by embedding the institutional social resilience and adaptive governance capacities within the analytical constructs of sphere and qualitative governance.

Chapter 6 presents the analysis of the study findings in relations to the questions that looks at generating empirical knowledge about the social resilience and adaptive governance capacities of the NBT institutions. The chapter begins by presenting the discussion on the findings related to subjection of the study area as a site of variable meaning and constructions, such as the construction of knowledge, for practices of values, power and negotiations. The discussion then presents the synthesised account of social resilience and adaptive governance capacities. The context for social resilience is discussed under politics and political-economy of adaptation, and the adaptive governance under the process and governmentality of adaptation governance.

Chapter 7 analyses the linkage between the social resilience and adaptive governance capacities for the sociological understanding of institutional adaptation to climate change, set out in the first place. This is carried out by revisiting and reflecting on the key objectives and the discussion on the concepts of tourism, adaptation and governance, and analytical frameworks in chapter 2. It then concludes with the discussion on theoretical, policy and practical implication of the study for a better informed process of understanding and analysing the sociology of institutional adaptation to climate change.

2 Literature Review: NBT development, adaptation and governance – a sustainability triad

2.1 Discursive field of NBT

2.1.1 Introduction

In this section, the concepts of NBT development and governance are explored and analyzed within the sustainability framing of tourism development and governance. The section begins with the definition and conceptualization of the key term such as the NBT (section 2.1.2). The section followed (2.1.3) examines the theoretical and disciplinary development aspects of the two themes (tourism development and governance) to build two key arguments: first, that the current understanding of sustainable tourism, sustainable development and governance is built on parochial and non-human centric approaches of development thinking, and second, sustainable tourism development and governance challenges display complex and non-linear character for which the architecture of tourism resource governance such as the collaborative management is important (Farrell and Twining-Ward, 2004). First, the NBT is discussed as sustainable development discourse, which provides a basis for informed understanding of sustainable NBT development and facilitates exploring and analyzing NBT as governance approach. Next, the NBT as governance approach is examined in the context of evolving environmental and development governance discourses. The link between NBT and climate in the context of destination vulnerability and the need for adaptation is framed in section 2.1.4, followed by a case description from the ACA (section 2.1.5).

2.1.2 Tourism lexicon: Definitions and conceptualization

Tourism is a pervasive term in due regards to their varied interpretation. Tourism in the PA is mostly associated with the term such as ‘recreation’. Recreation is recognized as an important motivation in tourism experiences (Smith and Godbey, 1991). However, in a natural setting such as the PAs, the line between tourism and recreation often blurs (McKercher, 1996). For instance, in Nepal, PA recreation activities as outdoor, wildlife and ecology, are conducted under the rubric of ecotourism and NBT. The PAs being construed as pristine and undisturbed place on earth, are romanticized as ‘untouchable area’ that needed to be protected (Shepherd Jr. et al., 2010). Sustainable tourism in its many variants such as ecotourism, community based or NBT is promoted as a strategy (Brohman, 1996; Jamal and Getz, 1995) to bring tourism or recreation within the PAs on a sustainable development path. The philosophy behind sustainable tourism concept is associated with the principles of UNESCO’s Man and Biosphere (MAB) which highlight the interdependent reality of HES and therefore the need for a balanced sustainable development approach

(discussed in section 2.1.3). The concept of sustainable tourism now extend beyond MAB's principle of balanced approach between conservation and development, to managing complexity and nuances of tourism development process to enhance the resilience (Lu and Nepal, 2009; Farrell and Twining-Ward, 2003; Milne and Ateljevic, 2001).

2.1.3 Evolving discourse on tourism approach

2.1.3.1 NBT as a sustainable development approach

Tourism is a fast growing sector in the global south (UNWTO, 2012). Being the primary source of foreign exchange earnings in 46 out of 50 of the world's LDCs (UNWTO, 2007), it is considered as the driver for the economic development and a vital livelihood option for communities (UNWTO, 2008). And while tourism mostly occurs in the PAs, it is used as strategic tool for reducing poverty and conserving the natural resources to drive the sustainable development agendas forward (NPC, 2013b; Christ et al., 2003; Berno and Bricker, 2001). However, with the exponential growth of the global mass tourism starting the 1970s (Butler, 1999, 18), and the negative implication of such growth into the local social, economic and environmental arenas (Saarinen, 2014), tourism became one among those development fields that came under increasing attentions from the sustainable development point of view (Saarinen, 2014; Buckley, 2012; UNEP, 2005; Farrell and Twining-Ward, 2004; Butler, 1999; Hunter, 1997; Cater, 1993; McKercher, 1993). Thus, the NBT under the rubric of sustainable tourism concept became principally an injunction for change arising from dissatisfaction with principles and practices of mass tourism (Hughes, 1995), and also a tool to ensure that tourism is on the path of sustainable development.

This shows strong linkage between tourism and sustainable development concepts. Prior to delving further into the NBT and sustainable development concepts, it is important to understand the context and the circumstances that led to the recognition of tourism as the tools to achieve the sustainable development goal. The value of tourism has its connection with the extent and depth of development problems mostly narrated in the developing countries. Although development is a value laden construct, it is predominantly narrated as the economic matter (Wall, 1997). The dominant discourse on development problems is therefore perceived as poverty driven, caused by economic problem (Yapa, 1996). The lack of development is thus seen as the reason for poverty, and growth focused economic developments as its solution (Yapa, 2002). The concentration of poor in the remote mountain regions (most of which are located in the PAs) and the growth potentials of NBT led to its recognition as a strategic tool to facilitate the development process. As time passed by, the neoliberal development approach, coupled with the globalization and 'scientific and technological advancement', whisked such countries on a path of development, subjecting mostly the remote and sensitive ecological regions of the PAs along this process. The PAs in countries such as Brazil, Indonesia, Nepal, India, Sri Lanka, Lao, Tanzania and Kenya, have been subjected to the accelerating pace of socio-economic development (from which tourism is not isolated) via large scale develop-

ment projects, as part of the governments and developmental agencies' strategies for the development (see Laurance and Balmford, 2013; NTNC, 2008; World Bank, 2004; ICEM, 2003; Jayaram, 2003). Such a trend raises fundamental sustainability issues from the moral and management aspects of the development approach.

From the moral perspective, critics suggest that the 20th Century neoliberal development trend, such as technological advancement and capitalism are the greatest danger that the societies are subjected into (Silvey, 2010). The danger according to Urie (2014), Pelling (2011) and Freire (1970), refers to the dominance of such development approach informed by the ethics of technology and market, the process of which on one hand, is programming societies/individuals to its conformity (i.e., accommodating to conditions imposed upon them) and on the other, creating underclass. The case for underclass arise as economic growth modelled development approach has been found to have created inequities in resource and power, thus failing to reduce poverty. The technology and growth model oriented development approach is criticized for failing to account the social dimensions of development. According to Yapa (1996), the socially constructed form of scarcity and inequality, induced by the processes of economic development is what generates poverty. He further claims that the basis for social construction of poverty lies in the nexus relations such as political, social, cultural, economic, technical and academic, whose discursive and non-discursive practice constructs the scarcity. The growing scientific and political discourse point out the limits of orthodox growth modelled and reductionist paradigm, and the failure of technically rationalized 'one size fits all' assumptions (Brunner, 2010). Rather, it is the political choices, institutional structures and forms of governance that influence the development choices and outcomes (Drazen, 2000).

From the management perspective, since PAs being the key sites for conserving biodiversity and managing livelihood, pursuing sustainable development in the current contexts of myriad of challenges, is a difficult challenge for the tourism managers. From the global priorities of multi-national corporations, geo-political and broader forces of global environmental change; to the national level policy frameworks, as well as governance mechanism (Leichenko and O'Brien, 2002; Adger et al., 2001; Milne and Ateljevic, 2001), all these processes shape the characteristics of the destinations, the governance mechanism and behaviour of those institutions facilitating, promoting and managing tourism in a given destination.

To understand tourism as a sustainable development concept, the case of sustainable development is important to explore and contextualize. Sustainable development became the 'Holy Grail' to address the problem arising from economic centric tourism development approach and gave rise to the sustainable tourism concept. Despite such strong linkages, both sustainable development and sustainable tourism concepts are not without criticism (Weaver, 2011; Sharpley, 2010, 2000; Berno and Bricker, 2001; Butler, 1999). This begins with the conceptualization of sustainable development:

'Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, p.43).

While the first part of this definition relates to conventional economic and social objectives of the development, the second part incorporates a long-term view, including consideration of environmental issues (Awasthi, 2011). The sustainable development philosophy thus highlights the interdependent reality of the HES components upon which sustainability aspects of development can be achieved. The central ethical principle behind sustainable development concept is equity and justice (Sharon, 2007). Based on this philosophy, the moral standards of intra - and intergenerational equity and justice are key to sustainability policies and could only be realized if people dependent on nature and its resources, are involved in the decision making process of resource governance.

In terms of the PA NBT sustainability, United Nations Educational Scientific and Cultural Organization's (UNESCO's) MAB (1970), provided important conceptual and strategic directions for sustainable development (Doyon and Sabinot, 2014; Thakali, 2012). Beside biodiversity protection and research and education, sustainable development featured as an important objective behind the establishment of worldwide networks of biosphere reserves (Doyon and Sabinot, 2014). The emergence of the integrated conservation and development programme (ICDP) for PA sustainability is linked with recognition of the need to reconcile human and cultural values with the conservation goal. The adoption of the MAB philosophy by the *Brundtland Commission* (1987) and the subsequent *The Earth Summit* (1992), established it as the major global political agenda (Thakali, 2012), that gave momentum to advance the notion of sustainable concept into the development fields.

Thus, the sustainable development concept displays a dynamic tension between poverty and environmental concerns, arising from two environmental arguments: utilitarian conservation vs. preservation, the strategies that are rooted in two opposing philosophies, neo-liberalization and protectionism (Lama and Job, 2014; Campbell, 2005; Robinson, 2004). On the one hand, the concept connotes economic growth and development; while on the other, there are environmental limits and equity and justice issues (Campbell, 2005; Robinson, 2004; McKercher, 1993). The notion of such discourse is rooted in the historical context of the western world, where during the great migration period, nature was considered a wild land, feared by many and viewed as something to be conquered, or as pool of resources to be exploited, to 'grow and multiply' (Collomb, 2008). Such utilitarian conservation philosophy led to the extraction of vast majority of resources, from timber, water, to minerals and wildlife (Dredge and Jenkins, 2007). In reaction to this phenomenon, the idea of 'romanticism' that considered nature as 'untouchable' area and that needed to be protected (Shepherd Jr. et.al., 2010), heralded a biocentric conservation philosophy. The PA models established worldwide are based on these two philosophical divide of utilitarian and biocentric conservation.

Conceptualizing nature either as utilitarian resources for material production, or as an autonomous domain for protectionism, has resulted several philosophical and management implications (Lama and Job, 2014). Philosophically, it has produced polarised narratives of development versus conservation on human-environment relationships (Campbell, 2005). From the management standpoint, promotion of sustainable development as a means of ameliorating, but not challenging, continued

economic growth (Robinson, 2004), is the major challenge. The notion of sustainable tourism as balanced development, encouraging environment conservation and protecting the destination areas by creating situation where tourists and tourism service providers behave within carrying capacity and sustainable yield limits, for the utilization of renewable and reduction on non-renewable resources, is the most popular discourse (Hunter, 1997). However, the growing influence of utilitarian conservation view made the narratives based on economic rationality, as opposed to the environmental and human justification aspects of tourism development, as the dominant discourse (Lama and Job, 2014). Critiques blamed the vagueness and loose interpretation of sustainable development concept (Jabareen, 2008; Hardy et al., 2002; Butler, 1999; Mebratu, 1998; McKercher, 1993), and the lack of agreement on concept and clarity on the application of the principles (Saarinen, 2014; Jabareen, 2008) by the tourism industry (promoting growth oriented sustainable development approach) and resource management practitioners (promoting conservation oriented sustainable development approach) (Butler, 1999; McKercher, 1993), as the main reasons behind such issues.

This has three major theoretical and management implications. First, although the sustainability notion within tourism includes the ecological, economic, and ethical dimension, the concept is being used to advance the dominance of ecology and economy based technical rationality (Hughes, 1995), power bases, and legitimize elite interests over the poorest of the poor (Buckley, 2012; McKercher, 1993). Second, the evolution of sustainable tourism concept in isolation from prevalent debate on the meaning of the sustainable development (Hunter, 1997) meant that tourism sustainability remain hidden behind the rhetoric of balance, obscured by a variety of labels of environmental stewardship and anthropocentric and utilitarian ethos. And third, the use of sustainable development approach as a 'black box', promoted and facilitated the tourism development approach that remain silent on the processes of how the policy and practice is realized (Radcliffe, 2004).

Thus the fundamental problem in sustainable tourism discourse lies, first, in the framing of sustainability, second in being parochial and non-human centric and third in lack of the operationalization of social dimensions of tourism sustainability within the development approach. These are important criticisms found in the post development literatures on tourism, development and sustainability (Sharpley, 2000) and the reasons that led to the emergence of sustainability as a conceptual and political paradigm in tourism planning and development (Saarinen, 2014). Considering the transition the tourism spaces are undergoing, sustainability should be considered as flexible and adaptive and not rigid paradigm (Farrell and Twining-Ward, 2003).

The disciplinary focus of tourism evolved from sociology, geography and anthropology in the late 1970s; management, economics and socioeconomic perspectives in the early 1980s, followed by sustainable tourism in the 1990s (Lu and Nepal, 2009; Saarinen, 2006; Xiao and Smith, 2006), to adaptive paradigm and complex adaptive tourism system, sustainability and interdisciplinary perspectives (Farrell and Twining-Ward, 2003; Hunter, 1997), in the 21st Century. An important point about such disciplinary evolutions of tourism from sustainable tourism to sustainability is that its

concept has evolved from being referred to as 'wise use' or 'balance' development, to managing to enhance the resilience to disturbances than achieving stability (Lu and Nepal, 2009). Such shifts in disciplinary thinking parallel the tourism development thinking. From the development of 'top down' (e.g. Butler's Life Cycle Model (1980), Britton's Dependency Theory (1982)), to 'bottom up' (e.g. Nature Based Tourism – a post Fordist Theory (1990s), Agenda 21 action plan (1992)), to attempts to conceptualize the complexity and nuances of the sustainable tourism development process (see Milne and Ateljevic, 2001), tourism developments went through substantial paradigmatic shifts in pursuing and understanding sustainability (Plummer and Fennell, 2009). The complexity and nuances of the sustainable tourism development process arises, as the tourism places and the institutions managing such destinations are exposed to the influence of global-local forces of change and dynamic HE interactions.

2.1.3.2 NBT as a governance approach

Governance is an important element in sustainable NBT development. The discourse on sustainability has received significant global attention in terms of public policy making and governance (Koensler and Papa, 2013). The governance of NBT resource from sustainability is a contentious issue due to diverse value based representative views of the PA (Lama and Job, 2014; IUCN 2013; Liechti et al. 2010; Byrne and Wolch, 2009; CBD, 2008). The pervasive notion of the sustainability concept and the values that PA hold (discussed in section 2.1.3.1), gave contested meanings to resource use and management (Job and Vogt, 2003; Job et al., 2003; Blaikie and Jeanrenaud, 1997; Becker et al., 1996), giving rise to environmental and development governance discourse for NBT management.

From the environmental governance standpoint, the PA policy-making and governance contexts in the 1980s and 1990s, evolved from strict protection philosophy to participatory approaches (Rotich, 2012; Müller et al., 2008). Participatory resource management became the most crucial PA management strategy to meet the dual objectives of poverty alleviation and nature conservation (Becken and Job, 2014; Ojha and Sarkar, 2012; NTNC, 2012, 2008; Baral et al., 2010, 2007; Bajracharya et al., 2007). This has resulted in two historical outcomes. First, shifting of the PA governance approaches from hierarchical to multilevel contexts (Armitage, 2008; Newman et al., 2004) that encouraged inclusive and the decentralized decision-making (Campbell, 2005). Second, it has also embedded conservation policies within the broader socio-political and economic changes for regional development (Thakali, 2012).

From the development governance perspective, Nepal being the low income country, forces for economic change and the multinational development cooperations led the country to adopt macro-economic and neo-liberal policy of privatization and poverty alleviation (Shrestha, 2010; Honey, 2008; Khanal et al., 2005). The major global sustainable development programmes of the 90s, such as UN Millennium Development Goals (MDGs) and Poverty Reduction Strategy Papers (PRSPs) introduced by World Bank and International Monetary Fund are also important contexts (Khanal et al., 2005). The PRSP focussed on poverty reduction through sustainable growth in inclusive development, via infrastructure development, product

diversification, expanding benefit down to village level through institutionalization of local communities (NPC, 2011b). This changed the course of the development paths, including the rising influence of the non-governmental organizations (NGOs) and multilateral development agencies in national development plans.

Beside the changing global-local development policy landscapes, Nepal's changing political regime provided an important dimension, influencing both environment and development governance contexts. The 1990 democratic movement, the decade-long Maoist insurgency (1996–2006) and the existing political instability, which shifted Nepal's political regime from being an absolute monarchy to constitutional monarchy and multi-party democratic system in 1990, to federal democratic republican in 2007, have brought radical power shifts and governance change processes to the country (Berg, 2008). Such trends have heavily affected the sustainable development trajectory, stifling the institutions and their capacities. These local factors are by far the major politico-economic crisis (Devkota, 2007; Sharma, 2006) that affected the governance process within the PAs. The dwindling of the government control in rural regions, halting of the conservation and development efforts for many organizations (Budhathoki, 2003) and opportunistic increase in resource consumption and thereby the major environmental impacts (IISD, 2005), are emerging problems affecting the governance aspect. These development trends show how PAs are becoming the sites for practices of power, negotiation of interests and contested values (Lama and Job, 2014; Campbell, 2005).

The rapid and transformative changes observed in the PAs, provide a fundamental basis for the emergence of sustainable tourism management challenges, and as stated in section 2.1.3.1, the premise for the need to treat destination areas as complex adaptive tourism system. There is thus need for an alternative mode of sustainable tourism governance that is adaptive, dynamic and collaborative. Philosophically and analytically, such shifts have placed institutional governance, especially institutions, political space and organizational capacity, at the heart of tourism sustainability discussion (Lu and Nepal, 2009).

2.1.4 Linking NBT and climate change

2.1.4.1 Tourism and climate

Climate is a principal resource for tourism, as it not only drives seasonality but also co-determines the suitability of locations for a wide range of tourist activities (Simpson et al., 2008). Although the threats that climate change pose to development have received wider global and local political attentions, this is not the case for tourism. This sort of under appreciation is an irony given the fact of the presence of strong correlation between tourism, climate change and sustainable development. Climate change affects wide range of the resources that are critical attractions, such as wildlife, biodiversity, water levels and quality, snow conditions and glacier extent (Gossling et al., 2009). In addition to this, its impact also influences on the operating costs of tourism amenities and services including, water, food supply and insurance (Simpson et al., 2008).

2.1.4.2 Destination vulnerability and adaptation response

Since the first publication of scientific paper on impacts of warming temperature on ski industry in 1986 (Wall et al., 1986), the literatures on climate change and tourism has come a long way. Within this period a substantive growth has been observed both in terms of number and diversity of publications (IPCC 2007; Becken and Hay, 2007; Gössling and Hall, 2006; Scott et al., 2005; Hall and Higham, 2005). The inclusion of tourism in the regional chapters of IPCC Fourth Assessment (AR4) (IPCC, 2007) and Davos Declaration on Climate Change and Tourism 2007, emphasizing climate change posing greatest challenge to tourism sustainability in the 21st Century (UNWTO-UNEP-WMO, 2008), facilitated the tourism focused climate change studies in the global context. These studies provided comprehensive information on vulnerability of tourism destination and adaptation state (UNWTO-UNEP, 2008). However, these studies provide the perspectives of the developed countries (UNWTO-UNEP, 2008; IPCC, 2007). Several scholars and experts have consistently identified developing countries of Asia as the most at risk tourism destination for the mid to late 21st century (Gossling et al., 2009). However, limited research in developing countries meant, no specific contribution in this field in AR4, and Asia is no exception (Scott and Becken, 2010; Becken, 2005).

Tourism is equally being subjected to the world of rapid evolution and change brought by significant environmental problems emerging from economic, cultural globalization and institutional change in LDCs (Chaudhary et al., 2007; Farrell and Twining-Ward, 2004; Leichenko and O'Brien, 2002; Adger et al., 2001). Climate change is exerting additional pressure to the already vulnerable destination areas (Lama, 2010). It is anticipated that the integrated effects of climate change (both shifts in climatic means and extremes), climate-induced environmental change (Gossling et al., 2009), and drivers of non-climatic change (IPCC, 2007), will have far-reaching impacts on tourism destinations around the world (Gossling et al., 2009). Such changes are likely to permanently change the attraction and the value of destinations (Marshall et al., 2009), which will have major implication in the sustainable development dimensions. The Human Development Report (2007/2008) and Global Environment Outlook 5, clearly acknowledge the potential of climate change to undermine key global development goals, such as the MDGs of the LDCs (UNEP, 2012; UNDP, 2007). For effective transition of tourism places to sustainability, a need has been expressed, to keep abreast of transformations occurring in different fields of tourism, climate change and sustainable development (Farrell and Twining-Ward, 2004).

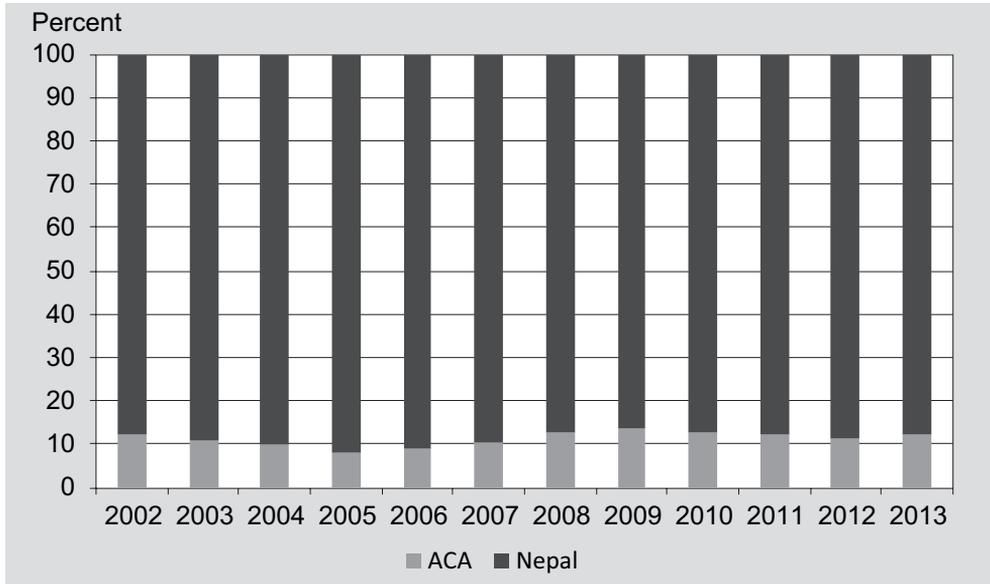
2.1.5 NBT vulnerability: The sustainability case for the Annapurna Conservation Area

In the ACA, the concept of NBT embodies the values of nature conservation and cultural heritage preservation through livelihood enhancement, and therefore advocates for trade-offs between conservation and development. Such concept emerged from the MAB's participatory management philosophy and IUCN PA management

guidelines for Category VI (i.e., biodiversity conservation with sustainable use of natural resources) for effective ACA management.

The popularity and the value of NBT in the LDCs is shown by its rapid growth potential in the PAs (Balmford et al., 2009; Eagle, 2001). In Nepal, the 2012 tourist arrival estimate shows around 81 % of the overall tourists (MoCTCA, 2014, 2013) traveling over 22 PAs nationwide (Ojha and Sarkar, 2012). Such impressive figure indicates PA visit as the highest tourist arrival trend than for any other activities in Nepal. Such performance of the NBT made it an important sustainable development issues (NPC, 2011b). It is accorded a special recognition as a priority sector for rural economy to reduce poverty, and also promoted as a strategic tool for protecting the precious resources, to bring sustainable development in the most impoverished mountain regions, set aside as the PAs (Gurung, 2010; Nepal, 2002). The ACA received 16% of those visiting 22 PAs in 2012. In the last decade, the average tourist arrival in the ACA account for 13% of those visiting Nepal (see Figure 2.1).

Figure 2-1: Tourist arrival trend in Nepal and the ACA (2002 - 2013)



Source: ACAP-Jomsom Tourist Checkpost, 2015; MoCTCA, 2014, 2013

The NBT of the ACA exemplifies a dynamically coupled HES case in point. Dynamically coupled systems are inseparable entities, part of an integrated system (Schröter et al., 2005) in which people (human) interact with natural components (environment) (Liu et al., 2003a; Swyngedouw, 2001). They are intertwined in a way that a change in structure and function of one component affects the other (Room, 2011). The NBT consists of bio-physical and cultural resources (such as mountain scenery, landscape, climate, biodiversity, indigenous society, culture and lifestyles).

It can thus be conceptualized as the combination of environmental and human resources, which forms the fundamental basis for tourism service production (e.g., mountaineering, trekking, wildlife watching, pilgrimage, hotel, restaurant, guiding, portering, farming, horticulture, livestock, retail, transportation), and thus livelihood generation. Alternately, the economic benefit generated through the operation of tourism facilities/service and activities, provide incentives for both environment and human, thereby addressing the dual objectives of nature conservation and livelihood enhancement for sustainable NBT development. The NBT in the ACA can therefore be seen as part of complex HES, in which the dynamics of natural, tourism and human components are interlinked.

Until recently, NBT in the ACA has been successful in meeting the dual objectives of nature protection and livelihood enhancement, through the promotion of the sustainable NBT management. Since the last decade, its mountain destination areas, such as the Mustang district, is witnessing an unprecedented rate of transformations. Local tourism stakeholders responsible for resource conservation and the management of NBT have been subjected to major socio-economic change, land use change, political change and climate change (Lama, 2010). In terms of climate change, temperature warming is accelerating in the mountain regions of the ACA (Lama, 2010; Nyaupane and Chhetri, 2009). As the region falls within the high Himalayan mountain system [the world's 7th and 10th highest mountains, Dhaulagiri (8,167 m.) and Annapurna (8,091 m.)], the interplay of climate change with the multiple stressors mentioned above, undermines the resilience of the HES. Climate change poses significant threats for the NBT in the district with the potential to negatively impact its key NBT resources upon which livelihoods of the people depend. Responding to the impacts brought by the climate and non-climate change has become crucial political and sustainable development imperatives in the ACA.

2.1.6 Summary

NBT, a variant of sustainable tourism concept, is promoted to bring tourism on a sustainable development path. Such philosophy is rooted in the MAB's principle of bringing balanced human and environmental development. Sustainable development, biodiversity protection and scientific research for education became the crucial objectives behind the establishment of worldwide networks of biosphere reserves, and ICDP, as an approach for the PA sustainability.

The value of tourism for development is related with the narration of development problems that has dominant economic perspective, giving rise to 'poverty-development-economic growth' nexus, and the process to fuel this nexus dimension. Sustainable tourism understood as economic growth, is rooted in the ethics of technology and market oriented nature of tourism development, while as balanced development approach is rooted in bringing environmental conservation and destination management through sustainable resource utilization. Despite strong linkages of tourism with sustainable development, the concept of sustainable development being a contested construct between utilitarian conservation and preservation, or

between neoliberalization and protectionism philosophies, it displays dynamic tension between poverty and environmental conservation. Growing influence of utilitarian conservation view meant rational based and economic growth oriented development approach.

Lack of agreement on concept and clarity on the application of sustainable tourism and sustainable development principles meant economy and ecology based technical rationality based development overshadowing the ethical and moral dimensions. Rising inequities in power and resource distribution and increased vulnerability of the poor to global environmental change, has its linkage to the way development is problematized and approached. The solution, such as the conceptualization of sustainable development, on the basis of ideological underpinnings with neoliberal traditions to cure the problem of underdevelopment and poverty, is the problem. Hence poverty, inequality, underdevelopment and global environmental change are inherently linked. It is crucially important to understand these dynamics of sustainable development. Rather than economic rationality, it is the political ecology (such as the political economy of sustainable development and the choices made by the institutions) that determine the development outcome.

The global-local embeddedness of the PAs and their exposure to both climate and non-climate forces of change, meant PAs to be considered as sites of multiple constructions of knowledge and power, and for practices of power, negotiation of interests and contested values. Based on this argument, there is a widespread recognition among tourism and development scholars on the need to broaden the sustainable tourism development and governance concepts beyond non-human centric and parochial approaches of sustainable development thinking; to those managing the complexity and nuances of development and governance dynamics. Resilience and transformative thinking of tourism and governance (Baral, 2013a), and destination site as a complex adaptive system, have emerged as the promising philosophy and approach in this regard. The Mustang district, an important mountain destination area of the ACA mirrors the development and governance challenges brought by the global-local nexus of two kinds. First, the nexus between concepts, disciplines, development and governance approach, informed by established global-local dominant guidelines. And second, the nexus between global-local environmental change processes and the need for an alternative sustainable NBT development and governance thinking.

2.2 Discursive field of climate change adaptation

2.2.1 Introduction

The aim of this section is to demonstrate that climate change adaptation as social discourse is a multidisciplinary concept. The overview of the political ecological debate behind sociological dimensions of adaptation reveals gradual evolution of the adaptation concepts, discipline and approach. First, the adaptation term is defined

by exploring the historical development of the term, followed by the evolutionary account of its concept from the scientific, social, development and political perspectives. Building on the evolving discourses on tourism and adaptation (sections 2.1.3 and 2.2.3), a convergent theoretical framework of tourism development and adaptation is mapped out. The insight gained from this framework is used as a base to frame the adaptation governance (section 2.2.4).

2.2.2 Adaptation lexicon: Definitions and conceptualization

Etymologically, the term adaptation is derived from the Latin word *adaptare* (to adjust to) in the 13th Century (Simonet, 2010). Adaptation is a contested word due to diverse meanings it connotes (Smit et al., 2000). Adaptation in general could be understood as a continuum between the hard and soft measures; or between the concept of a concrete measure to reduce impacts, and of the capacity to adapt to reduce vulnerability (Pielke et al, 2007; O'Brien, 2004; Burton et al., 2002). Vulnerability centered climate change is a symptom of a more general vulnerability to external stress caused by a range of endogenous and societal factors (Dupuis and Knoepfel, 2013). Adaptation in the context of HES relations refers to a process, or outcome in the system, in order for the system to better cope with, manage, or adjust to some changing condition (Smit and Wandel, 2006). Adaptation strategies and actions can range from short term coping to longer-term, deeper transformations, aim to meet more than climate change goals (Moser and Ekstrom, 2010).

Such diverse adaptation perspectives highlight the influence of both climate and non-climate factors and choices, and the importance of social dimension of adaptation (O'Brien, 2012; Moser and Ekstrom, 2010). Since adaptation involves changes in the HES in response to actual and expected impacts of climate change in the context of interacting non-climatic changes (Moser and Ekstrom, 2010), vulnerability based adaptation approach, which takes account of the political economy of social vulnerability, has been argued to offer effective adaptive solutions. In a social context, adaptation has much to do with reducing the vulnerability that has strong correlation with the political, social, economic and environmental dispositions of the community operating within the HES (Pelling et al., 2014; Burton et al., 2002), its interplay with system characteristics, such as the adaptive capacity (see Smit et al., 2001; Smit et al., 2000), the intangible processes (a product of interiority perspectives) (O'Brien and Hochchka, 2010; Chase, 1980); which together, either facilitate, or constrain the adaptation process (Ireland and McKinnon, 2013; Kiem and Austin, 2013; Olmos, 2001). These perspectives indicate that adaptation is a multidisciplinary concept within which the theories of evolution, development, culture, organization and geography overlap.

Theoretical antecedents

Adaptation has a long and multidisciplinary history of investigation (Moser and Ekstrom, 2010). As stated in the previous section, adaptation in the context of HES relations connotes both process and its outcome. Such semantic duality has led to wide

range of interpretations and debate (Simonet, 2010). The process oriented conceptualization of adaptation is rooted in the 19th Century advancement of evolutionary science and the inclusion of the idea of adjustment and modification of life, derived from sociological insights (Simonet, 2010; Sumner 1919). Sumner (a Peromyscus pioneer), while exploring Herbert Spencer's philosophy of life and evolution thinking, suggest life, as a "*continuous adjustment of internal relations to external relations*" (1919, p. 193), the process of which is termed as adaptation. Such statement implies that as external relations change, individuals need to adjust its internal relations to such changes, in order to adapt.

The *internal relations* in the biological term, refers to the functional activity of adjusting life as per changing external environment. In the evolutionary theory this mechanism is well known as Lamarckism. Adaptation within this concept is the fundamental phenomenon of life (Sumner, 1919), an adjustment process conducted through mechanism, such as the functional activity. This adjustment through continuous process of organic functions allowed living beings to evolve, and along this process, modify its functional activity. Such acquired capacity became hereditary after which the idea of resistance and survival preponderated (Simonet, 2010). Thus adjustment and modification are prerequisites for an organic process, which over a long period of time led to evolution of life, and in this process, its transformation. The changing *external relations* due to changing environment suggest adjustment and modification of the social system, norms and practices. Such context made living beings to acquire social behaviour through mechanism, such as social activity and social process, enabling them to adjust to and adapt in this process. The *continuous adjustment* notion of the adaptation concept suggests that the force of change or external environment is dynamic for which flexibility and transformative thinking, as opposed to rigid and static thinking, is necessary.

Implying such idea in the human context, human activity consists of action and reflection: it is praxis and transformation (Freire, 1970). Within organizational context of human society, the praxis and transformation guide the contingent behaviour, which not only provide important basis for the individual to survive, but also evolve during this process of adjusting and adapting life. Within the institutional context, an organic process is understood as a dynamic concept and its political processes (from planning, implementation and monitoring) at multi-scale governance; and is contingent on societal values, objectives, choices and perceptions (IPCC, 2014; O'Brien, 2012; Head, 2010). Social process is about the social relationships and space within which adaptation operates. Recognition of diverse interests, circumstances, cultural contexts and expectations are important in increasing the effectiveness of adaptation (IPCC, 2014). Reflexive action and praxeology are important procedural mechanisms of institutional adaptation to external drivers of change. Based on these arguments two important points can be stressed: first, adaptation connotes both organic and social processes of adjustment to changing external environment, and involve element of flexibility and transformative thinking; and second, adaptability of a system hinges on the adaptive capacity elements, such as the functional activity, social activity, and flexible and transformative decision making and governance (discussed in section 2.3).

From the development perspective, adaptation is conceptualized as an outcome: a 'state' or 'finality'. Much of knowledge of adaptation in the current context is rooted within the reductionist and essentialists' perspective and adaptation thinking embedded in neoliberal development paradigm of modernism theory and political context. The emerging adaptation discourses rooted in post development and postmodernism philosophies argues for sustainable development and adaptation thinking and approaches that reflect broader understanding of, and long term sustainability perspectives. Complex adaptive tourism system (discussed in 2.1.3.1), adaptation knowledge production and dissemination (discussed in sections 2.2.3.2 and 2.2.3.3) and collaborative governance approach (discussed in sections 2.2.3.2 and 2.2.3.4) that provide basis for such alternative thinking and approaches, are fundamental for building adaptive capacity and reducing vulnerability for long term NBT sustainability.

Cultural theory provides important insights to frame institutional understanding of, and response to the impacts of climate change. O'Riordan and Jordan (1998) synthesized the multiple contexts, such as institutions, climate change and culture into one analytical framework, signifying the importance of institutional and cultural dimensions in effective climate adaptation governance. Within institutional context, the anthropological conceptualization of culture has varied meanings (see Table 2.1). Through different metaphorical insights from cultural and organizational theories, culture is framed within organization study as: an instrument serving biological and psychological needs; an adaptive regulatory mechanism that unites individual into social structures; a system of shared cognition; a system of shared symbols and meanings, and a projection of minds universal unconscious infrastructures (Smircich, 1983). Organizational theory reflects the cultural theoretical insights and positions organizations as: social instruments; as adaptive organisms; systems of knowledge; patterns of symbolic discourse, and their forms and practices that are manifestation of unconscious processes. From the system theory perspective of organization, culture is concerned with relationships among different 'external' variables, such as structure, size, leaderships; as well as subjective or 'internal' variables, such as symbolic dimensions (Smircich, 1983; Meyer, 1981).

Within the geographical discipline, both development and adaptation have emerged as important research themes, particularly in human geography field of research. Strong place-based and contextual analyses, taking into account resilience, HES, governance and sustainability science are the emerging fields of research interests (Becken and Job, 2014; Lama and Job, 2014; O'Brien, 2012). The growing argument that the geographers need to reengage with the concept of social dimensions of development and adaptation, lie on the fact that sustainable development hinges on the adaptive capacity of the community and their associated social and functional ability, including transformative thinking.

As established in section 2.1.6, sustainable tourism and development connote broader meanings, thus need to be articulated via discursive dimensions, rather than reductionist ideology. Based on this notion, PAs and tourism space are not exclusively the sites of static geo-physical landscape, but are also social and political constructs (Doyon and Sabinot, 2015; West et al., 2006). Understanding environ-

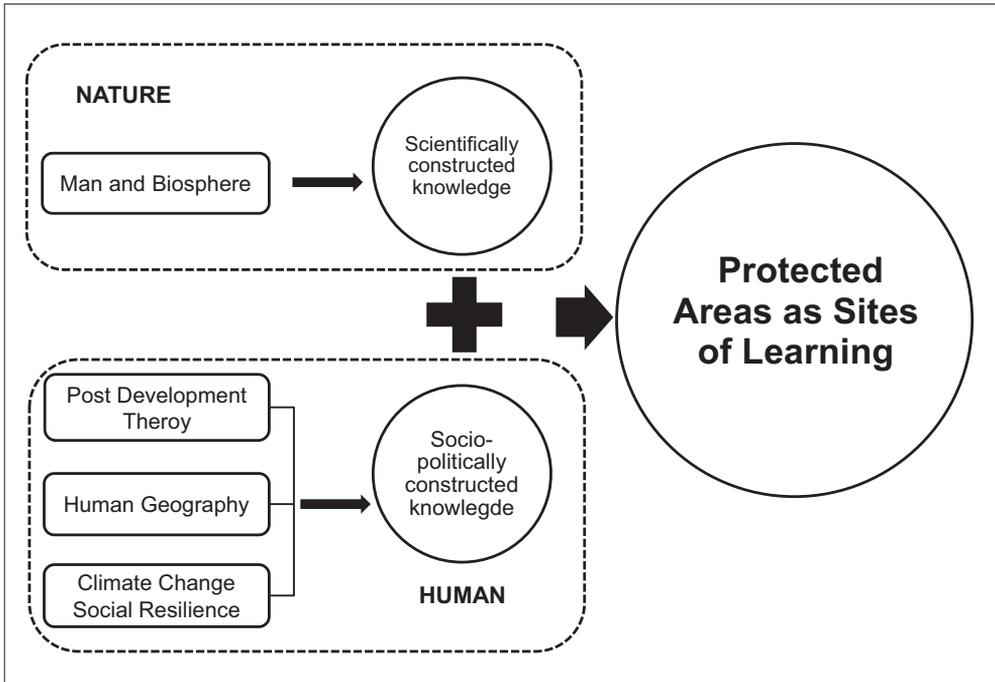
Table 2-1: Intersection of cultural and organization theory

Anthropological Conceptualization of Culture	Thematic Areas for Organization and Management Study	Concept of Organization from Organization Theory
An instrument serving human biological and psychological needs (e.g., Malinowski's functionalism)	Cross cultural or comparative management theory	Organizations are social instruments for task accomplishment (e.g. classical management theory)
An adaptive regulatory mechanism that unites individual into social structures (e.g., Radcliffe-Brown's structural functionalism)	Corporate culture	Organizations are adaptive organisms existing by process of exchange with the environment (e.g., cognitive theory)
A system of shared cognitions. The human mind generates culture by means of a finite number of rules (e.g., Goodenough's ethnosciences)	Organizational cognition	Organizations are systems of knowledge and rests in the network of subjective meanings that organization members share to varying degrees, and appear to function in a rule-like manner (e.g., cognitive organization theory)
A system of shared symbols and meanings (e.g., Geertz's symbolic anthropology)	Organizational symbolism	Organizations are patterns of symbolic discourse (e.g., symbolic organization theory)
A projection of minds universal unconscious infrastructure (e.g., Levi-Strauss' structuralism)	Unconscious process and organization	Organization forms and practices are the manifestations of unconscious processes (e.g., transformational organization theory)

Source: Smircich, 1983

mental challenges experienced by the PA embedded within global-local system of environmental governance, require treating it beyond UNESCO's MAB philosophy of the PA '*as sites of producing scientific knowledge and values for scientific learning*' to '*sites of producing social knowledge and values for social learning*' (see Figure 2.2). Geographical tourism research with approach that treats space as given and apolitical static construct, and the development sustainability as per underlying neoliberal economic assumption, fail to account the widened geographical imaginaries. Within such treatment, the dominant research and development approach discard space as irrelevant or unaccounted, leaving the development interventions to be operated under 'black box' context (Naughton, 2013; Pelling et al., 2008). Burrowing the idea from Radcliffe (2005), it is argued that there is a need for a new ways of thinking in the production of knowledge in the development geography, especially the ones that enhances the understanding of PAs as sites of social learning. The value of social learning from the environmental governance perspective has been appreciated, in its potential to address the collaborative resource management challenges experienced due to complexity, change and linkages of social and organic processes brought by multi-actor across multi-level governance scales (Nilsson and Swartling, 2009).

Figure 2-2: PAs as sites of dynamic conservation and development space and learning



Source: Own illustration based on Doyon and Sabinot, 2014; Naughton, 2013; Görg, 2011; Termeer et al., 2010; Pelling et al., 2008; Radcliffe, 2004

Resilience thinking

Resilience thinking is a type of systems thinking that explicitly considers feedbacks, non-linearity and the sensitivity to change. Resilience thinking places high value on the dynamic processes of learning, adaptation and capacity building (Polasky et al., 2011).

Adaptive governance and management

Within governance and management perspectives, adaptation connotes political and procedural aspects of governance and decision making. In this context, adaptation is the executive and management issues. Within the executive level, the emerging adaptation governance discourse suggests that there is a need to extend governance beyond hegemonic and static framing, the one that is discursive, inclusive and adaptive in nature. Discursive in the sense that adaptation governance needs to account for multiple objective realities and hence be inclusive. This suggests for an adaptive governance approach with democratic decision making and polycentric accountability (Folke et al., 2005). In other words, adaptive governance relies on polycentric institutional arrangements operating at multi-level governance scale, and is contingent of social resilience, flexibility and integrated approach (Olsson et al., 2006). Such form of governance provides the window of opportunity for collaborative, flexible

and social learning based approaches to HES management, operationalized through adaptive management (Olsson and Folke, 2004; Dietz et al., 2003). It is an iterative decision-making process under uncertainty that is designed to learn and incorporate new information and thereby improve future decision-making (Polasky et al., 2011).

2.2.3 Evolving discourse on adaptation approach

Adaptation being a dynamic concept and its processes contingent on social construction of knowledge and power, it highlights the relevance of the need to understand discourses on the adaptation issues. Understanding the evolving discourse on adaptation approaches is an important starting point in this regard. The adaptation approaches have also been adopted in several development fields, including climate impact assessment and policy development, risk management, vulnerability, resilience and adaptive HES (see Eriksen et al., 2011; Moser and Ekstrom, 2010; Smit et al., 1999). The approaches and specific development field applications are discussed briefly in the following subsections.

2.2.3.1 Adaptation as a scientific approach

The major scientific discourse in climate adaptation is impact driven analysis with technical solutions driven adaptation approach (Elliott, 2011; UNFCCC, 2006). Li et al., (2011) while mapping the global research trends in climate change, during the period 1992-2009, found the growing number of academic and government research articles related to 'risk' and natural disasters. The research work that followed delved into several adaptation research focused within this construct. Ayers et al., (2010) point out the reasons, such as the narrow conceptualization of the term adaptation and the global policy, aimed at responding to green house gases reduction, as critical discourse in affecting the nature and scope of adaptation research and approach.

Adaptation being endogenous to society, adaptation knowledge is produced as a result of political, psychological and cultural constructions. Hence adaptation is a dynamic concept and is socially constructed. If adaptation is a socially constructed concept, then it is important to understand: whose knowledge, how is it produced and for what purpose? Yet, the current climate change adaptation discourse within the sustainable development context represents the reductionist and essentialist perspective, embedded within neoliberal paradigm. In Nepal, the scientific discourse on climate change and adaptation, and the disciplinary approach followed the path driven by global climate change policy agendas. Nepal signed the United Nations Framework Conventions on Climate Change (UNFCCC) on 12 June 1992 and entered into force on 31 July 1994 (ADAPT Nepal-JV CDES, 2011). The article 12 of the Convention requires the signatory country to prepare national communication report on climate change. As part of this obligation and commitment to the UNFCCC, Nepal has prepared the Initial and Second National Communication (SNC) Project. Ministry of Science, Technology and Environment (MoSTE) with support from the UNEP (which is an implementing agency of GEF)

prepared these reports. The aim of SNC project is to enable Nepal to present the country specific information in a consistent, transparent, comparable and flexible manner. The vulnerability and adaptation assessment to climate change and the preparation of iterative report of such assessment is one of the key aspects of SNC. Besides SNC, NAPA and LAPA have been prepared to facilitate the adaptation process at both national and local levels of decision making (discusses in section 2.2.5).

The decade long experience of climate adaptation interventions suggest that although the theory and frameworks to mainstream climate adaptation have advanced to a sophisticated level, climate adaptation initiatives have not realized the added value of social dimension of adaptation (Kiem and Austin, 2013; Lindseth, 2005). Critiques suggest that adaptation is looked upon as technological solution to the problem, discounting the social and organic nature of adaptation process (Wolf, 2011; Lindseth, 2005). Since adaptation is about taking action by the intended individual/institution, on what to adapt, why and how, it is a political and value laden process. The emerging discourse suggests that translating the adaptation from theory to practice and institutionalization of the initiatives requires understanding the issues beyond prescriptive view (O'Brien and Hochachka, 2010; Adger et al., 2009).

Within this notion, scientists and policymakers alike have now begun to appreciate and accept the roles played by the post modernism approach to climate adaptation. The modernist approach of objective reality falls short, given that diversity of actors' voices tied to societal values and different contexts are becoming the dominant adaptation discourse. The importance of these issues and its relevancy are ever more apparent in developing countries, including Nepal, given the fact that billions of dollar of climate adaptation fund (Ireland and Mckinnon, 2013) and NAPA and LAPA programmes are being widely initiated. As countries/regions vulnerable to climate change impacts are actively engaged in adaptation activities from national to local scale level, there is a much needed analysis of the adaptation issues unfolding in diverse regions and agendas that are shaping adaptation discourse (Ireland and McKinnon, 2013).

From sociological standpoint, social action can be seen as the one that sees the actor as socialized and action as governed by social norms (Coleman, 1988). Implying this idea within adaptation, it is all about the intangible processes of adaptation informed by interiority perspective, such as the subjectivity and intentionality of the actors (O'Brien and Hochachka, 2010). Given this context, the dominant reductionist and essentialist adaptation thinking and approach, aimed at impact assessment related knowledge generation and provision of prescriptive solutions (O'Brien, 2013; Burton et al., 2002), have their limit when it comes to effective adaptation planning (Bahadur and Tanner, 2012; Burton et al., 2002). Classic example is the Convention's conceptualization of adaptation as, "*the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects which moderates harm or exploits beneficial opportunities*" (IPCC, 2007, p. 6). This definition although is broad enough to capture environmental and social actions, ranging from short responses to long term planning, it is framed as a response to an impact of climate stimuli, giving little attention to the process oriented nature of adaptation (Eriksen et al., 2011).

The narrow conceptualization of adaptation from dominant reductionist perspective and the inadequate knowledge for adaptation, to translate it into successful action has been the subject of much debate and critique in the recent decade (Swart et al., 2014; Moss et al., 2013; O'Brien, 2013; Manuel-Navarrete et al., 2009a). This led to the emerging discourse of alternative adaptation approach that deals with the under theorized dimension of adaptation i.e., the social dimension of vulnerability and response action (O'Brien, 2012).

2.2.3.2 Adaptation as a development approach

Climate change is inherently linked with the sustainable development issue. Climate change not only threatens the MDGs, but also impedes the sustainability of its progress (Pelling, 2011; Germanwatch, 2010). Adaptation and development are thus considered as the two major challenges of the 21st century (Munasinghe, 2010) and the need to tackle them together is a widely accepted discourse (Manuel-Navarrete et al., 2009a). Several discourses, such as climate change affect the poorest and the most vulnerable community that rely significantly on natural resources for livelihood, and the LDCs in achieving country's sustainable development goals (Biagini et al., 2014; Eriksen et al., 2014), have become the dominant political debates. Such discourse also suggests that the pressure from climate change risks, is likely to overstrain capacity of the society, already challenged by multiple forces of change, exerting additional pressures to already existing development challenges (Ludi et al., 2014; Baer, 2012). The inseparable link between adaptation and development (Ayers, 2011; Jones et al., 2010), more precisely, between climate change and sustainable development (IPCC 2014; NPC, 2013a; Ayers and Huq, 2009; Manuel-Navarrete et al., 2009a), human development (MoSTE, 2012) and capacity (O'Brien and Hochchka, 2010; Jones et al., 2010; O'Brien, 2009b), makes adaptation the most important political and policy debates. The human dimensions of global environmental change and the need to adapt, has now become a major sustainable development and policy issues for government, non-government and research community alike (IHDP, 2009; OECD, 2005). In the past decade, both the focus on climate change adaptation and its understanding as policy and sustainable development approach have grown globally and in Nepal.

Global-local adaptation policy discourse

The critical global and local (such as Nepal) policy choices and climate change discourses focused around adaptation are as illustrated in the table 2.2. Of the global and local policy milestones, only those policy initiatives that are of significance to adaptation and development context are discussed in detail.

The COP 7, also known as the Marrakesh Accord, 2001, marks as the historic event due to the first operational decision taken on adaptation. Such decision has increased the emphasis on the procedural justice, highlighting the roles of the developing countries in decisions on adaptation (Paavola and Adger, 2002). The Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF) under the UNFCCC and Strategic Priority on Adaptation under the Global Environment Facility (GEF) have been supporting adaptation since their inception in 2001 (Pers-

Table 2-2: Global-local climate change adaptation policy milestones

Milestones in Adaptation	Global	Nepal
COP 7 – Marrakesh Accord, 2001 (Morocco)	<p>First operational decisions on adaptation. National Adaptation Programme of Action (NAPA) process</p> <p>GEF - Least Developed Country (LDC) Fund in formulation and implementation of NAPA</p> <p>LDC Expert Group (LEG) creation to provide technical support</p> <p>Special Climate Change Fund</p>	
COP 8 – New Delhi, 2002 (India)	<p>Delhi Declaration on Climate Change and Sustainable Development</p> <p>OECD Declaration on Integrating Climate Change Adaptation into Development Cooperation – 2006</p>	
COP 10 – Buenos Aires, 2004 (Argentina) Buenos Aires Programme of Work on Adaptation and Response Measures	<p>Call for action on issues to address the adverse effects of climate change and response measures; government experts seminar to promote an informal exchange of information on adaptation, policies and measures.</p>	
COP 12 – Nairobi, 2006 (Kenya)	<p>Nairobi Work Programme on Impacts, Adaptation and Vulnerability (NWP), 2007</p> <p>Capacity building of Parties on adaptation issues. Phase 1 (upto 2008) and phase 2 (upto 2010).</p>	
COP 13 – Bali, 2007 (Indonesia) Bali Road Map	<p>Historic achievement in according special attention to climate change adaptation.</p>	<p>Realization of the need for a climate change policy in 2007</p> <p>Interim Constitution of Nepal (2007)</p> <p>Three Year Interim Plan (2008-2010)</p>
COP 15 – Copenhagen, 2009 (Denmark)		<p>Cabinet Meeting at Kalapatthar, near Everest Base Camp, 2009</p> <p>South Asian Regional Climate Change Conference, 2009</p> <p>Climate Change Council, 2009</p>

COP 16 - Cancun, 2010 (Mexico) Cancun Adaptation Framework (CAF)	The CAF provided an umbrella framework agreed under the UNFCCC. Provide guidance on various aspects of international cooperation on adaptation Decision to drive national, systematic, medium and long term approach to adaptation. Launch of formal process on National Adaptation Plans (NAPs)	NAPA, 2010 Three Year Plan (2010-2013)
COP 17, Durban, 2011 (South Africa).	Durban Adaptation Charter for Local Government	Climate Change Policy, 2011 LAPA, 2011 Thirteenth Development Plan (2013-2016)
COP 19, Warsaw, 2013 (Poland)	Nairobi work programme on impacts, vulnerability and adaptation to climate change National Adaptation Plan (NAP)	
COP 20, Lima, 2014 (Peru)	NAP recognized as means for delivering resilience Process oriented, socio-politically and ecologically sensitive country driven planning based on scientific and traditional knowledge and collaborative approach	Kathmandu Declaration on Financing Local Adaptation to Climate Change, 2014 Rara Declaration on Climate Change and Environmental Threats, 2014
COP21, Paris, 2015 (France)	Signing of a legally binding universal agreement. Transition towards resilient and low carbon societies through actions involving state and non-state actors	Constitution of Nepal, 2015

Source: Own compilation based on Constituent Assembly Secretariat, 2015; MoSTE/KIRDARC, 2014; NPC, 2014, 2012; UNFCCC, 2015, 2014; Schalatek et al., 2012; MoEST, 2012; Kreft et al., 2011; Harmeling et al., 2011; Sharma, 2009; UNDP, 2008

son, 2011). Since COP 12, i.e., the UN Nairobi Agreement in 2006, adaptation pilots and plans have progressed substantially, until then adaptation was not considered a serious issue in the negotiations under UNFCCC (Boyd et al., 2009).

COP 13, or the Bali roadmap 2007, provided the global commitment for enhanced cooperation to *'support urgent implementation'* of measures, such as the NAPA. In Nepal, climate change really became a national agenda, following the peace agreement signed between government and Maoist and in time of the COP 13, held in Bali in 2007. The country's Interim Constitution (2007) and the development plans that followed, such as the Three Year Interim Plan (2008-2010), provided further testimony to Nepal's commitment to address climate change related development issues.

Prior to COP 15 held in Copenhagen in 2009, Nepal's cabinet meeting held at Kalapatthar, near Everest Base Camp, raised global attention on impacts of climate

change in the mountain regions. This immediately paved the way for organizing South Asian Regional level Climate Change Conference, “Kathmandu to Copenhagen”, and signing of Memorandum of Understanding by 14 donor and development partners, in Nepal’s climate change initiatives. An apex decision making body, such as the Climate Change Council, responsible for guiding climate change policy was formed in 2009 under the chairmanship of the Prime Minister and executed by the MoSTE (MoEST, 2012).

The COP 16, or Cancun Adaptation Framework (CAF) marks a milestone for international action on adaptation (Harmeling et al., 2011) within which respected Parties have been invited to enhance action on adaptation, taking into account their common but differentiated responsibilities and respective capabilities, and specific national and regional development priorities, objectives and contexts (UNFCCC, 2011).

The para 14 and 34 of the Decision 1/CP.16 specifically invite the Parties (multi-lateral, bilateral to national, regional, local institutions) to undertake, inter alia, the following¹:

Plan, prioritize and implement adaptations, including projects and programmes and actions identified in national and subnational adaptation plans and strategies, NAPA of LDCs, national communications [...].

Impact, vulnerability and adaptation assessments, including [...] and social evaluation of adaptation options.

Strengthen institutional capacities and enabling environment for adaptation, including [...] and vulnerability reduction.

Support enhanced action on adaptation at all levels [...] in a coherent and integrated manner, building on synergies among activities and processes [...].

As part of the commitment of the developed countries in supporting the adaptation efforts in developing countries, international donors and multilateral development organizations provided funds and technical assistance in preparing the NAPA. The NAPA is aimed at identifying and addressing “urgent and immediate” climate challenges in LDCs, to overcome barriers and divergent outlooks that exist between planning for long-term impacts of climate change and planning and policy making for short and medium term (Kreft et al., 2011). In Nepal, the government in cooperation with United Nations Development Programme (UNDP) prepared the NAPA with the goal of prioritizing urgent and immediate adaptation actions and provide strategic direction for mainstreaming adaptation into development planning process (MoEST, 2012; HELVETAS, 2011). The NAPA guidelines focuses on vulnerabilities and adaptation priorities for six thematic areas, agriculture and food security, water and energy, climate induced disaster, forest and biodiversi-

1 Decision 1/CP.16. para 14 and 34 (UNFCCC, 2011).

ty, public health and urban development (MoE, 2010). The development plan, the Three Year Plan (2010-2013) provided the strategic directions and approach to the country in this regard.

COP 17 and its Durban Adaptation Charter for Local Government, 2011, further enhanced the international commitment on adaptation by recognizing local and subnational level organizations as key government partners in fight against climate change risks and poverty reduction, two key challenges for sustainable development (ICLEI, 2012). In Nepal, the LAPA framework endorsed by the government provided the strategic leverage to support the adaptation planning and implementation at the local government level, such as the District Development Committee (DDC) and the Village Development Committee (VDC). Operated under Nepal NAPA framework, 2010 and National Climate Policy, 2011, the LAPA framework is implemented through coordinated support from MoSTE and implementation support from the Ministry of Federal Affairs and Local Development (MoFALD) (Chaudhury et al., 2014; Inagaki and Agrawal, 2012). It facilitates the adaptation process at the local level, via formation of District Coordination Committee (DCC), representing all the actors (government, NGOs, private, local community) within each DDC (Dhungana et al., 2013; Inagaki and Gerwal, 2012). Thirteenth Development Plan (2013-2016), which is the continuation of the periodic planning process in Nepal, is aimed at addressing climate change related development issues.

Besides NAPA and LAPA, the Community Based Adaptation (CBA) approach also arose as a means to find the practical solutions, incorporating both developmental (Dodman and Mitlin, 2013; Pervin et al., 2013; Reid et al., 2013) and technological views of adaptation (Elliott et al., 2011; UNFCCC, 2006). The CBA approach grew out of the growing realization among scientists and practitioners, of the differential impacts of climate change and adaptive capacity (Regmi, 2012). The CBA approach has its conceptual roots in resilience, borne out of recognition that environmental knowledge, vulnerability and resilience to climate change impacts are embedded in societies and cultures (Ibid.). In advancing the notion of mainstreaming adaptation into development planning, envisaged by the Nepal's Climate Change Policy (2011), many studies are now focused in integrating 'bottom up' and 'top down' approach for effective CBA process.

Two important climate conferences, COP 19 and 20 held in Warsaw (2013) and Lima (2014), enabled the consolidation of global political agreement and policy related to adaptation knowledge production and dissemination and multi-actor engagement and collaboration (para 2 and 3 of the Decision 17/CP.19); integrated multi-level adaptation planning in the broader context of, and from long term sustainable development perspective (Decision 18/CP.19)², and recognition of the long term sustainable development or the National Adaptation Plan (NAP) as means for delivering resilience (para 4 of the Decision 3/CP.20³). NAP is envisaged as an iterative country driven process that is socio-politically and ecologically sensitive, guided by science and traditional knowledge and collaborative approach.

2 Decision 17/CP.19. para 2 and 3 and Decision 18/CP.19 (UNFCCC, 2014).

3 Decision 3/CP.20 para 4 (UNFCCC, 2015b).

In Nepal, the key current local adaptation issues (emerging LAPA and CBA agendas) and the political understanding, reflect the debate on networks and collaborations and scaling up of local adaptation projects for long term perspectives (IIED, 2014; Reid et al., 2013). As a means to tackle the local adaptation issues from long term sustainability standpoint, the 'Kathmandu Declaration on Financing Local Adaptation to Climate Change (2014)' and Rara Declaration on Climate Change and Environmental Threats (2014), emphasize on the importance of role played by local institutions and their capacity, especially those revolved around the shared principles of equity, justice, accountability, inclusivity, participation, efficiency, pro-poor, and the context specific vulnerability focused adaptation approach (IIED, 2014; MOSTE/KIRDARC, 2014).

COP 21 or Paris Climate Conference 2015, is the historic event for promoting enhanced and sustainable local adaptation initiatives. On the 11th of December, the 190 countries successfully signed a legally binding universal agreement on climate. The agreement acknowledges the notion of justice and is faithful to Durban mandate that recognizes the value of local state and non-state actors in adaptation (UNFCCC, 2015a). The agreement has facilitated transitioning of the institutional approach into collaborative partnership to build resilient and low carbon societies. The recently declared Constitution of Nepal (2015), shares similar philosophical and moral agendas. To address the climate change and sustainable development issues, it guarantees the fundamental resource use rights of the rural and socio-economically marginalized communities and promotes the participatory democratic governance, based on equity, justice and plural institutional constructs (Constituent Assembly Secretariat, 2015).

Global-local adaptation development discourse

Within the development context, the adaptation thinking has evolved in three distinct ways: adaptation as a stand-alone, as mainstreaming (i.e., adaptation plus development) and as development approach (Tarhule, 2012). Adaptation as a stand-alone concept has a longer history focusing on singular theoretical construction of adaptation and approach, focused on technological aspects. Critiques of such approach link the climate change issues with the problem around capitalism and neoliberal economic growth oriented development approach. Proponent of such thinking believes that capitalism as predominant political economy is a system of economic exploitation, which produces environmental destructions, socio-economic inequality and burden to poor and marginalized community (Urie, 2014; Pelling and Manuel-Navarrete, 2011). Capitalism in its many forms, as neoliberal development model promoting economic growth, as configuration of corporate-state power hijacking public and common pool resources, via corporate rights and diminution of local governance, as institutional ideology favoring in the production and implementation of knowledge and power to foster corporate globalism, is causing the dominant development model unsustainable (Urie, 2014). Both human induced impacts of climate change and unsustainable development practices are the greatest challenges of the 21st Century affecting the immediate threat to human development and achieving the MDGs (UNDP, 2014, 2007). It can be stated that climate change

as the connotation of the neoliberal development ideology (stressed in sections 2.1.4 and 2.2.3), is a class warfare (Urie, 2014; Freire, 1970). The root causes of climate change problem and the inability of political actors to act, lie in the dominant processes and values of the political economy (Pelling, 2011). As a result of which social dimensions were considered as externalities with the focus lying on finding solutions (techno-scientific) to accommodate change, while maintaining the status quo development ideologies, governance structures and functions (Pelling, 2011; Walker et al., 2004).

With the growing consensus that adaptation is directly linked with development, mainstreaming adaptation into development planning has become important development approach. Emerging thinking from post development and postmodernism theory and approaches to adaptation is concerned with, first, the social dimensions of adaptation within which the normative aspects, such as the equity and justice play important roles for effective adaptation. Second, it is also about the complex and dynamic system interplay, contingent on knowledge, power, values, world-views which are intrinsically social and organic in nature. This lends itself as important basis to argue that adaptation to be understood as a social and organic processes, with dynamic interplay among psychological, social and political domains. There is a growing scientific and political realization that the current approaches (such as adaptation as 'stand alone' and 'mainstreaming' adaptation) are not sufficient to address the climate change issue effectively. The critiques include, first, such approaches separate adaptation and development as parallel themes (Mitchell and Maxwell, 2010), and second, they are fragmented and project oriented, with limited association with ongoing development works and institutions, responsible in advancing programmatic activities (Klein, 2007). As a means of moving beyond orthodox adaptation paradigm, concepts, such as climate compatible development and scaling up local adaptation plans are emerging in the development landscapes of Nepal. The climate compatible development proposes the combination of development and adaptation strategies for climate resilient development (Mitchell and Maxwell, 2010), while scaling up focuses in integrating adaptation into development planning across scales (Regmi, 2012), within which inclusion of, and collaboration with, multiple institutions is advocated (IIED, 2014).

These discussions highlight two important points: first, linking and localizing adaptation and development plans, tailored to the contextual needs and values, and second, institutions and multi-level governance arrangements as crucial factors, for moving beyond mainstreaming adaptation to adaptive paradigm (Armitage and Plummer, 2010). There is a need to locate participation in the context of emerging adaptation and development policy discourse, such as the collaborative governance and how collaboration is being played out by investigating how it is interpreted and enacted by actors (Newman et al., 2004). Since collaboration occur in an institutional environment of political plurality of knowledge and power dynamics, the theoretical and the political shifts into adaptive governance also mean that such approach be holistic, integrative and systemic. This context also gave way to the analytical approach of understanding adaptation governance from quality of governance perspective (discussed in detail in section 2.3.2.2).

2.2.3.3 Adaptation as a social approach

Adaptation as a core concept of early 20th Century cultural ecology (Head, 2010), has had a great comeback in the 21st Century, in the context of climate change, particularly from the public discourse and policy point of view (Bassett and Fogelman, 2013; Head, 2010). The rationality behind this resurgence lies in the fact that humans as social animals have evolved a constellation of adaptations to social life, through social groups, engaging in social interactions for millions of years (Cosmides and Tooby, 1992). Through political and cultural relationships, motives, interactions and intentions that made up their social world, they have behaved adaptively (Cosmides and Tooby, 1992; Manzardo, 1985, 1982; Messerschmidt, 1982). Social science application and extensions of the adaptation paradigm are now visible in many scholarly fields, including in human and cultural ecology, ecological anthropology, cultural geography, social psychology, ecological economics, climate impacts and vulnerability, resilience, HES, governance and sustainability research (Pelling et al., 2014; Grothmann et al., 2013; Becken et al., 2013; Berkes and Ross, 2013; Head, 2010; O'Brien and Hochchka, 2010; O'Brien, 2009a; Folke 2006; Grothmann and Patt, 2005; Walker et al., 2004; Zimmerer, 2004; Cosmides and Tooby, 1992). Adaptation thinking within this realm has moved away from sectoral and prescriptive technological aspect to holistic, integrative, diagnostic and resilience system perspective (discussed in sections 2.3 and 3.2).

The emerging social adaptation discourse from sustainability perspective is filled with growing demand and interests in the theory and practice of transformational approaches for effective adaptation interventions (Bahadur and Tanner, 2012). Transformation in this context is an elastic term and connotes radical, dynamic and systemic change and sustainability (Farell and Twining-Ward, 2004; Bahadur and Tanner, 2012). The radical and dynamic changes are about an alternative way of doing science and development approaches to produce the new knowledge of adaptation and for effective interventions (Swart et al., 2014), organization of knowledge production and application (Kirchoff et al., 2013). Systemic change refers to holistic, integrated and flexible approach to development. This suggests that alternative approach to adaptation and development places emphasis on the value of adaptation knowledge. Swart et al., (2014) also highlights the growing importance of such knowledge within the social dimensions of adaptation. The knowledge within this context is political, psychological and cultural constructs and are explained in the following sections.

Political construction of adaptation knowledge

Section 2.2.3.2 established that the institutional response to climate change hinges on the knowledge and power dynamics associated with political, cognitive and cultural plurality context. From the political standpoint, effective institutional adaptation depends on collaboration with many interdependent actors with varied knowledge and power (Termeer et al., 2013; Vink et al., 2013), their decision making and across scales (Adger et al., 2005; Adger, 2001). Adaptation knowledge as a political construct is about the governance and decision making which is produced through their intangible processes (Jones et al., 2010). Such intangible processes are the product of

the interiority perspectives and refer to subjectivity and intentionality of the actors. Both subjectivity and intentionality arise from cultural and political ecology within which different worldviews and the deeply held causal belief (heuristic knowledge) and values, associated with environmental change and societal response plays important role (Heyd and Brooks, 2009). The intentionality or volition action taken by society is inevitably a social process, within which forces of other rationality, such as political and procedural aspects of governance and decision making interact, influencing its outcome (Hermans and Thissen, 2009; Wildavsky, 1979). Such forces and factors, according to Chase (1980), are driven by the volitional selection by the institutions operating within the HES.

Psychological construction of adaptation knowledge

Psychological research investigating perceptual knowledge of risks and response, aimed at reducing the stress from social vulnerability to climate change, has gained its significance in recent years (Jenkins, 2011; O'Brien and Hochchka, 2010; Stokols et al., 2009; Leiserowitz, 2007; Grothmann and Pratt, 2005; Bickerstaff, 2004). According to Stokols et al., (2009) and Sjöberg et al., (2004), in an age of global environmental change brought by technological, geophysical, political and societal forces of change, psychology play important role to understand perceptual knowledge of risks and adaptation response. Such conditions influence the human perception and cognition, which are important psychological attributes influencing the individual construction of knowledge, behavior and attitude of social and political nature (Stokols et al., 2009). The socio-political factors, such as norms, values, belief, choice and motivation, mediated through perception and cognition are important psychological knowledge constructs influencing human decision making (O'Brien and Hochachka; 2010; Grothmann and Patt, 2005), critical to successful implementation of adaptation policies (Patt and Schröter, 2008). Another important factor shaping the knowledge construction is the experiential knowledge. According to Marx and Weber (2012), past experiences play important role in contextualisation of climate change related decision making. The social memory of the experiences, or 'the availability heuristics' is critical in facilitating the adaptation response.

Cultural construction of adaptation knowledge

Cultural construction of the adaptation knowledge is influenced by values and belief system, social practices and communication. Hulme et al., (2007) suggest that the undervalued cultural dimension of climate change adaptation as its barrier in limiting adaptation potentials. Culture as worldviews, *"is concerned with identity, aspiration, symbolic exchange, coordination, and structures and practices that serve the relational ends, such as ethnicity, ritual, heritage, norms, meanings and beliefs"* (Rao and Watson, 2004, p.4); and as norm, holds an organization together and expresses the values and beliefs that organizational members come to share (Bourne and Jenkins, 2013; Smircich, 1983; Tichy, 1982). As discussed in section 2.2.2, culture influence the psychological need, and act as regulatory mechanism and social cohesion, bounded by the internal organizational variables, especially values, belief or social practices. It is of great significance, when it comes to understanding the organizations' adap-

tive capacity. They influence the interpretation of issues, choice, decision-making, ethical stance of organization and relationships between and among communities (Bourne and Jenkins, 2013). They provide the potential for functional ability and influence the structural ability of organization to respond to threats (Meyer, 1981). What is also important to understand is that within the organizational culture, they are mediated by power and social relations, and is not simply the result of adaptation to objective conditions of the natural environment (Heyd and Brooks, 2009; Proctor, 1998). In fact structures of power and social relationships are prevalent in the organizations with individual, community, resources and knowledge and the worldviews (O'Riordan and Jordan, 1998). Thus, culture connotes broader social and political dynamics, the inter relationships within the members of the society and their shared ideas and perspectives (Rao and Watson, 2004).

Becken et al., (2013) also argued that the perceptual knowledge based on cultural interpretation provide important basis for understanding of local climate change issue, a valuable basis for local adaptation initiatives. Grounded on the non-essentialist scientific perspective, the study provides important insight to understand the local adaptation issues, the perception and attitude of tourism community to climate change. Human attitudes, intentions and behavior are in fact cultural manifestation of their society and are important dimensions that critically influence the response to climate change impacts (Weaver, 2011). The adaptive capacity of the institution is contingent on the social and political capability within the cultural field, at different scale level. And to enhance the capacity of the institution, addressing problems that matter to groups in the local, national and global communities, focusing on issues of context, values and power is important (Flyvbjerg, 2006).

2.2.3.4 Adaptation as a political approach

Adaptation as a political approach is about governance and decision making. From the social science perspective, adaptation governance discourse highlights issues, such as those arising from the social contentions of development and adaptation ideological extremism, and the imperatives of framing adaptation governance from human perspective. The growing societal interdependencies mean that there is the need to address a wide range of social and political-economic issues imbued with adaptation governance and decision making (Kooiman, 2003, 1999). Hence adaptation governance is treated as a systemic whole, consisting of cognitive, subjective, process and procedural aspects of governance and decision making.

Within cognitive and subjective aspects of governance, the social constructions of knowledge, power and participation offer interesting insights. Adaptation knowledge as political construct discussed in section 2.2.3.3, infer about subjective and cognitive nature that influence governance and decision making capacity. Power is a multidimensional concept (Jorgensen, 2001; Hardy and Leiba-O'Sullivan, 1998). The central tenet in social aspect of governance theory, is the idea of diffused state power exerted through the plural institutions in a dispersed system of power and authority (Newman et al., 2004). Many post-structuralism theorists, such as Bourdieu, Derrida, Lyotard and Foucault view power as relational construct and reside in social relationships of individual/organization (Everett, 2002; Jorgensen, 2001).

According to Bourdieu, such relational power is mediated through various social positioning in a social space (Bourdieu, 1985). Bourdieu's notion of relational dynamics of power is also shared by Foucault, but mostly in terms of disciplinary power and how this is historically rooted (Burrell, 1997; Alvesson, 1996). According to Foucault, power is a shared construct and it exists only in relational terms or when expressed in action (Foucault, 1976).

The problem of government occupies a central place in Foucault's work (Lemke, 2007). For Foucault, the orthodox notion of power suggesting that it resides in state/organization and ultimately filter down to local level is flawed. He does not limit the exercise of power to sovereignty (Alvesson, 1996). Power should be understood as *"multiplicity of force relations immanent in the sphere in which they operate and which constitute their own organization; as the process which through ceaseless struggles and confrontations, transforms, strengthens or reverse them, as a support which these force relations find in one another, thus forming a chain or a system, or on the contrary, the disjunctions and contradictions which isolate them from one another; and lastly as strategies in which they take effect, whose general design or institutional crystallization is embodied in the state apparatus, in the formulation of the law, in the various social hegemonies,"* (Foucault, 1976, pp. 92-93). It is a network of relations within which all individuals are subjected (Hardy and Leiba-O'Sullivan, 1998). The works of scholars, such as Manuel-Navarrete et al., (2009b), Kooiman et al., (2008) and Kooiman (2003), in rejecting the notion of single sovereignty and legitimate power, conceptualizes the diffused notion of state authority as 'powersphere' and 'interactive governance' (discussed in section 2.3.2.2). Powersphere is a political arena where governance processes through power relations occur (Manuel-Navarrete et al., 2009b), while interactive governance imply that governance is about governing mixes consisting of multi-actor and multilevel networks and collaborations (Kooiman et al., 2008; Kooiman, 2003).

From this discussion, three important conclusions can be drawn. First, power is not given but resides in relationships, second, it is not endogenous to hierarchical 'top down' form only, but is a form of social contracts between government and other institutional arrangements, and third, the diffused boundary power is important context generating space for multi-actor/institutional interactions (Manuel-Navarrete et al., 2009b; O'Brien et al., 2009; Kooiman et al., 2008). Such interactions, as stated by Kooiman (2003, 1999), are shaped by the context of complexity and diversity in which they take place, and are of three types. These are interferences, interplay and interventions. Interference is about the common processes that dominate the everyday exchanges in different settings. Interplays are collective actions of the institutions operating at different levels. Interventions are formalized attempts at directing the exchange process (Kooiman, 2003; Kooiman, 1999). Interventions are the dominant forms of development and adaptation governance influenced by the prescriptive orthodoxy technical mode of governance.

Participation is an important normative goal of governance in formulating response to climate change risks. Participatory research with its disciplinary roots in social science is gaining increasing attention in climate adaptation research. However, since sociological inquiry of climate change impacts and adaptation is in its infant stage, one must learn from the existing participatory approaches in other develop-

ment and environmental governance contexts. Within the sociological inquiry of development, participatory research is rooted in work related to issues concerning equity, oppressed society, pragmatism, bottom up and community empowerment (Khanlou and Peter, 2005; Cornwall and Jewkes, 1995; Chambers, 1994). Participatory management became the core principle in ensuring community take the leading role in planning, implementing and managing development programmes. Within the environmental governance context, participatory management is the hallmark of Nepal's success story of governing common pool resources within the PAs. With the extension of the environmental policy and practices, it has not only changed human environment interaction, but has also decentralized natural resource and local development process (Ribot et al., 2008). Participation became cornerstone for effective NBT governance within the PAs. Democratic decision making and community participation, the two key fundamental principles of participatory governance, form the basis for effective NBT governance. These principles also stand at the heart of PA sustainability and resilience (Garnett et al., 2007; Anderies et al., 2004).

However, critics of participatory resource governance emerge in its operational aspects. Cooke and Kothari (2001) argued that participatory processes are being subjected to hegemonic political contestations, masking biases in interests and needs, in the name of participation. Quet (2014) and Pestre (2007) provide similar views about participation and argue that besides accounting diverse participatory processes, the dynamics of such processes and the dominant ways of organizing participatory practices, including the meanings and values attached to it, are crucial. Quet (2014) therefore argues that the political conception of participation should extend beyond deliberations.

In Nepal, the meaning of participation has evolved beyond legitimizing development process for governmental propositions in institution politics, to as a means for social emancipation. Institutional reforms through policy and programmes aimed at addressing the issue of equity and justice to strengthening the roles and capacity of the community became the central political agenda. As a result, social equity and justice oriented democratic decision making are becoming the recurrent themes within the country's major legislative, policy and development agendas. Whether it is the constitution of the country, climate adaptation declaration, or the national climate change policy for development for that matter, they all stress inclusive participation as key elements in addressing Nepal's development and adaptation challenges. The state restructuring process based within the ideology of federalism and the evolving development regimes of Nepal, places social equity and justice as priority agendas, and inclusive participation as means to establish the state, political and development orders in the country.

From this discussion two important points can be highlighted. First, rather than participation per se, the substance of participation i.e., the meanings attached to participation, their dynamics and the dominant role given to some meaning (especially political) are important (Quet, 2014). Therefore, there is a need to re-conceptualize tourism governance and also challenge the orthodox account of participatory approach that ignores the political contingent nature of participatory spaces. This means understanding and analyzing the participatory approach at the discursive

level. Second, participatory resource governance as a starting point of political engagement of community, embeds the institutions within social, political and policy landscapes (Chhatre, 2008). There is a growing realization of the importance of roles of the institutions, the structure and function of the institution and the adaptation processes (Pahl-Wostl, 2009). This implies that institutions responsible for and capable of responding to vulnerability are the locus of effective governance (Ribot, 2010). Given this context, an expanded understanding of institutions as culmination of political and social process is important.

From the political perspective, institutions are defined as 'rules of the game', bounded by shared concepts of rules, norms and strategies, to organize all forms of activities and structured interactions within individual and organizations at all scales (Crawford and Ostrom, 1995). The opportunities for and constraints in taking institutional actions, are all affected by the rules, norms and cultural belief that structure the institutional settings or situation (Scott, 2014; Hulme et al., 2007). The institutional structure, size, leadership indicate the external variables of the institutions; while the choice, decision making, ethics, organizational relationships (networks), the internal variables (Bourne and Jenkins, 2013). Such idea is based on the conceptualization that decision makers (actors) are embedded in a specific set of institutional, normative and political context (Moser, 2009a). Institutions can play a vital role in the way tourism resources are governed to enable a destination adapt to climate change, and community, to enhance their resilience capacity to do so. From the resource governance perspective, institutions imply both formal and informal institutions, with laws, regulations and policies, to protect, use and exploit natural resource (Ostrom, 2007).

Hence within institutional context, governance may be seen as "*commonly understood codes of behavior that potentially reduce uncertainty, mediate self-interest and facilitate collective action,*" (Ostrom and Cox, 2010, pp. 454-455). Given this context, the governance architecture and adaptation process embody a great variety of values (Hulme et al., 2007; Baron, 1995) embedded within formal and informal institutions (see also Prell et al., 2010; Agrawal and Perrin, 2009). Formal institutions, including legislation, guidelines, policies which are openly negotiated rules that constrain organizations, whilst at the same time being amenable to change by the action of individuals or groups in society or an organisation (Pelling and High, 2005b). Informal institutions are found in cultural norms and values, and also have a dialectical relationship with individual household, communities and organization giving shape to, whilst being reproduced by, repeated rounds of traditional behaviour (Diaz et al., 2005; Pelling and High, 2005b). According to Diaz et al., (2005), individual households and communities are not just group living in an area, but are also symbols, discourses, norms and similar such diverse abstract understanding that make organized everyday life possible. They have informal rules and flexibility that frame their perceptions of the world influencing their everyday life. They are also found operating within the traditional governance system or social organizations via social networks.

Based on this discussion, institution can be defined as "*those that comprise regulative, normative and cultural-cognitive elements that together with associated activities and*

resources provide stability and meaning to life,” (Scott, 2014, p. 56). In this conception, institution is multifaceted, durable social structures made up of symbolic elements, social activities and relations. As these are abstract constructs, the value of informal institutions remain either unappreciated or treated as ‘problematic’ and ‘complex’, thus leading to under-theorization of the concept (High et al., 2006, 2004). These abstract constructs operate as informal organized system embedded within a large number of collective variables of a shadow space (Pelling et al., 2008; Pelling and High, 2005b), an action arena (Pritchard, 2014; Halbe et al., 2013), public sphere (Kooiman, 2003) and a cultural field (Bourdieu, 1983), referred commonly in this study as a sphere (discussed in section 2.3.2).

Within the context of sociological understanding of institutional adaptation, both formal and informal institution and their value in institutionalizing transformative governance have become imperative. Hence their roles and values in climate change adaptation and NBT sustainability are paramount. Constellation of formal and informal institutions operates within the given area through structural and functional arrangements, forming a complex web of institutional networks at different governance scales. These institutional systems pervade the lives of the individual household, community, the governance mechanism of formal and informal via regulations, rules, processes and resources that may either support or conflict with their capacities (Diaz et al., 2005).

Manuel-Navarrette et al., (2009b) argue that it is the quality of the governance process that influences the effectiveness of the adaptation. Such processes consist of three interrelated dimensions, the politics, policy and polity (Dupuis and Knoepfel, 2013; Treib et al., 2007). Moser’s definition of governance illustrates such conceptualization: *“Governance is a set of decisions, actors, processes, institutional structures and mechanisms, including the division of authority and underlying norms, in determining a course of action”* (2009b, p.315). Burrowing the idea from Treib et al., (2007), the governance conceptualization proposed by Moser embeds actors/institutions in a specific set of political, policy and polity dimensions of the governance processes. The political dimension focus on the actor constellation and power relations between political actors, the policy on different types of actions and instruments used by the state, and polity as system of rules/norms that shape the actions of the actors (Treib et al., 2007). Implying this concept within institutional adaptation, one can argue that the adaptation governance is about the politics, policy and polity aspects of development process.

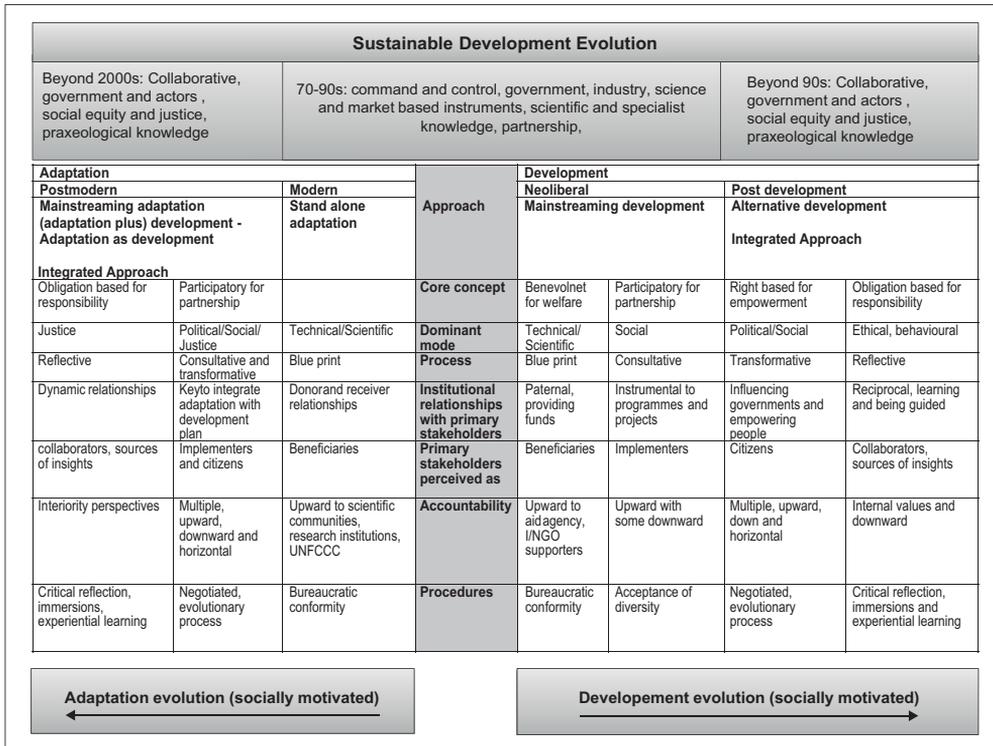
2.2.4 Linking NBT development, adaptation and governance: A convergent framework

The previous section conceptualized sustainable tourism development, adaptation and governance, based on the fundamentals of sustainability science in general, and moral dimension of sustainable development, to be precise. What one could gather from this discussion is that the notion of sustainable tourism, adaptation and gov-

ernance has moved beyond what the contemporary orthodox modes of development and adaptation conceptualization infer. Sustainability concept is more than the dominant rationalist and technological modes of development, adaptation and governance thinking. It is about the equity and justice dimensions of the sustainability conceptualization and approach (see Hughes, 1995). Hence, although the adaptation and (tourism) development are two distinctly different themes, preceding discussions show that there are several continuities between these themes, when framed within the sustainability concept. As such, significant parallel movements, in the field of development and climate change adaptation and their linkage with sustainability science are revealed. The convergent framework for these diverse themes is as conceptualized in the figure 2.3. The figure provides the synoptic views of the evolving sustainability discourses on climate change adaptation and development thinking and their approaches.

The adaptation and development discourses show a gradual shift, both in the conceptual and disciplinary sense. The shifting of the adaptation thinking as discussed in section 2.2.3.2 from stand alone adaptation, mainstreaming adaptation (adaptation plus development) to adaptation as development also parallels that of

Figure 2-3: Convergent sustainable (tourism) development and adaptation framework



Source: Own illustration based on Quet, 2014; Ireland and McKinnon, 2013; Tarhule, 2012; Zaccai, 2012; O'Brien and Hochchka, 2010; Pestre, 2008; Chambers, 2004; Pieterse, 2000, 1998

the development thinking, from the mainstreaming concept to alternative development (Pieterse, 1998). The current adaptation and development literatures, particularly the political and moral debate on sustainability, is filled with criticism of how the orthodox approaches have failed to better inform adaptation policies and development interventions, at the different levels of decision making (Swart et al., 2014). The centrality of such critiques to adaptation, whether global (O'Brien 2013; Burton et al., 2002), national or local (Chaudhury et. al., 2014; Regmi, 2012; Sharma, 2011; Jones et al., 2010), deals with the fact that current adaptation approach is dominated by the reductionist and essentialist thinking embedded within neoliberal development paradigm and modernism theory. The approach focusses on singular theoretical construction of adaptation, influenced by the impact driven analysis, and technical solutions as a blue print document (Elliott, 2011; Wolf, 2011). Such approach is the outcome of problematizing adaptation as an end state or outcome. Since response to climate change occurs in an institutional environment of both cognitive and political plurality of knowledge and power dynamics, the focus shifted from causation and measurement, to holistic, interpretive and integrative. The dominant mode shifted from technological and scientific, to social, political and justice dimensions of adaptation, within which people are seen as implementers, guides and sources of insightful knowledge. The process of adaptation and development also shifted from consultative, to transformative and reflexive in its approach. Multiple political and social accountability, integrating vertical and horizontal governance, interiority perspectives and procedures that are flexible, critically reflective and experiential learning, characterize the socially motivated adaptation and development evolutions.

In terms of tourism development, the available literatures are focused on either projected impact of climate change on tourism, or the anticipated socio-economic consequences of the latter (Weaver, 2011). The dominant motive and the ideological foundations guiding such studies mainly constitute the neoliberal paradigm, and the dominating reductionist and essentialist perspectives, which are not necessarily conducive to tourism sustainability in its actual sense (Hall et al., 2013; Weaver, 2011; Butler, 1999). The whole idea behind mainstreaming (tourism) development within this concept is simplified as a single, homogeneous thrust towards GDP growth based development (Pieterse, 1998). Such market based development approach subjected people within the techno-scientific modes of development, positioning people at the receiving end with 'top down' regulatory mechanism (Pestre, 2008). The alternative or post-development mode of sustainable development approach represents people centered definition of development, the one that perceives people as citizen and collaborators, who guides, teaches, or are the source of insights. It refers to the idea of collaborative development, multiple (upward, downward and horizontal) accountabilities and interactions, hence giving rise to the value of interior perspectives. The perspective, which embodies the negotiated and contested knowledge and power landscapes, influence the development process, and which calls for transformative (such as radical, dynamic and systemic) and reflective development approach. For addressing social vulnerabilities and building resilience to achieve sustained development, the language and approach of major international development agencies (such as UNDP and World Bank) and government of Nepal are now

along these lines of sustainable development philosophy. The Human Development Report (2014), the World Development Report (2015) and Nepal Human Development Report are dedicated to bringing sustained development, putting people at the centre of development process (World Bank, 2015; GoN-UNDP, 2014; UNDP, 2014).

The discussion about the evolving tourism, development and adaptation sustainability concepts and their approach provide an important analytical insight into aspect of governance, which is synthesized in the table 2.3. It is apparent that there is an emergence and diffusion of participatory tourism development and adaptation approaches, into new forms of governance. Such evolution is based on the argument of the limits of the orthodox approach of environmental, development and scientific ideological extremism. The approach which reduced individuals to rational economic actor and enabled aggregate assessment of climate change impacts and development process, rather than appreciating individuals as socio-political actor, acknowledging systemic, polycentric and heterarchic nature of governance, characterised by relationships of networks and collaborations, which enable the investigation of underlying psychological, political and cultural determinants of knowledge and power, affecting institutional adaptive capacity (Pelling et al., 2008).

Table 2-3: Adaptation governance discourse

Adaptation Process	Modes of Governance	Governance Approach	Discipline	Knowledge Domain
Blue Print	Top down	Market	Essentialist	Science
Incremental Adaptation	Participatory	Hierarchy		Technology
Transformative	Networks	Systemic	Non essentialist	Diverse knowledge production and contestations
Reflective	Collaborative	Polycentric Heterarchy Discourse		

Source: Own illustration

The disciplinary thinking that parallels these evolutions include postmodernism and post development thinking, which actively promotes alternative thinking to tourism development, adaptation, governance and sustainability study (Dupuis and Knoepfel, 2013; Ireland and McKinnon, 2013; Moser 2009a; Manuel-Navarrete et al., 2009b; Kooiman et al., 2008; Newman et al., 2004; Banerjee, 2003; Pieterse, 2000, 1998; Esteva, 1995; Foucault, 1976). These evolutionary thinking also indicates a significant shift and maturity, both in disciplinary and methodological approaches to conducting development and climate change study. More and more scientists have extended the evolutionary and system thinking aspects beyond ecology to talk about institutions, the political-economy, social and cultural interactions, power negotiations and socio-political dynamics of sustainable development and climate change, transformative and resilience thinking to adaptation. Such disciplinary maturity has resulted into the evolution of the adaptation concept as an all-encom-

passing issue, and hence complex (Ponce de Leon and Gotangco, 2013; Woiwode, 2013). Studies undertaken are focused in understanding the issues from inter- and transdisciplinary perspectives. Increasing number of scholars are using theoretical and methodological plurality perspectives on human vulnerability to climate change and adaptation studies (McLaughlin and Dietz, 2014; Esbjörn, 2010; O'Brien and Hochchka, 2010; Esbjörn and Zimmerman, 2009). Interdisciplinary, transdisciplinary and social constructivism have become important analytical lens in this regard (Kaijser and Kronsell, 2014; McLaughlin and Dietz, 2014; Buzinde et al., 2010).

Based on this discussion, it can be stated that the adaptation governance is about structural and functional dynamics of multi-actor and multi-level participation and decision making. Participatory decision making that plays crucial role in response to climate change are closely related to diverse institutional perspective (Turnpenny et al., 2005) and multilevel actor network, or polycentric governance contexts. Polycentric approach to adaptation governance is crucial in building HES resilience and the capacity to adapt to environmental change (Klein and Juhola, 2013; Robinson and Berkes, 2011). Such approach allows engaging in building a deeper understanding of the dynamic and complex nature of institutional adaptation, through collaboration with many interdependent actors (with varied knowledge, power, motivation and worldviews) (Termeer et al., 2013), across scales and their capacities (Adger et al., 2005; Adger, 2001). Changing social, political, economic and environmental contexts and the resulting changed policy and practice of governance, evolving from 'top down' to 'bottom up' and from hierarchy to heterarchy suggest that adaptation governance is in a constant state of flux and dynamism. Such character indicates that adaptation governance discourse is about transformative governance process and display adaptive behavior.

2.2.5 Summary

This section engaged in critical review of various concepts, discipline and approaches of adaptation within a wider political ecological debate about the sociological dimension of adaptation issues. Critical review of global-local adaptation and development debates provided an overview of their evolving and emerging discourses. The aim has been to demonstrate the multidisciplinary nature of the adaptation concept and therefore its subjection to contestations and multiple meaning.

Adaptation as a multidisciplinary concept arise due to diverse adaptation perspectives influenced by climate, non-climate factors, political, social, economic and environmental dispositions of the individual or society, their interaction with HES and various intangible processes of decision making. The multidisciplinary nature of the adaptation perspectives mean that it is a dynamic concept with significant crossing over of the theoretical conceptions ranging from evolution, development, geography, culture and organization.

From evolution theory standpoint, adaptation is about social and organic process of adjustment to changing external conditions. Within this context, the interaction between individual and external forces of change, the mechanism of adjustment,

the contingent behavior and the capacity acquired during the process together, influence the adaptability of individual. By implying this concept within institutional adaptation, it has been established that institutional adaptation is about the social and functional ability, flexibility and transformative thinking.

From development theory perspective, both adaptation thinking and approach evolved from parochial impact based to approaches based on broader conceptualization of the term and long term sustainable development perspective into development planning. The value of adaptation knowledge (sourced from both scientific and traditional means) and collaborative governance highlight the key emerging adaptation discourse and political understanding generated thereof.

Adaptation from the cultural and organizational theory suggests how culture connotes multiple meanings and values. It is framed as a mechanism, an instrument and system, serves the multipurpose organizational objectives of fulfilling the social and operational needs, influences social and psychological belief and worldviews that guide the society. The value of culture within organization is multidimensional: as instruments, as an adaptive system and constellations of interior perspectives influencing the societal knowledge, practices and ways of life.

The geographical theory perspective suggests that effective institutional adaptation hinges on socio-politically constructed knowledge and power that operate within a space. Space as commonly ascribed within the orthodox development geography, is not given. Or space is not an apolitical static construct; rather it is a dynamic and social construct. The dominant thinking that PA as spatial site, or those construed by the MAB as sites of scientific learning, has now evolved into considering it, as the sites of social learning.

Adaptation literatures indicate a significant evolution as well as parallel shifts in terms of their disciplinary and development thinking and approaches. Such shifts parallel the emergence of an alternative development and adaptation approaches embedded within the post modernism and post development thinking. Critical review of the global-local adaptation policy and development discourses not only contextualized the case of Nepal, but also located the state of adaptation and development within the emerging political discourse. The global-local adaptation and development events showcase, the interlinked nature of these issues, reflect the unison in thinking among politicians and practitioners to their understanding of the value of social dimensions of adaptation, the roles played by the decision makers, the need for, and commitment to facilitate collaborative adaptation actions, integrating multi-actor, multi-level governance perspectives. The emerging discourse suggests that translating adaptation from theory to practice and institutionalizing adaptation initiatives require understanding the issues beyond 'top down' approach, appreciate and accept the key roles played by diverse knowledge, power and decision makers, and facilitate the enabling environment and processes for collaborative adaptation governance.

Adaptation from the sociological standpoint is a pervasive concept. This is an important premise for understanding institutional adaptation. Such insight makes it possible to appreciate and understand that adaptation as process is contingent on socio-political construction of knowledge and power and hence is important to

understand adaptation issues from discursive perspective. This provided an important insight that there is a need for a broader conceptualization of adaptation and institution, with integrative vision of human environment relationships and their interactions at different levels of governance scale (see Stokols et al., 2013). Equally important is to understand and develop a more nuanced concept of adaptation, attentive to context and scale specific construction of the knowledge of and for institutional adaptation.

Based on these theoretical foundations, established through critical review of adaptation discipline, approaches; including the insights gained from the empirical development on the sustainable tourism development, governance and HES sustainability (see section 2.1); framing of adaptation, development and governance has been carried out. The goal of this study process has been to bring together divergent themes within a convergent theoretical framework, in order to provide conceptual clarity and analytical direction for the sociological understanding of institutional adaptation.

2.3 Sociological understanding of institutional adaptation: A HES sustainability perspective

2.3.1 Introduction

The new departures in disciplinary and development thinking in tourism, development, adaptation and governance discussed in the preceding sections indicate that sustainable NBT development has evolved, along with the evolving adaptation and governance disciplinary and development thinking. Such trend parallels the emergence of the need to transition adaptation initiatives through sociological, interdisciplinary and integrative approach, framed within the transformation and sustainability concepts. There is also inherent link between NBT, adaptation and governance, when framed within the concept of sustainability science. The sections 2.1.3 and 2.2.3 established such link under the rubric of sustainability principle, while section 2.2.4 provided a convergent theoretical framework that formed strong basis to frame institutional adaptation within HES sustainability. The aim of this section is to frame sociological understanding of institutional adaptation from HES sustainability perspective. Sociological understanding is crucial as the contemporary debate, in due regards to the subjection of the NBT to myriad forces of change, has led to the need to reframe NBT sustainability within coupled HES perspective (section 2.1.4). In section 2.3.2, the context behind and the need for framing institution adaptation from HES sustainability perspective is discussed. Adaptation being implicit in knowledge, power and participation dynamics, effective institutional adaptation has as much to do with the social relations, as with the procedural aspects of governance. In section 2.3.2.1, a sphere concept is developed, framed within the social resilience capacity context. While sociological understanding of institutional

adaptation is also about adaptive governance capacity of the NBT institutions, the concept of qualitative governance is explored in section 2.3.2.2.

2.3.2 Social resilience and adaptive governance: Framing institutional adaptive capacity

The last decade has witnessed increased political interests in institutional adaptation from the HES sustainability contexts. The three important attributes affecting the sustainability of HES include resilience, adaptability and transformability (Walker et al., 2004). The focus on social resilience aspect of HES is attributed to two important developments. First, the criticism faced by scientists and policy makers of under-theorizing social dimensions of adaptation and the need for its applied conceptualization (Brown, 2014); and second, the evolution of the development and adaptation thinking, leading to its wider use, ranging from ecology, HES, sociology and governance (Brown, 2014; Folke, 2006; Adger, 2000). The concept is related to human environment relationships such as social vulnerability driven by stress encompassing disruption of livelihoods and loss of security (Adger, 2000). Adaptability is the function of social component, such as individual or groups acting to manage a system and whose actions influence resilience. In other words, adaptability is the institutional capacity to adapt to and transform adaptation governance to adaptive governance. Transformability refers to capacity to create a fundamentally new system when ecological, economic and social structures make existing system untenable (Walker et al., 2004). The scope of the investigation lies in analyzing the first two attributes of HES sustainability and the potential way forward for transformative adaptation approach, the third attribute.

Within the premise of sustainability science, social resilience and adaptive governance are emerging field of adaptation research that considers HES as an ecosystem construct, displaying complexity, adaptability and dynamism (Ostrom, 2010; O'Brien et al., 2009; Kooiman et al., 2008). Hence, social resilience and adaptive governance that deal with reducing social vulnerability and adaptability serve as important factors for the HES sustainability (Folke et al., 2006; Walker et al., 2004). Given this notion, theorizing social resilience and adaptive governance capacities via sphere and qualitative governance framing, provides important analytical ground for understanding institutional adaptation.

2.3.2.1 Institutional social resilience capacity: A sphere perspective

As established in sections 2.2.2 and 2.2.3.3 adaptation is about the human environment relation and connotes social and organic processes in order for the HES to cope, manage or adjust to continuous changing external conditions. These contexts provide two important insights: first, it informs on how humans adapt to change and second, their adaptive capacity. The how aspect of adaptation involves the mechanism of adjustment, contingency, the acquired knowledge and capacity developed during these processes, including strategies, such as being flexible and transformative in their thinking. The adaptive capacity hinges on social, political, economic and

environmental dispositions of the community; the associated intangible processes of knowledge production and power dynamics, which is a product of their interiority perspective and interactions. Implying this concept within the institutional adaptation context, effective institutional adaptation hinges on the social and functional ability, and the contingent institutional behaviour, to accommodate to continuous changing environment. This implies that the institutions and their capacity are embedded within the sociological and organizational field of adaptation processes.

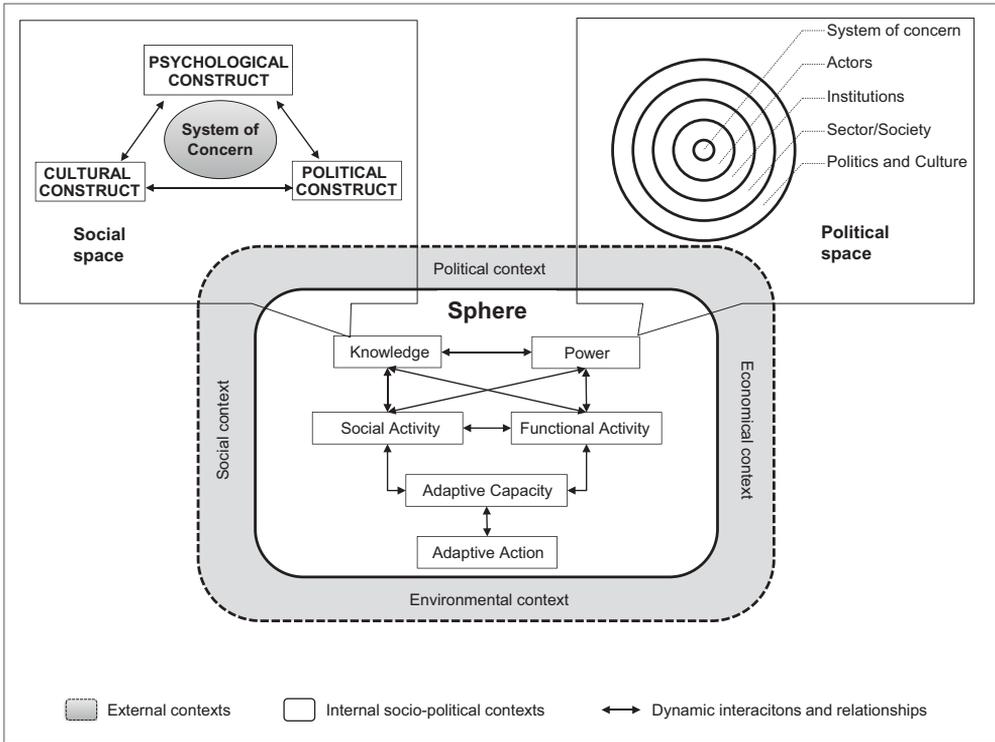
Sociologically, as the institutions are embedded within the political, social, economic and environmental contexts, their behavior are influenced by normative and political values, social interactions and relationships. The adaptive capacity as social resilience, deals with the concepts of social relationships and space, and with power relationships and space. Within the notion of space, the sphere concept and the dynamic social and political interactions among different institutions at different scale levels provide important analytical insights for social learning (Görg, 2011; Termeer et al., 2010; Nilsson and Swartling, 2009; Pelling et al., 2008). Different scholars have conceptualized sphere either in terms of their social or as political connotation. As social concept, a sphere connotes a large number of collective variables of a shadow space (Pelling et al., 2008; High et al., 2006; Pelling and High, 2005b; High et al., 2004) and a cultural field (Bourdieu, 1983). The shadow space and cultural field concepts are about the social relationships and social positioning of actors, their interactions within the social space (Pelling et al., 2008; Bourdieu, 1985; Everett, 2002; Anheier et al., 1995). As political concept, sphere is understood as an action arena (Pritchard, 2014; Halbe et al., 2013), power sphere (Manuel-Navarrete et al., 2009b), public sphere (Kooiman, 2003) consisting of institutional actors and action situation within the political space.

Understanding institutional adaptive capacity from social resilience lies on assessing the institutional adaptation from social and functional activities of the institutions, operating within a sphere, rather than the adaptation actions from technological or programmatic lens, operating within a black box approach. Based on this argument, social architecture of institutional adaptive capacity is designed as an analytical framework to guide the study (see Figure 2.4).

As shown in the figure, the sphere is embedded within external institutional contexts. Institutional adaptation operates within socio-political interactions and processes of adaptive activity (social and functional). Its social activity is influenced by adaptation knowledge operating within the social space, while functional activity within political space. The knowledge as political, psychological and cultural construct, and power as relational and shared construct, established in sections 2.2.3.3 and 2.2.3.4, imply that knowledge and power are inherently linked and they are socio-politically constructed.

Two key points to note from this discussion is that, first, social resilience hinges on the knowledge and power. The knowledge constructions are contingent on cultural, psychological and political factors, while power is a relational construct embedded within the systemic construct of the adaptation governance, comprising of the governing system (presented in figure as politics and culture, sectors/societies, institutions, actors), institutional interactions and system to be governed (presented

Figure 2-4: Social architecture of institutional adaptive capacity



Source: Own illustration

in figure as system of concern). Second, sphere concept is an important analytical construct of a socio-political space for knowledge construction and institutional interactions. It is not given, but is socio-politically constructed. Space is dynamic while the institutional adaptive capacity is continuously reshaped by socio-political interactions and relationships within the sphere (Pelling and High, 2005a).

2.3.2.2 Institutional adaptive governance capacity: A qualitative governance perspective

The limit of the conventional institutional adaptation approaches and the need for transformative adaptation governance, discussed in section 2.2.4, suggest rethinking and reframing adaptation governance to adaptive governance. Hence, crucial to institutional adaptation from NBT sustainability lies on whether, and how institution can transform its short term social resilience capacity to long term adaptive governance. Adaptive governance imply governance innovation into multi-level shifting from hierarchical to heterarchical networks, from representative to deliberative democracy and from direct control by the state, to engagement with civil society in a collaborative manner (Newman et al., 2004). Innovative in the sense that such interaction has opened up political space for knowledge productions, interaction,

contestations and networks, characterised by multi-actor and multi-level relationships of codependence, co-management and reciprocity (Manuel-Navarrete et al., 2009b; Newman et al., 2004; Kooiman, 2003).

While such institutional codependence, co-management and reciprocity operate within social, political, economic and environmental domains of resources governance context, adaptive governance entails the discursive meaning, collaborative actions and polycentric governance (Folke et al., 2005). This makes adaptive governance a highly complex and dynamic process. Taking into account the dynamic and true complexity, scholars argue that the notion of governance should move beyond traditional assumptions of boundary formation between state versus non-state or, formal versus non-formal actors, that interpret change as gradual and incremental; to integrating multi-actor and multi-level governance interactions and change as complex process, requiring dynamic and adaptive governance approach (Bulkely and Schroeder, 2011; Folke et al., 2005).

The multi-actor and multi-level governance interactions reside within the networks and dynamic sociopolitical institutional relationships, where power is exercised for deliberation and negotiation regarding development interventions and policy matters (Bogason and Musso, 2006). This implies that governance conception should be about the quality of governance. Such imperative necessitates in understanding, first, the process of institutional adaptation governance and second, how adaptation is governed, or the governmentality of adaptation governance.

The process of qualitative governance is about institutional adaptation that is beyond intervention oriented approach. It is about the interferences and interplays aspects of institutional adaptation interaction that operate within the political space/action arena, disregarded by the established orthodoxy governance philosophy, as abstract and unscientific. Governmentality of adaptation governance is about 'governing as governance' (Kooiman, 2003, 1999), which connotes interactive governance and governability. The interactive governance focuses on the polycentric nature of governance interactions between multiple actors and at different levels of governance. The theoretical premise behind interactive governance lies on treating societies or institutions as assemblages of large number of actors and their structures that either limit or facilitate their actions (Kooiman et al., 2008). Governability is about the governance status of a system. Governability from the institutional perspective is understood by treating governance as a systemic whole consisting of system to be governed, governing system and governing interaction (Kooiman et al., 2008; Kooiman, 2003). This implies that governmentality is the explicit recognition of plurality constructs and dynamics of institutions, interactions and governance (both structural and functional).

2.3.3 Summary

This section has grounded the sociological understanding of institutional adaptation from HES sustainability perspective, necessitated due to subjection of the NBT to myriad forces of change, and to reframe adaptation and NBT sustainability within

the coupled HES perspective. Adaptation as a central strand of climate policy and programme implementation will be effective, if conceptualized beyond reducing impact, to reducing social vulnerability. Social vulnerability can be reduced by enhancing social resilience and adaptive governance capacity. The fact that adaptation is contingent on knowledge, power and participation dynamics, effective institutional adaptation has as much to do with the social relations, as with the procedural aspects of governance. Such perspective makes institutional adaptation an intangible process of knowledge construction, governance and decision making, embedded within the sphere and qualitative governance.

Sphere is an important space of social relations, interaction and political contestations, where the production and utilization of adaptation knowledge and power occur. Such discursive perspective allowed demonstrating that there are distinct overlaps and crossing over of the adaptation knowledge and power domains. Hence, institutional adaptive capacity is not a static, but emergent property of a HES. Sphere is an abstract, yet fundamentally important concept within which social and organic processes of adaptation takes place.

The limits of conventional institutional adaptation and the emergence of transformative adaptation governance, brought by the multi-actor and multilevel governance context, meant conceptualizing governance as dynamic and polycentric governance. The dynamic and polycentric nature of adaptation governance also meant understanding institutional adaptation governance as an adaptive construct. It also meant broadening the concept of governance, the one that looks at the qualitative aspects of governance. Hence, sociological understanding of institutional adaptation is not only about social construction of adaptation knowledge, operating in a sphere, but also about quality of the governance. Within the notion of quality of governance, the concepts such as the process of governance and governmentality of the adaptation governance has been explored and framed.

Sociological understanding of institutional adaptation is about the institutional social resilience and adaptive governance capacity. Social resilience hinges on the knowledge and power constructions operating within a sphere. Such knowledge and power constructions are contingent on cultural, psychological and political factors, embedded within the socio-political space and systemic construct of adaptation governance. Adaptive governance hinges on the quality of governance.

3 Methodology: Research approach and framework

3.1 Introduction

The preceding chapter established that NBT development, adaptation and governance are multidisciplinary concepts, resulting from different theoretical assumptions and paradigms. The chapter also discussed on the limits of modernist view of the PA, NBT and adaptation sustainability, challenging the hegemonic framing of sustainable NBT, adaptation and governance approach. The chapter also provided an insight on how sustainable NBT, adaptation and governance have evolved along the lines of alternative thinking, displaying not only the convergence of political and policy agenda, but also paving ways for transformative shifts in the NBT institutional adaptation thinking and approaches. These emerging realities led to conclude that the NBT sustainability from the adaptation standpoint is a global-local challenge, the success of which relies on effective local adaptation. Such conceptions demand not only deep social transformation in the way adaptation and sustainable NBT development are framed, but also require rethinking and reframing the institutional adaptation approach. The notion of institutional adaptation as a process and transitioning the current adaptation governance approach to transformative, informed by the social resilience and adaptive governance perspectives provided the analytical framework for the study.

The key understanding developed from these discussions is that, rather than the dominant essentialist adaptation approach of integrating adaptation planning into development, there is a need for an alternative approach, that is holistic and integrated. Such approach reframes adaptation, as a dynamic concept of socio-politically constructed knowledge and power, operating within a sphere of multi-actor and multi-level governance interactions, and governance, as a procedural, dynamic and systemic whole, or qualitative governance. The aim of this chapter is to conceptualize methodology to facilitate the examination of the institutional adaptation and governance processes along the lines of integrated approach. This chapter is divided into three sections.

Section 3.2 grounds the overall research approach into an integral approach. Such approach is in response to above discussion, which implies that response to climate change impacts occurs in an institutional environment of plurality constructs. Within this context, the notion of climate change adaptation is understood as a complex set of relationships between the epistemological, methodological and ontological plurality. The ontological and epistemological plurality contexts have been established in section 2.3. Sections 3.2.1 and 3.2.2 ground the methodological aspects of the study from the micro narrative and diagnostic queries perspectives. The interdisciplinary and praxeological approach supported by post-modernism, critical realists political ecology, social constructions, subjectivity and multi-method, served as important methodological lens for this purpose.

Section 3.3 provides the literature on qualitative research methods, as well as the application of this method to the study. The sociological understanding of institutional adaptation, especially from sphere and adaptive governance require engaging in a complex task of exploring and analysing diverse knowledge constructions and power relations, which hinges on equally diverse contextual dispositions of the NBT institutions, frame of reference and interactions operating within an abstract space. In order to ensure a methodological rigour, a participatory method approach, such as the case study action research is discussed. Section 3.4 describes the types of research materials and mode of data collection to build the in-depth case.

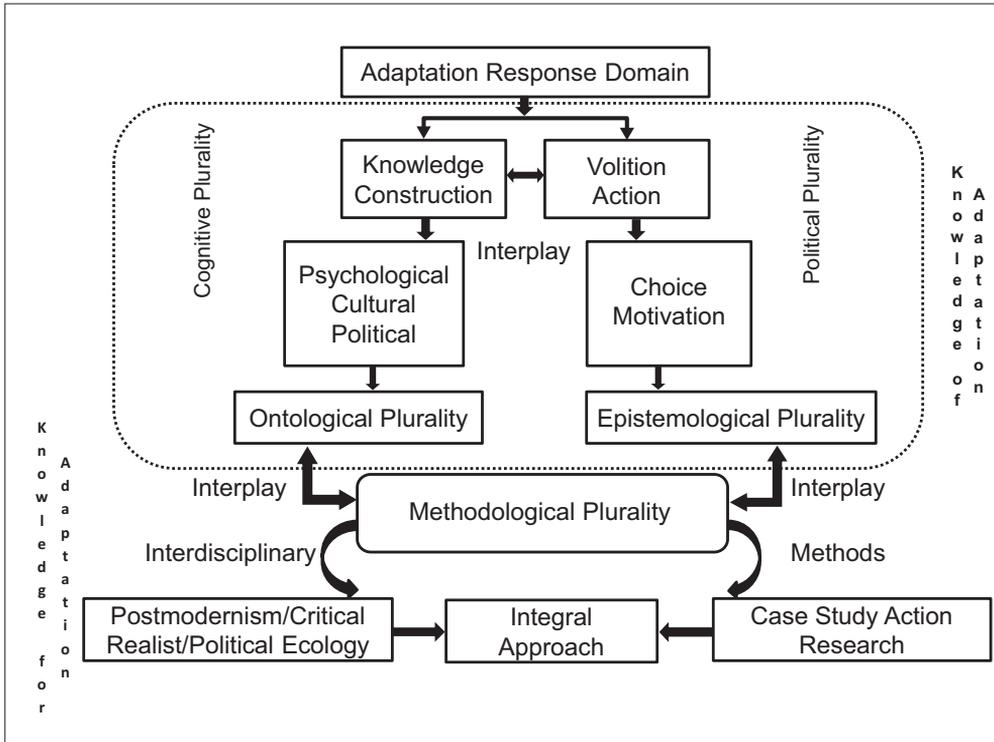
3.2 Integrated adaptation framework: An integral approach to NBT sustainability

The emergent sociological discourses on adaptation and NBT sustainability suggest that institutional adaptation assessment entail a complex and broad terrain, while the production of the knowledge of, and for adaptation, are formed in the context of a range of psychological, cultural and political factors (discussed in section 2.2.3.3). Hence, adaptation is a dynamic concept of socio-politically constructed knowledge and power, operating within a sphere of multi-actor and multi-level interactions (discussed in section 2.3). These contexts imply that response to climate change is about subjective and interior perspective of human interaction with the environment and their social and political adjustment process to external change. Given this context, response to climate change cannot be fully explained by single theoretical or methodological approach, but require holistic and integrated approach (Esbjörn-Hargens, 2010; O'Brien, 2009b; Kellert et al., 2006). Using an integral theoretical approach, an integrative institutional adaptation framework as shown in figure 3.1, is designed for facilitating research process.

The framework displays that adaptation response constitutes its own domain, in which adaptation knowledge and power is enacted through socio-political interactions. Hence adaptation action hinges on relational dimensions of cognitive, cultural and political dynamics of knowledge constructions and volition action (discussed in section 2.2.3.3). This implies that the notion of climate change adaptation is to be understood as a complex set of relationships between the ontological (what), epistemological (who) and methodological (how) plurality. The 'knowledge of adaptation' resides in the ontological and epistemological plurality contexts and have been discussed in section 2.3. This section is dedicated to presenting the 'knowledge for adaptation' context by establishing the methodological plurality need and justification for the study.

The core essence of methodological plurality lies in the integral theoretical approach. Such approach offers a framework that takes into account the big picture in which climate change is occurring (Esbjörn-Hargens and Zimmerman, 2009; O'Brien, 2009b). It is an 'all encompassing' worldviews (Woiwode, 2013), especially

Figure 3-1: An integrative institutional adaptation assessment framework



Source: Own illustration based on Pritchard et al., 2014; Nyamwanza and Bhatasara, 2014; Chang'ach, 2014; Esbjörn-Hargens, 2010; Moser and Ekstrom, 2010; O'Brien and Hochchka, 2010; Forsyth, 2008; Pielke et al., 2007; Lyotard, 1979

advocated for climate change adaptation study that exhibit interplay, complexity and system dynamics (Esbjörn-Hargens, 2010; O'Brien and Hochchka, 2010; Esbjörn-Hargens and Zimmerman, 2009). This approach is broad enough to integrate diverse epistemological, methodological and ontological perspectives, and also comprehensive enough to elaborate on the plurality constructs for sociological understanding of institutional adaptation processes. Or in other words, it provides a comprehensive map for understanding the diverse contexts and worldviews from which effective response to climate change can be initiated (O'Brien, 2009b).

Understanding anything is a process of reflecting and learning on what it does, how and why it works, how to create or modify (Ison, 2008). The understanding from the disciplinary and theoretical evolution and transformative shift as discussed in section 2.2.4, suggest the need for use of methodological plurality in addressing an 'all encompassing' issue. Integral approach as an offshoot of postmodernism and post development thinking (Esbjörn-Hargens, 2010), is a holistic and flexible process of theorising the adaptation issues informed by methodological plurality perspectives (both interdisciplinary and multi-methods). The study used the narratives and diagnostic queries to unpack and build a composite picture of all the factors

concerning the institutional adaptation to climate change, contributing to holistic understanding of the issues at stake.

3.2.1 Narratives

Narratives are lenses of viewing the world and are varied as per levels of understanding of that world. These levels constitute the grand and micro narrative perspectives that influence the institutional adaptation discourse. Table 3.1 provides synoptic view of these narratives.

Table 3-1: Adaptation narratives for institutional adaptation to climate change

Domains	Grand Narrative (Scientific Knowledge)	Micro Narrative (Public Knowledge)
Meta Theory	Positivist	Postmodernism/Critical realism/Political Ecology
Ontology	Neutral	Socially constructed
Epistemology	Objective	Subjective
Research Technique	Quantitative method	Multi-methods (qualitative and quantitative)

Source: Own illustration based on Naughton, 2013; Alvesson and Sköldböck, 2009; Fleetwood, 2005; Lyotard, 1979

This study uses the micro narrative lens and investigates adaptation knowledge and power from broader socio-political factors. Such investigation is carried out against the background of the grand narrative based knowledge and power dimensions. The micro narrative accounting is carried out based on several research domains such as meta theory, ontology, epistemology and research techniques.

3.2.1.1 Post modernism and critical realist political ecology perspective

Postmodernism perspective utilizes plurality of methodologies and approaches (Nyamwanza and Bhatasara, 2014), premised on hybrid discourses, uniting the empirical and the rhetorical, the cognitive and moral, the analytical and practical, the theoretical and literary (Chang’ach, 2014), to embrace diversity of meanings and narratives around climate change adaptation. This helps to understand climate change issues from multiple perspectives (Kasa, 2011), via capturing the essence and nature of multiple social realities, identities, knowledge and power embedded within a society (Chang’ach, 2014). The inclusiveness nature of postmodernism concept means that as an integrative research paradigm, it acknowledges the complexity of the adaptation discourse (Nyamwanza and Bhatasara, 2014), and as a poststructuralist paradigm, it adapts a constructivist perspective, especially the discourse, to explore socio-political-economic construction of adaptation knowledge from a broad theoretical to a particular case (Forsyth, 2008; Pattenger, 2007).

Critical realist political ecology is an important analytical tool for understanding the political ramifications of environmental and development discourse, as it acknowledges the socio-political-economic construction of the science of knowledge. The theoretical approach engages with anthropological, sociological, praxeological and normative questions of development approach, by locating local socio-ecological context within broader political economy (Forsyth, 2008; Stonich, 1998). The focus of such engagement lies in exploring the politics of ideal, contextual and practical actions through different political scales and their critical reflection (Everett, 2002, Stonich, 1998). Due to such integrated explanation of human environment interactions embedded within multi-level governance scale, it is considered as a powerful analytical tool to understand the human environment problem holistically (Walker, 2006).

Within the case study area, sustainable NBT development being a complex mix of economic, social and political processes, embedded within broader political economic context, the notion of diversity and dynamism takes precedence. This makes adaptation, a highly socio-political-economic affair. Given this context, it is important to explore and analyse the diversity of knowledge, power and governance constructions through the disciplinary and methodological approach. For this, political ecology as analytical lens is integrated with critical realism that allowed not only investigating the politics of resource governance, but also the underlying assumptions and ideologies of the institutions (Ireland and McKinnon, 2013).

3.2.1.2 Social construction perspective

Postmodernist thinkers (e.g. Lyotard, Foucault and Derrida) reject the notion of a universal 'objective' reality (Nyamwanza and Bhatasara, 2014; Schneck, 1987; Lyotard, 1979). Dryzek (1990, p. 6) in critiquing objectivism states, "*post-empiricist philosophy of science has demonstrated that a universally applicable 'logic of scientific inquiry' does not exist; it is also repressive, as it imposes its own standard and practices upon traditions and ways of life that do not share its viewpoint*". Based on this statement, it can be argued that knowledge is socially constructed (Lie, 2008; Schneck, 1987; Lyotard, 1979). Micro narrative not only assists in understanding multiple knowledge and voices, constructed psychologically, socially and politically, but also facilitates the legitimation of knowledge produced within such plurality contexts (Nyamwanza and Bhatasara, 2014; Lyotard, 1979). This perspective is extremely important when it comes to local adaptation to global climate change, which occurs within diverse institutional contexts. The different perceptual knowledge on vulnerability and adaptive capacity, have implication on how institutions understand adaptation and response. Thus, the game of knowledge construction and response action is multi plurality business (actors, context and scale). Micro narrative in this respect, functions as an appropriate lens in capturing the 'particularity and mundanity' of everyday life, in which knowledge making and politics takes place (Lorimer, 2003).

The legitimacy of knowledge construction is based on two important factors. First, the focus on knowledge exploration is placed on participants' experiential

knowledge, which is based on the historical contexts of NBT resource governance; and second, the value of experiential knowledge is not only limited to those of participants, but also is strengthened through my practical and theoretical knowledge and experience, gained as the ACAP's Tourism Officer and as Humboldt Climate Protection Fellow. In the capacity of the Tourism Officer, I have been involved in planning, operational and management aspects of the NBT, including promoting the natural and cultural heritage of the ACA (Lama and Kruk, 2011; Lama, 2006, 2005a, 2005b). As a research fellow, I have carried out research in the study area at the interface of sustainable development, NBT, culture and climate change (Lama and Job, 2014; Becken et al., 2013; Lama, 2010). Such association and experience demonstrate my professional and scientific engagement, and capability that allowed me in engaging into a dialectical process of analysing the research problem, as well as produce cognitive insights, key to understanding the institutional adaptation issues in the study area.

3.2.1.3 Subjective perspective

The micro narrative involving the social accounting of everyday life experiences and knowledge base, involves subjective rationality, interpretation and approach. The grand narrative, that posits knowledge from the positivist perspective of adaptation, and which is neutral, objective and uses rationalist approach to guide the understanding of adaptation knowledge and power (Naughton, 2013; Lie, 2008; Dryzek, 1990), has its limit when it comes to understanding the sociological dimensions of adaptation. The use of micro narrative as a research approach in this study, serves the purpose of exploring and understanding subjective dimensions of adaptation, which is the least used approach in the mainstream climate change adaptation research.

3.2.1.4 Multi-method perspective

Qualitative research uses multi-methods and strategies from constructivism to cultural studies, semiotics, narrative, and discourse to even statistics, tables, graphs and numbers (Denzin and Lincoln, 2011). The use of multi-methodological practices known as bricolage, or montage allows to piece together concepts, research approach, tools and empirical materials, to produce a composite picture of the research problem and issues (Denzin and Lincoln, 2011). This study used a broad multi-paradigmatic approach, combining different cognitive perspectives such as interpretivist and social constructivist drawn from social science to address climate change issues (Sulkowski, 2014; Proctor, 1998; Rosa and Dietz, 1998). Interpretivist approach is based on an ontology in which reality is subjective, a social product constructed and interpreted by humans as social actors (social relations) according to their values and belief system (cultural biases) (Darke et al., 1998). Interpretive realism is a realist account that acknowledges the cultural embeddedness of reality and emphasizes the need for interpretive understanding of why different understanding of reality exist (Proctor, 1998). The use of social constructivist research approach is discussed in section 3.2.1.3.

3.2.2 Diagnostic approach

Institutional adaptation being an organic process, the diagnostic queries assist to understand such process of adaptation, especially the structural and functional dimensions of institutions, by probing the nature of the problem, the overarching political setting, the character of institution and their practices (Young et al., 2008). Also addressed are issues concerning political ecology, especially the politics of adaptation (knowledge and power dynamics), spanning at local, regional, national and global levels of political economic analysis of environmental and development governance (Stokols et al., 2013; Baral et al., 2010). Macro and regional level development, conservation and climate change adaptation perspectives provide important political ecological contexts, against the background of which the study is conducted. Proponents of diagnostic approach, such as Moser and Eckstrom (2010), Ostrom and Cox, (2010) and Young et al., (2008) have used it for institutional adaptation analysis.

3.3 Research methods: Case study action research

The study is carried out using multi-methods case study action research. The method is useful in newer less well-developed research areas. Particularly, where examination of the context and the dynamics of a situation are important, case study allows investigating the issues to establish an understanding of the nature of the issue (Darke et al., 1998; O'Brien, 1998).

The starting point of action research, specifically participatory action research (PAR) is that it aims to improve the position of disadvantaged groups in relation to institutionalized power, empowering such groups to take actions to transform (Huntjens et al., 2011; Reason and Bradbury, 2001; Cornwall and Jewkes, 1995). In the context of Nepal's existing climate change adaptation thematic scope and approach, tourism and the local institutions operating tourism services and managing resources at the village levels are the overlooked ones. Adaptation knowledge and action being implicit in socio-political relations and procedural aspects of governance, as Reason (2006) argue, methodologically it is evident that one cannot study and improve practice without participation of those engaged in that practice. The action research thus allows investigating the nature of the knowledge prevalent in the practical field by revisiting and engaging in concrete social practice (Van Buuren et al., 2015). In other words, PAR assist in exploring the socio-political constructions of adaptation knowledge and practice embedded within the praxeology. Another starting point of PAR is that it encompasses many ways of knowing (Reason, 2006), while the nature of the research embodies a multiplicity of views, or plurality constructions of knowledge and power (O'Brien, 1998), grounded in everyday life experiences (Huntjens et al., 2011; Reason, 2006). Implying this notion to climate change adaptation, it is concerned with investigating the mundane and internal processes of adaptation actions imbued with experience, meanings and intentions of those responding to climate change impacts. However, participation being a political and

moral construct (established in section 2.2.3.4), action research as a democratic and collaborative process, also seeks to do research with, for, and by people; to redress the balance of power in knowledge creation; and in doing so increases the capacities of those being studied (Reason, 2006).

PAR based on critical realist political ecology is also about change (Noffke, 2008). Change in the context of this study is how the worldviews about the sustainable development and climate change adaptation have shifted. Such shifts have led to realization that existing participatory approach to adaptation governance praxis has its limit, and that there is a need for new form of adaptation governance, especially adaptive governance. The case study PAR method allows critically appraise and reflect on the existing approach to adaptation praxis, the forms of governance and its structures and functions, to unfold the context specific adaptation issues. Such insights serve as an important applied knowledge in adaptation governance, and offer alternative way to think and act about climate change adaptation.

3.4 Research material and data collection

Understanding institutional adaptation from the sphere and adaptive governance contexts are extremely complex, while the types of knowledge required are beyond what is given, or, beyond the primary and secondary data. Hence, a fundamental work during the research process also lies on being able to understand the perceptions, the tacit knowledge ('the unknown knowledge') and viewpoints of those being involved in the study and be a keen observer. The approach to unravel this complex task is carried out using the strategy, 'the informed outsider'. In my role as the researcher, I bring both practitioners' and scholars' experience. As a former Tourism Officer of the ACAP, I am familiar with the community of Mustang, the sustainable NBT challenges and their everyday life issues; as a research scholar, I refrain from being pre-judgemental, or associate with any particular groups, or class members of the community. The goal here lies in understanding and developing a more nuanced concept of adaptation, attentive to context and scale specific construction of the 'knowledge of' and 'knowledge for' adaptation.

As much as analyzing the institutional adaption issues from social vulnerability is important, the study is also focused in unpacking the adaptation contexts to understand the realities of the adaptation from sociological perspective. Hence, the focus of the investigation lies on advancing the understanding of the effective institutional adaptation framed within the integral approach. The study integrates all three perspectives, such as the third person neutral, second person community and first person reflective perspectives, to advance the understanding of institutional adaptation need in the case study area. The interdisciplinary and multi methods approach enhances the validity of the multiple realities and knowledge claims (O'Brien and Hochachka 2010).

I used a multi-method approach mixing variety of qualitative and quantitative data to build the in-depth case (see table 3.2).

Table 3-2: Multimethod types and mode of data collection

Data Type/Method		Techniques of Data Collection
Primary Data	In-depth Interview	Purposeful sampling
Qualitative	Socio-economic Surveys	
	Participatory	Personal conversation
	Action Research (PAR) Tools	Workshops and Focus Group Discussions
Secondary Data	Literature Review and Fact Findings	Journals and online database, maps and models
Qualitative and Quantitative		National and regional socio-economic, meteorological and political data/statistics contained in report, records and database

Source: Own illustration

The mode of data collection and analysis include in-depth interviews and participatory action research.

3.4.1 In-depth Interview

The study was conducted in 7 out of 9 Village Development Committees (VDCs) of the Mustang district, located within the popular Round Annapurna trekking route, administered by the ACAP Jomsom Unit Conservation Office (UCO). Key institutional participants were identified and selected based on purposeful sampling techniques. The purposeful sampling allowed selecting representative stakeholders from wider geographic distribution, mix of formal and informal tourism institutions, and breadth of socio-economic and political status, engaged in sustainable NBT management within the Mustang district. Such selection is useful to show how different social and political-economic conditions affect various institutions' framing of adaptation, their orientations to action and how these orientations, given the existing structure of social and political relations, combine to produce the system of action as the institutional action.

A total of 54 participants were selected for the in-depth interview and 4 participants engaged in personal conversations. These participants are responsible for local level NBT and adaptation governance in the case study area. Table 3.3 provides the summary of categorized institutional participants. The participants belong to formal, informal and voluntary institutions. These institutions can also be considered as the individual NBT households and organizations. Individual NBT households are those who are directly affected by the climate change impacts, both positively or negatively, and have significant interests in tourism services and business such as lodges, hotels, inns, retail shops, farming, guiding and portering. Organizational representatives belong to both formal and informal institutions, such as ACAP Jomsom, Conservation Area Management Committee (CAMC), Tourism Manage-

ment sub Committee (TMsC), DDCs, VDCs, Mukhiyas, Religious and Political leaders that are responsible in facilitating sustainable NBT management, environmental and development governance within the study area. Although they are indirectly affected, they have significant role in facilitating adaptation process through policies, plans, technical, social, cultural mediations and implementations.

Table 3-3: Typologies of NBT institutions based on the NBT service operation

No. of Participants	Institutional Types	Institutional Category	Governance Field	Governance Level
5	Formal Institutions	(Government Organizations) DDC and VDC	Policy Public Administration and Development	Local (District and VDC) Level
3		DSCO, DADO and MHC	Forest and Soil Conservation, Agricultural Management, Horticulture Managemet	
12		(Non-government Organizations) ACAP CAMC, TMsC	Conservation and Development Conservation and Development	
4	Informal Institutions	(Traditional Organizations) Mukhiya system/VRC and Religious Leaders	Resource, Religious and Village Affair Management	
2		(Political Organizations) Nepali Congress United Marxist Leninist	Policy and Politics	
27	Informal Institutions	Individual Households	Livelihood Service Provision	
4	Voluntary Institution	Mothers Groups	Social Work	
1	Formal Institutions	Others (I/NGOs)	Conservation and Development	

Source: Own illustration based on interview, FGD and workshops

Of the 54 participatns that were interviewed, 43 of them belong to individual NBT households offering tourism services (such as hotel owners, restaurant operators, guides, porters, farmers, and souvenir and retail shops), village, religious and political leaders, and members of conservation and development organization of the ACAP. The interview used open ended questions, follow up probes for issue raised by the informants and paraphrased for verification (Kempton, 1991). The in-

interview combined with socio-economic survey served the purpose of investigating the socio-economic backgrounds of the participants (see Appendix 1). In addition to this, personal conversation with the research participants also helped acquiring information. Such combination of methods known as triangulation provided opportunities for developing a deepened and widened understanding of the issues. The socio-economic status and the livelihood options of the participants provide a basis for understanding the socio-economic contexts within which NBT services and business is operated. The typical livelihood portfolios and socio-economic status of the participants are given in Appendix 2. It is evident that the individual NBT households are multi-entrepreneurs, operating diverse livelihood activities in the area. The diverse livelihood activities are both a necessity and strategy to compensate limited livelihood opportunities imposed by the ecological constraints in the region. Owners of large accommodation or Mukhiyas, who are typically and relatively wealthy, were also involved in a range of other capital-rich tourism activities, such as transport services, or the operation of retail shops. They also own large scale landholdings for agriculture and horticulture. On the other hand, low income actors, such as local inns, porters and small farmers had limited options to diversify the livelihood. They supplement their tourism income with labour jobs, or subsistence farming on small plots.

In addition to this, 8 Hariyo Ban Programme officials, representing the national and regional level expertise in the field of climate change adaptation and ACA management were also selected for an in-depth interview (see Appendices 3 and 4). The aim is to carry out a diagnostic query to understand broader and multi-level institutional adaptation contexts within which local institutional adaptation operates (see section 3.2.2). The issues diagnosed covered climate change vulnerability and institutional adaptation in general, and LAPA preparation programme, in particular. While the LAPA preparation programme is a multi-actor and multilevel collaborative institutional approach, in order to understand the processes behind such collaborations, the response narratives of the diverse institutional representatives, such as the Hariyo Ban Programme Climate Change Coordinator - Care Nepal, Hariyo Ban Programme Coordinator - NTNC, ACAP Director and Hariyo Ban Programme Focal Person - ACAP Pokhara, were located within the different political orders and within the action arenas of such orders. This is to demonstrate an elaborated view on the types of response actions and the organic processes behind institutional adaptation that combinely affect the institutional capacity and collaborative approach to adaptation.

Interview data analysis

A systematic process comprising different methodological steps such as transcribing, data arrangement, coding, thematizing and data collation, and analysis were carried out. While transcribing the interviews, ideas that emerged or methodological issues encountered were noted as the comment, which provided references while writing the summary note of the overall transcribed interview. The analysis process involved exploring the actual viewpoints on the specific issues, identify the patterns among the data that point to the theoretical understanding of the study (Babbie,

2007), categorising it into codes, which has been clustered into concepts and finally aggregated into more general classifications of themes (Klopprogge and Dersluijs, 2006). These concepts then acted as the dimensions of a particular theme. The analysis of the interviews in the form of thematizing concentrated on broad commonalities in participants, as well as looking at issues where individual differences between and within participants appeared. In other words, the analysis was focused on the broad clusters of information which may link or divide participants (Yuksel et al., 1999).

3.4.2 Participatory action research tools

3.4.2.1 Workshop and focus group discussion

The PAR tools, such as workshops and focus group discussions (FGDs) were used as the key adjunct to the qualitative methods, such as interviews, survey and personal conversation (see Photographs 3.1 and 3.2). Five workshops, followed by five focus group discussions (FGDs) were organized in five VDCs of the study area. Four of those were conducted in the northern belts (such as Kagbeni, Jomsom, Marpha and Tukuche VDCs) and one in the southern belt (Lete VDC). These were attended by a total of 79 participants, representing a cross section of individuals and organizations belonging to different age groups, livelihoods, gender, organizational and political affiliations (see Appendice 5 and 6). These include hotel and restaurant owners, farmers, teachers, mothers groups (MGs) members, DDC (former) and VDC representatives, government staffs, Mukhiyas and political party members. Among MGs a cross section of women varying in age and belonging to different socio-economic strata such as hotel and restaurant owners, farmers, business women, students, teachers, social and political workers took part in this participatory exercise. Both the workshops and the FGDs were conducted in Nepali language and were later translated into English language.

Photograph 3-1: PAR / Interview activities in the southern belt (Lete and Kobang VDCs)



Photos: Lama (2012-2014)

Photograph 3-2: PAR activities in the northern belts (Tukuiche, Marpha, Jomsom Kagbeni and Marpha VDCs)



Photos: Lama (2012-2014)

The participatory exercise started with the brief background information about the PhD study, followed by the climate sensitization workshops. The aim of this workshop was to inform the participants the nature of climate change problem in the Mustang district, and about the vulnerability of the key NBT resources. The information used for this sensitization workshop was based on the vulnerability assessment research work, carried out in the study area in 2011, as the Humboldt Climate Protection research fellow. This sensitization workshop was used as an opportunity to meet the dual goals, first, to present the research findings, to help raise the awareness and enhance knowledge of the individual and local decision makers. And second, to assist in establishing the knowledge base to build the case for exploring and analysing the institutional perspective on adaptation to key vulnerable NBT resources. The resources vulnerable included tourism (infrastructure and business), farming (agriculture and horticulture) and natural resources (water and forests).

3.4.2.2 Focus group discussion

As the purpose of this exercise was to explore and understand general sociological phenomenon, focus group exercise that brought diverse groups and their diverse set of knowledge, helped enhance the quality of the data generated. Such approach also assisted in triangulating information gathered via other qualitative methods (such as interviews and workshops) (Morgan and Spanish, 1984). Participants were divided into the groups of their theme specific interests and experience to generate the socially contextualised local adaptation knowledge. They were instructed to discuss among their members and present the findings related to: i) types of risks experienced, ii) the response actions taken and the approach (to inform whether it was a traditional or technical approach), iii) the process involved behind such actions, iv) the institutions involved in such actions, and v) the challenges experienced in the process of implementing actions. Participants also identified adaptive measures, the potential organizations to implement them including their roles. Based on the re-

sults of the workshops, FGD meetings, interviews and their personal experience, the state of adaptation knowledge and power dynamics, and the prevalent and emerging institutional adaptation issues were identified.

The importance of workshop followed by the focus group discussion, relates to first, in extracting the praxeological knowledge based in socio-political practices of everyday life experiences of the participants managing NBT resources, livelihoods and governance, and second, on exploring the political and social dimensions of institutional vulnerability and adaptation governance contexts.

3.5 Summary

This chapter provided descriptive account of the methodology that assisted in conducting the research. The divergent theoretical assumptions, paradigms and the contexts influencing NBT institutions' adaptation to climate change make climate change adaptation and sustainable development a complex issue. Hence, the challenges in understanding institutional adaptation and governance issue cannot be understated. Equally challenging is the tasks of conducting the research on such complex issues.

An interdisciplinary research design with integral approach has been framed to build an in-depth case of sociological understanding of the institutional adaptation. Integral approach is a useful research framework that helps in exploring and analysing the diverse construction of adaptation knowledge (ontological), the power relations (epistemological) by accommodating methodological plurality. The integral approach, an offshoot from postmodernism and post development thinking that allowed engaging in a dynamic and flexible process of theorising the case, has been described.

The use of integral approach to investigate institutional adaptation is based on the need for an inclusion of an alternative mode of doing the research. The alternative mode that acknowledges and integrates multiple voices and choices, is sensitive to role and influence of socio-political factors, and engages in different perspectives and methods, to understand the adaptation issues (O'Brien and Hochchka, 2010; Esbjörn-Hargens and Zimmerman, 2009).

The chapter also described the methodological rigour that was carried out to facilitate a dynamic and complex process of research approach that was needed for the issue investigation and the sense making. It concludes by describing the use of multi methods, such as the case study action research and their tools (e.g. in-depth interviews, personal conversation, survey, workshops and FGD), and how the data has been analysed.

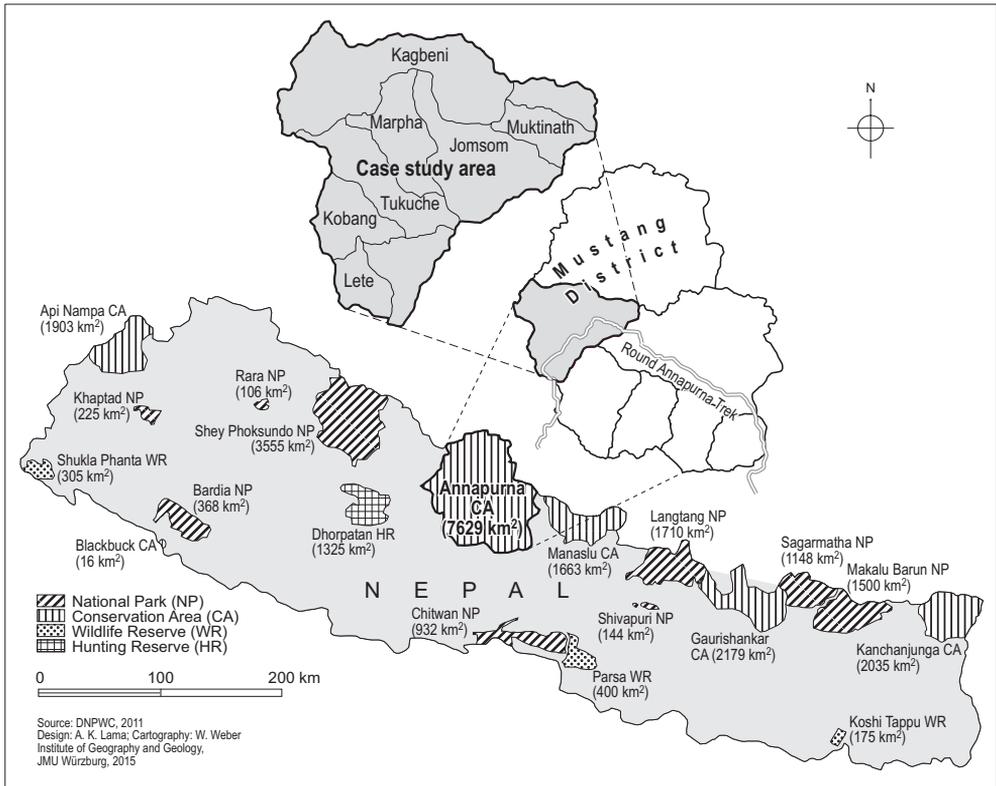
4 The case

4.1 Introduction

The aim of this chapter is to provide an overview of the study area located in the Mustang district of the ACA. The chapter is divided into three parts. Section 4.1.1 begins with the general description of the location, followed by the specific information on the bio-physical, conservation, institutional and climatic characteristics of the study area. Section 4.1.2 presents background information on the vulnerability contexts for NBT with special focus on the key vulnerable resources. Section 4.1.3 locates the case of the study area within the analytical construct of the HES with the aim of highlighting the dynamically coupled relationships between the human and environment system.

4.1.1 The study area

Figure 4-1: The study area location



The case study area lies in the north-western part of the ACA (see Figure 4.1). The ACA is Nepal's first PA, proposed as the pioneer participatory PA management model - 'Conservation Area'. The model is based on the management principles of participatory conservation and multiple land use zones (Job and Thomaser, 1996; Heinen and Kattel, 1992), designed by the National Trust for Nature Conservation (NTNC) and the Annapurna Conservation Area Project (ACAP) (Thakali, 2012; Bajracharya et al., 2007). The NTNC (former King Mahendra Trust for Nature Conservation) is Nepal's leading non-governmental organization, responsible for integrated conservations and development programmes spread from subtropical plains of Chitwan, Bardia, Kanchanpur and Parsa in the lowlands to the high and trans Himalayas of Annapurna, Manaslu and Gaurishankar Conservation Areas (NTNC, 2014). The establishment of the ACA was driven by the interest of the royal families (Croes, 2006) and until Nepal became a federal democratic republican state in 2008, the institution had the King as its Patron and the Crown Prince, its Chairman.

The case study area is spread over seven VDCs, in the Kali Gandaki valley of the Mustang district, covering an area of 876 sq km. Located within the Round Annapurna Trekking route, the area is inhabited by a total of 7,895 people (58% of the district population) (CBS 2013; NTNC-ACAP, 2010).

Climatically the ACA displays a unique combination of climate characteristics extremes (see Figure 4.2). Being a part of the western mountain region dominated by the massive Annapurna mountain range, it displays climate extremities ranging from humid to very dry character.

The Mustang district lying between the leeward and windward sides of the Annapurna range displays climate characters that are very dry and dry to humid and sub-humid (see Figure 4.2 and Table 4.1). In the leeward side lies the northern belt of the study area, especially the dry and semi arid areas of Bara Gaun (such as the

Figure 4-2: Climate characteristics of the ACA

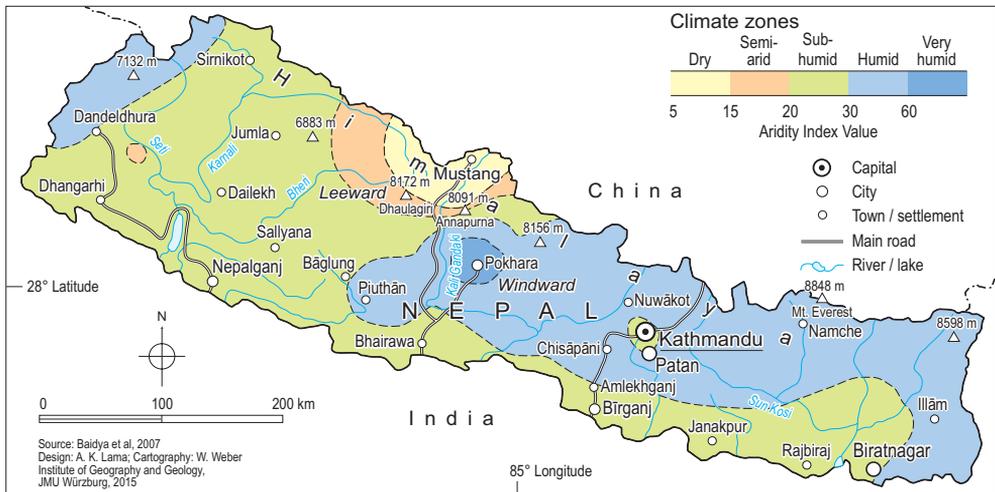
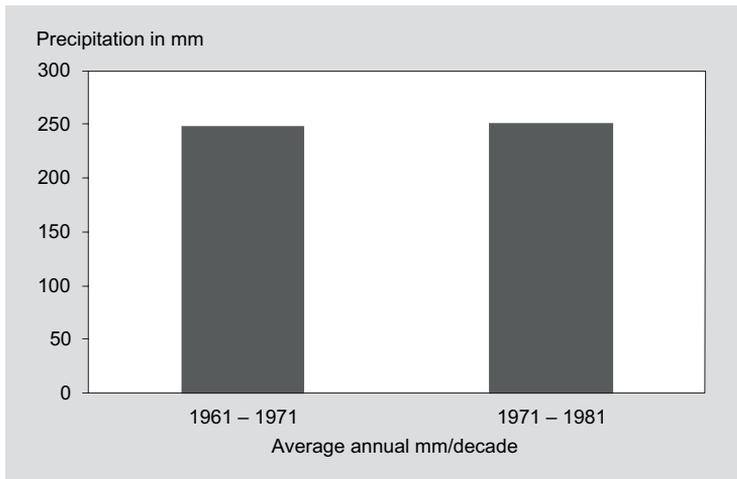


Table 4-1: Climate characteristics of the Mustang district

Leeward side	Winward side
Dry and semi arid area	Sub humid - Humid area
Low precipitation (about 250 - 350 mm)	Excessive rain (about 1400 mm)
Strong winds and rapid evaporation	Mild winds
Water deficit	Excess water throughout the year

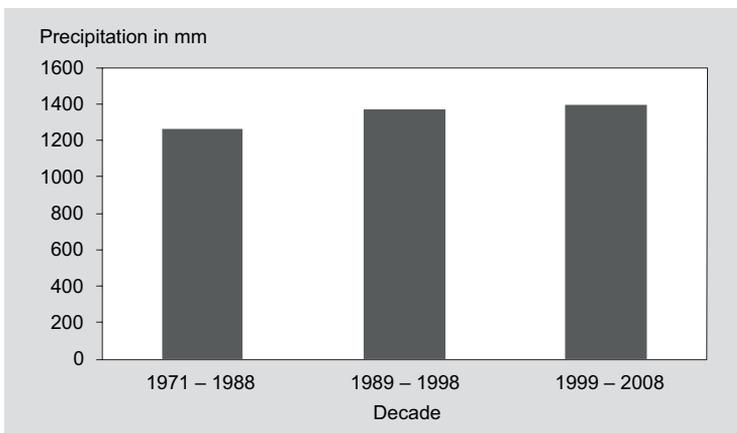
Source: Own illustration

Figure 4-3: Mean annual precipitation trend in Jomsom (mm/decade)



Source: DHM

Figure 4-4: Mean precipitation trend in Lete (mm/decade)

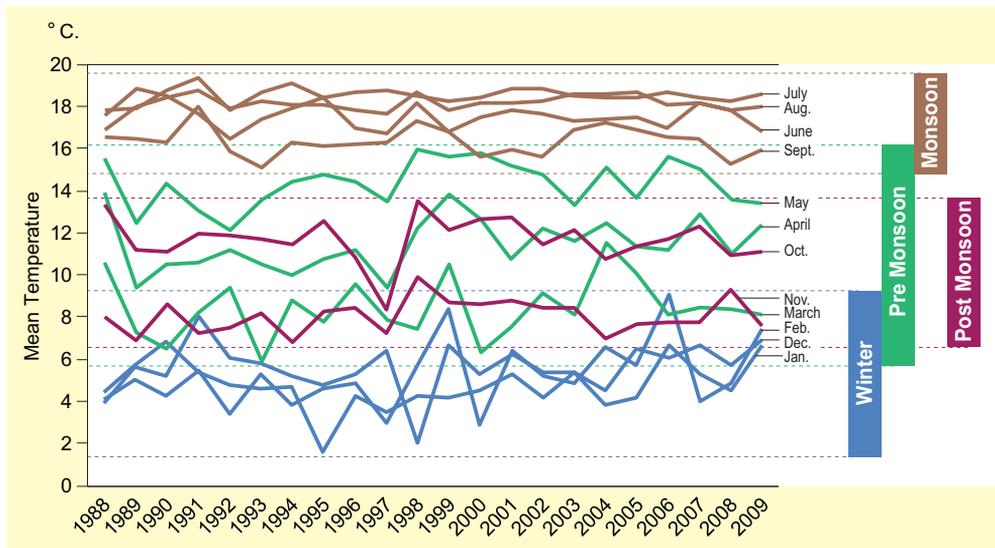


Source: DHM

Muktinath and Kagbeni VDCs) and Panch Gaun (such as the Jomsom and Marpha VDCs). Between 1961 and 1981, mean average annual precipitation per decade in Jomsom show a total of 250 mm (see Figure 4.3). Low precipitation in combination with other local climatic characters, such as strong winds and rapid evaporation, exert natural pressure and vulnerability context for the water availability status in the Bara Gaun area. In contrast, the winward side represented by the southern belt, such as Thak Satsae area, is a sub humid to humid parts of the study area. The average annual precipitation in winward area, such as Lete shows a total of about 1400 mm (see Figure 4.4). Mild winds and excessive rainfall provide excess water availability in the Thak Satsae area.

Warmer winters have been the most widespread climatic change perceived by the tourism community of the Mustang district (Lama, 2010). The mean seasonal temperature trends in Jomsom shows a more a less constant trend, except for winter season that show a slight increasing trend. Such finding confirms the general observation and cognitive accounting of the warming of winter by the community (see Figure 4.5)

Figure 4-5: Mean seasonal temperature trends in Jomsom, 1988 – 2009 (°C/Year)

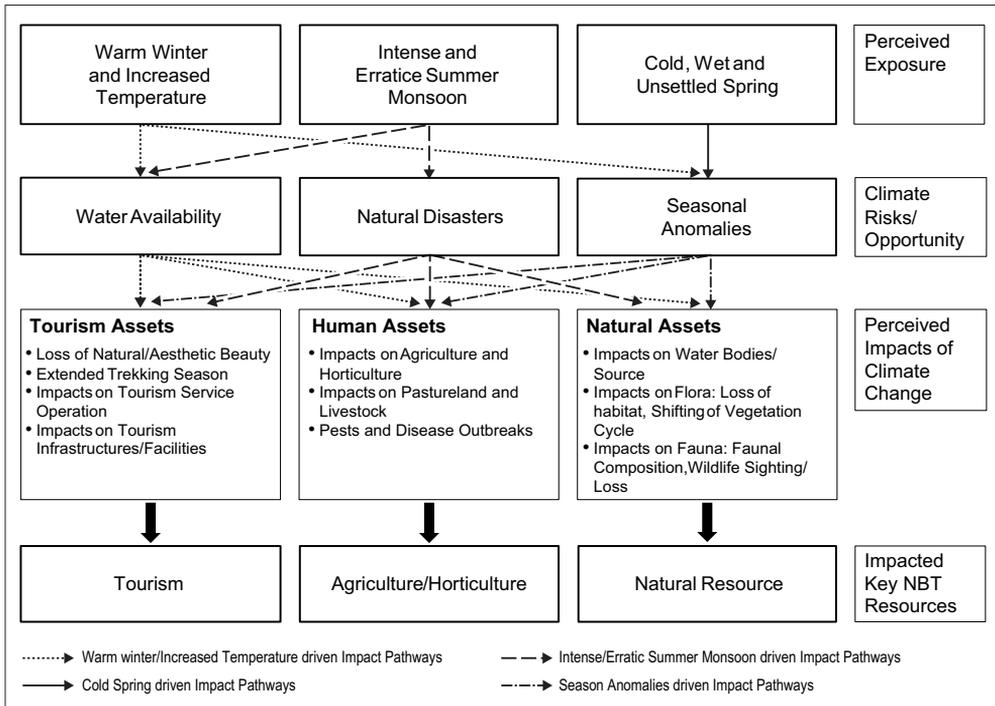


Source: DHM

4.1.2 Vulnerability contexts

In Mustang, climate variability and change has impacted the key NBT resources (see Figure 4.6). NBT being a subset of key livelihood options, is inherently linked to natural and human system. The coupled nature of the NBT system and its resources, including the dynamic interactions between and within the exposed climate factors have produced risks/opportunity factors affecting its key resources (Becken et al.,

Figure 4-6: Perceived impacts of climate variability and change on NBT resources



Source: Adapted from Becken et al., 2013; Lama, 2010

2013; Lama, 2010). There is a consensus among the local tourism community that climate changes have been observed and impacts experienced. From their perspective, the NBT is exposed to four key climatic conditions. These are the warmer winters, cold, wet and unsettled spring, intense and erratic summer monsoon and seasonal anomalies (Lama, 2010).

The key impacted NBT resources can be generalized as tourism, agriculture/horticulture and natural resources. The impacts are both positive and negative and therefore require looking for ways to maximise opportunities and minimize risks by reducing the negative impacts of climate change. As is apparent from the figure, the impacts are far-reaching and multi sectoral. The complex nature of the impact pathways shown in figure is reflective of the varied and dynamic interactions between and within the exposed and impacted elements, and at the interface with other socio-economic factors affecting the resource status.

4.1.3 NBT in the Mustang district: A HES perspective

In the case study area, the concept of NBT embodies values of nature conservation and cultural heritage preservation through livelihood enhancement; a concept

which emerged from the ICDP and IUCN PA management guidelines for Category VI (i.e., biodiversity conservation with sustainable use of natural resources) for effective PA management. The NBT largely depends on natural and cultural resources, such as mountain scenery, landscape, climate, biodiversity, indigenous culture and lifestyles. Drawing on these resources, niche NBT activities such as trekking, mountaineering, religious tourism, bird watching are carried out. NBT in Mustang district can be seen as a part of the complex human environment relationship in which the dynamics of the environment is intertwined with human system in a way that a change in structure and function of one component affects the other. The very important issue in the study of NBT is the interplay between the HES systems, which makes it highly dynamic and complex, for which a holistic, integrated and systemic approach is needed, to understand the NBT sustainability issues. The philosophy of conservation for development and ICDP as management approach is a step towards such holistic and systemic direction of managing NBT sustainably in the study area.

4.2 Summary

The chapter provided an overview of the study area located in the Mustang district of the ACA. The chapter began with presenting the general description of the study area from the geographical location point of view. Followed by this, information specific to research interests and scope were presented. Of particular interests, include the information concerning the bio-physical, conservation, institutional and climatic characteristics of the study area. The section followed presented the vulnerability context for the NBT and its key resources from the climate variability and change point of views. The case of the NBT as distinct representation of HES was discussed, to characterise it as the dynamic, holistic and integrated system.

5 Sociology of institutional adaptation

5.1 Introduction

Institutional adaptive capacity as discussed and framed in section 2.3 is about social resilience and adaptive governance capacity. Prior to investigating the social resilience and adaptive governance capacities, in section 5.2, the case of Mustang as study area is located within the sociological contexts. Its aim is to demonstrate the dynamic and diverse geographical perspectives of the study area beyond scientific and spatial constructs.

In section 5.3 insitutional adaptive capacities from social resilience perspective is explored and analysed. Adaptation as a socio-political construction of adaptation knowledge and power, the aim of this section is to investigate the NBT insitutions and their reposnse actions to vulnerable NBT resources by locating the institutional adaptive capacities within the sphere. Based on analytical framework discussion (see section 2.3.2), social resilience reside within institutional adaptive capacity, which in turn is influenced by their social and political relationships and interactions operating within a sphere.

Sphere as the social and political space is an important systemic construct within which NBT instiutions operate, and which influence the socio-political constructions of adaptation knowledge and power. Adaptation knowledge constructions are contingent on cultural, psychological and political factors, while power is embedded within the adaptation governance, comprising of the governing system, institutional interactions and system to be governed. The governing system comprising of both formal and informal institutional arrangements is investigated in section 5.3.1. Institutional interactions comprising of the institutional interference, interplay and interventions aspects of response activities (discussed in section 2.3.2.2) is investigated in section 5.3.2. These represent the human system of insitutional adaptation. The system to be governened, or environmental system in this case, represents the vulnerable NBT resources, such as tourism, agriculture/horticulture and natural resources.

In section 5.4, institutional adaptive capacity from adaptive governance perspective is explored and analysed. Adaptaion as political and procedural aspects of institutional governance and decision making by multi-actor at multilevel governance contexts suggest that governace to be framed as discursive, inclusive and adaptive (discussed in section 2.2.2). In capturing the dynamic and complex notion of adaptive governance, it is argued that there is a need for broader conceptualization of adaptation governance. Broader conceptualization, from the discussion of sections 2.3.2.2 and 2.3.3 imply for a need of understanding adaptation governance from qualitative governance perspective. Quality of governance is about the process of governance and how adaptation is governed. Based on this notion, the governance capcatiy of the NBT institutions are explored and analysed by investigating the process and governmentality of the institutional adaptation governance.

5.2 Understanding Mustang as socio-ecological, political and economic sites

Mustang as a case study area is a socially constructed site, embodying cultural, geographical, political, ecological and economic landscapes and values. Prior to exploring and analysing institutional adaptation, it is important to unpack these multiple contextual dispositions of the study area. Figure 5.1 illustrates the multiple sociological variables that characterise the case study area. From the institutional perspective, these characters correlate with the social, political and economic dispositions of the institutions, managing NBT in the study area.

5.2.1 Social context: Ethnicity, geography and climate characteristics

Mustang district forms a boundary and meeting point, a transitional zone between the high Himalaya Tibetan Buddhism and the lower land of Hindu religion. This has to do with the historical exposures of the people of this area to changes in their social, religious, economic and political environments (Graafen, 2001; Vinding, 1998; Manzardo, 1985, 1982; Messerschmidt, 1982). Socio-culturally, the case study area is divided into Bara Gaun, Panch Gaun and Thak Satsae areas (see Figure 5.1).

Ethnically, Gurung and Thakali are the dominant groups (58%) residing in the study area, followed by the others (17%) and the socially disadvantaged group (DAG) (13%) (see Figure 5.2). However, when viewed from the percentage share of the total population, the Gurung ethnic group dominates the Muktinath and Kagbeni VDCs of the Bara Gaun area, while Thakali dominates the Marpha, Tukucho and Kobang VDCs of the Panch Gaun and Thak Satsae areas. Jomsom to Lete VDCs are inhabited by complex mix of different ethnic groups. The VDCs below Jomsom, such as Marpha, Tukucho, Kobang and Lete are inhabited by significant number of DAG. In these VDCs, originally dominated by the Thakali, their percentage share is lower than rest of the ethnic groups combined. The non-Thakali ethnic group occupy 63%, 57%, 58% and 55% in Marpha, Tukucho, Kobang and Lete VDCs respectively.

Such socio-cultural division has also influenced the village governance system (discussed in sections 5.3.1.2 and 5.4.2). Since culture much defines the social relations (Wildavsky and Dake, 1990), the society in the study area is characterized by a strong economic, social and geographic marginalization. The hierarchical structure, based on caste and class became the core essence of the socio-cultural system (Ramble, 2001, 1992-93; Turin, 1997). The prevalent poverty and the skewed socio-economic situation in the district are the result of the combined effect of such marginalizations (CEPAD 2011).

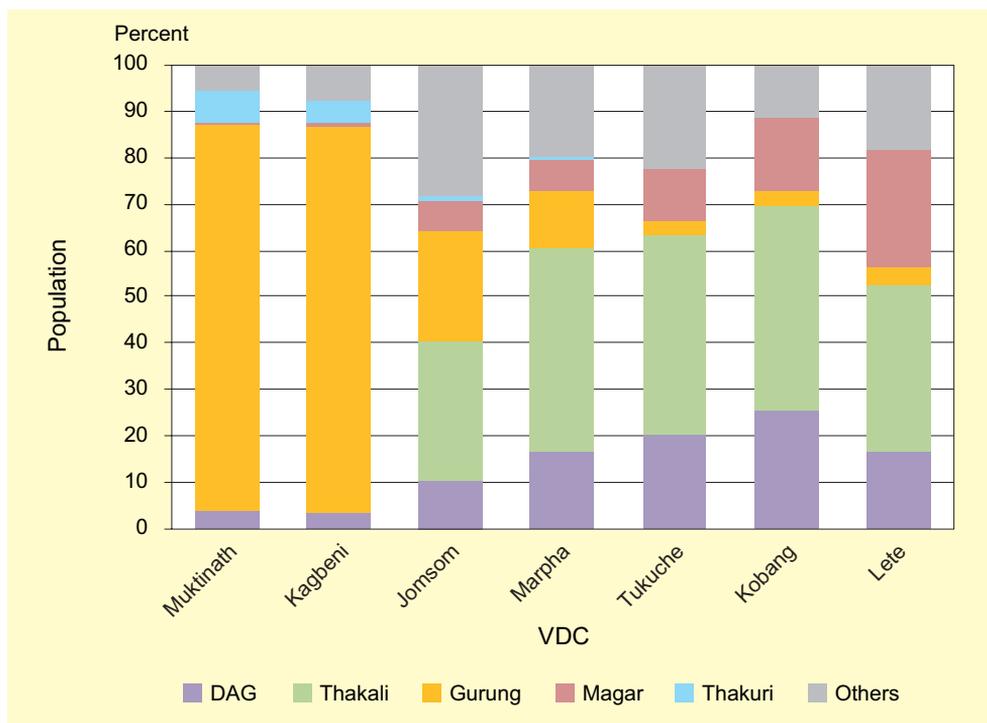
The area is marked by resource scarcity owing to its harsh climate, steep topography and fragile ecosystem (see Haffner et al., 2003; Haffner and Pohle, 1993; Pohle, 1993). Table 5.1 illustrates the altitude, climate and vegetation characteristics of the study area. Villages north of Jomsom suffer from scarcity of forest coverage and

Figure 5-1: Social, political and economic characteristics of the study area



Note: Bara Gaun, Panch Gaun and Thak Satsae - Literally meaning 12 Villages, 5 Villages and Thak 700

Figure 5-2: Ethnic composition of the population in the study area



Source: Own illustration based on CEPAD, 2011

Table 5-1: Altitude, climate and vegetation profile of the study area

VDCs	Altitudes	Physiographic Zones	Climate	Average Annual Precipitation	Average Annual Temperature	Vegetation
	> 4500m	Trans Himalaya	Arctic	Snow	<3°C	Snow all year round
Muktinath Kagbeni	3000-4500m	Himalaya	Alpine	150 –200 mm	3 - 10°C	Shrubs and thorny vegetation, Blue pine, Juniper and Birch Forests
Jomsom Marpha Tukucho Kobang Lete	2000-3000m	Middle Mountain	Cool/ Warm	200-1400 mm	10 – 20 °C	Coniferous, Mixed and Broadleaved Forests

Source: Adapted from GoN, 2011; Eriksson et al., 2009; NTNC, 2008; Upreti and Yoshida, 2005

water availability (Pohle, 2001). Agriculture, livestock husbandry and horticulture account for more than 80% of occupational roles (CEPAD 2011). Winters are long and cold, and summers are short and warm. Vegetation vary between north and south, less in north in due regards to less rainfall and high evaporation, and more in the south due to high rainfall, twice as high as in the north (Vinding, 1994).

5.2.2 Political context: Development, environmental and social contestations

From the political context, the area is the site of development, environmental and social entities and contestations. From the development standpoint, the early modernization and state building process of 1960s, occurred during Panchayat System, divided the state into 14 administrative zones and 75 districts (The Asia Foundation, 2012). Such administrative division of the state led to the political demarcation of Mustang into district and VDCs, as well as the establishment of associated levels of institutions (Thakali, 2012). Over the years, the changing political and development process not only institutionalized formal government insitutions, but also evolved them to the current structure of the DDC and VDC (discussed in section 5.3.1). Environmentally, it falls within Nepal's largest Conservation Area, the ACA (discussed in section 4.1.1), while socially it is the home to indigenous ethnic groups, primarily the Gurungs and Thakalis, discussed in section 5.2.1.

The historical and current economic strategic importance of the Mustang district as the salt trade route, tourism and potential economic transit corridor between India and China, are crucial factors exposing the district under several political-economic contestations. In nearly 14 centuries of its history (beginning with the 7th Century A.D.), the political control of the area has shifted from one group (e.g., Tibetan Yarlung Dynasty and rulers) to the other (e.g., Jumla King, King Prithvi Narayan Shah, the Rana rulers, Shah Kings and Federal Democratic System) (see Askvik et al., 2011; Vinding, 1994, 1998; Manzardo, 1982; Messerschmidt, 1982). Scholars, such as Thakali (2012), Manzardo (1985, 1982) and Messerschmidt (1982) argue that the Thakalis leaders were quick to embrace change and modify their socio-political positions, as per changing national political systems. Until the end of Rana oligarch system in 1951, the political negotiations, such as modifying the social and religious practices to align with cultural ideology of the ruling Hindu elites of Kathmandu, not only allowed the local elite Thakali, especially the Subbas (Custom Contractors appointed by the Ranas) of Tukuhe to gain powerful positions and administer economic dominance in the area, but most importantly, to retain the political autonomy and institutionalization of the village governance system in the area.

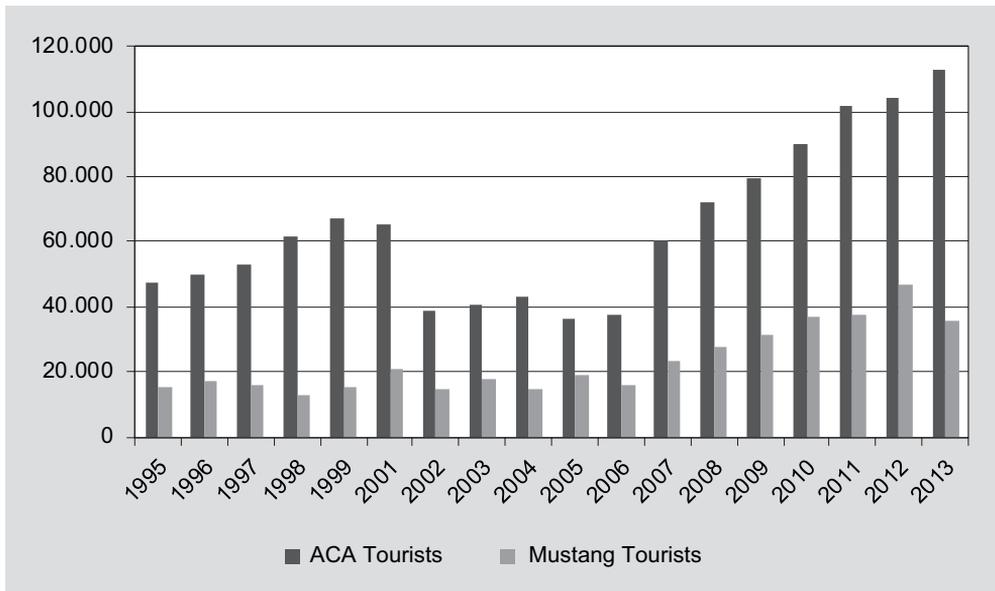
5.2.3 Economic contexts: NBT and multiple livelihood associations

Mustang's livelihood contexts are the outcome of several factors, such as the historic geopolitical, economic and the mountain specificities contexts. Historically, Mustang was an epicentre of the ancient trade route between lower parts of Nepal and India

and the Central Asian expanse of Tibet, Mongolia, Russian Turkistan and Eastern China (Haffner et al., 2003; Graafen and Seeber, 1992–93; Vinding, 1988; Messerschmidt, 1982; Manzardo, 1977; Peissel, 1967). This has contributed significantly to the district’s role as a potential strategic economic transit corridor. Historical evidence, such as the existence of the cave settlements, the cartographic and written records of trade routes, prepared as early as late 18th and early 19th century, and the trading that were done in silver coins from all over the world (e.g. French silver francs, American silver dollars, Egyptian piasters, Chinese dollars and ancient Austrian schillings), all indicate the intricacies and extent of the trade and dominant position of the Kali Gandaki valley in the Himalaya (Graafen and Seeber, 1992–93; Peissel, 1967). The fall of salt trade in the mid 20th Century was gradually replaced by other important economic phenomena such as horticulture and tourism in the 60s and 70s.

Since the establishment of the ACA, the district became popular destination area for NBT, which is traversed by the world famous Round Annapurna Trek. In the case study area of the Mustang district, the popularity of tourism and its growth potential is ever more increasing. Since 2007, the annual trend of the tourists’ population in Mustang district shows a positive growth. Since 1995, Mustang received an annual average of 36% of the total tourists visiting the ACA (see figure 5.3). Between 2002–2011, the area received an average of 24,000 tourists annually, contributing to average direct earning of US\$ 0.59 million in entry fees alone (Lama and Job, 2014). It provided a direct benefit to 8.5% i.e., 135 of 1581 households, registered as hotel and lodge operators, and indirect benefit to a large number of local inns and retail shop operators, guides, porters and catering services in the area (Ibid).

Figure 5-3: Tourist arrival trend in the ACA and Mustang (1995-2013)



Source: ACAP-Jomsom Tourist Checkpost, 2015; MoCTCA, 2014, 2013

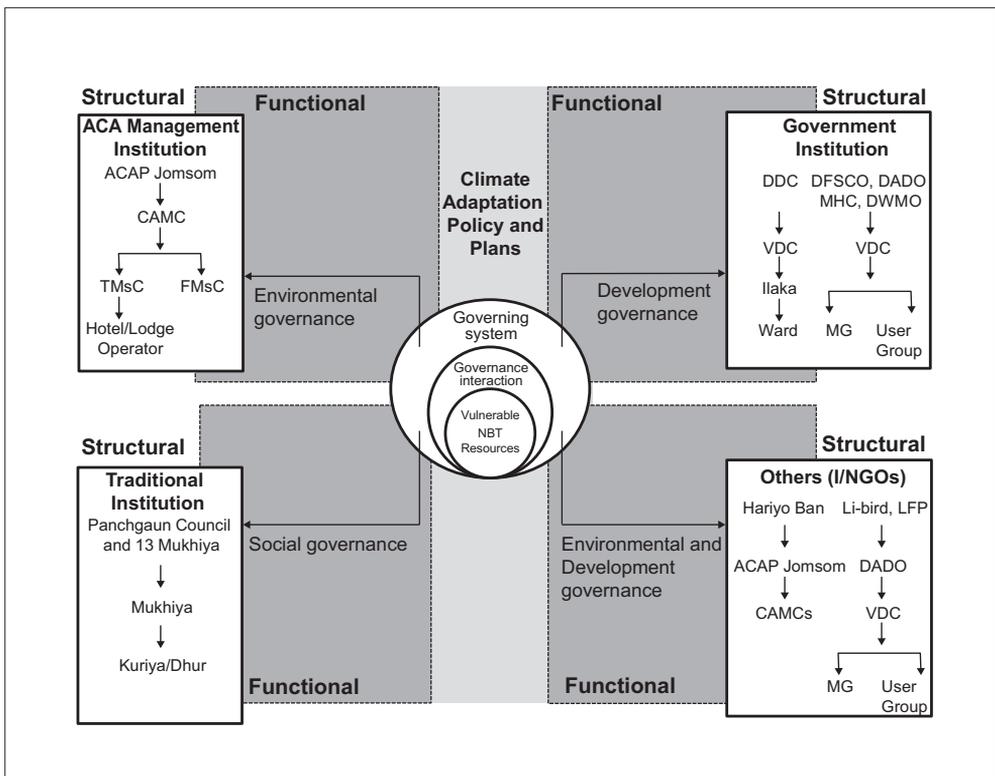
Having said this, it is important to note that besides tourism, the livelihood of the community, in due regards to mountain specificities contexts, include the composite of various key livelihood options such as agriculture, horticulture, trade and migration (discussed in section 3.4.1).

5.3 Understanding institutional social resilience capacity

5.3.1 Institutional arrangement for adaptation

The institutional arrangement in the case study area includes formal and informal institutions. The formal institutions include DDC, VDCs, ACAP Jomsom, CAMC and TMsC, and informal include individual NBT households (hotel/lodge owner, local Inn operator, restaurateur, farmer, guides, porters and other tourism service providers), Mukhiya and religious leaders. These are the three key formal and in-

Figure 5-4: Socio-political model of institutional arrangements in the case study area



Source: own illustration based on Interview and Focus Group Discussion

formal institutions managing the NBT resources in the area. These institutions are at the heart of how tourism community of Mustang interacts with their resources to provide variety of tourism services, manage resources and respond to climate change impacts. Besides these institutions, other district based government organizations such as the District Soil Conservation Office (DSCO), District Agriculture and Development Office (DADO), Marpha Horticulture Centre (MHC) and District Water Management Organization (DWMO), and I/NGOs, such as Hariyo Ban Programme, Local Initiatives for Biodiversity Research and Development (Li-Bird) and Livelihood and Forestry Programme (LFP), are involved in the adaptation activities in the case study area. Figure 5.4 provides the synoptic overview of the formal and informal institutions, including their functional and structural components. The VDC specific institutions identified as the adaptation partners is shown in the Appendix 7.

The formal institutions, primarily DDC and ACAP Jomsom are guided by the functional and structural arrangements, such as the legal frameworks, comprising the legislation, acts, policy, plans and organizational structures (discussed in section 5.3.1.1). The informal institutions, such as the traditional organizations and individual NBT households are guided by the traditional frameworks, comprising the religious and customary rules, norms and practices. The traditional organizations, such as Mukhiya system (also known as the Village Reformation Committee (VRC) in Tukuche) are autonomous village governance system.

5.3.1.1 Formal institutional arrangements

The formal institutions, such as the DDC Mustang and ACAP Jomsom, are embedded within the diverse and multilevel legal frameworks comprising the development, tourism and environmental legislations, policies, plans and governance philosophy. The legislative frameworks guiding the institutional arrangement are shown in the table 5.2.

These multiple legislative frameworks provide structural and functional basis for institutional arrangements and their governance mechanism (discussed in section 5.4.1). Prior to investigating the structural institutional arrangements, the national legislative frameworks that underpin the development, tourism, environmental and climate change, and that influence functional basis of the institutions, are explored and analysed. For this, the historical and divergent political contexts and legislative frameworks are explored and analysed. The aim here is to provide a wide angle look at different political, policy and institutional arrangement contexts for enhanced understanding of the governing system that influence NBT institutions' adaptation to climate change.

Political regime

The history of modernization and development process in Nepal dates back to 1951 A.D. Since the 50s, there have been gradual shifts in political, developmental and environmental policies and practices that facilitated the state formation and sustainable development process in the country. To start with, Nepal's sustainable development imperative for reducing poverty is rooted in the political, social, economic

Table 5-2: Legislative frameworks for the formal NBT institutions

Political Regime	Development Regime	Tourism Regime		Environmental Regime		
	Legislation/Plans	Legislation/Plans	Strategies/Policies	Legislation/Plan	Policies	
Rana Oligarchy (1846 – 1951)	National Code of Nepal, 1854 (Muluki Ain)			Strict Isolation Policy		
Multiparty Democratic System (1951 – 1960)	1st Plan (1956 - 1961) Development Board Act, 1956	National Tourist Development Board, 1957 which later changed into Department of Tourism, 1959		Open Policy	Wildlife Conservation Act, 1958	
	2 nd Plan (1962 – 1970)		Human Resource Development, Foreign Exchange Earning, Infrastructure Development, International Promotion	State led, Controlled Economic Policy		
‘Panchayat’ System (1962 - 1990)	4 th (1970-1974), 5 th (1975-1980) and 6 th (1980-1984) Plans	10 Year Tourism Master Plan, 1972	Foreign Exchange Earning, Infrastructure Development, International Promotion, Employment Opportunities and Economic Development		National Parks and Wildlife Conservation Act (NPWCA), 1973	State led and bio centric conservation policy
	Ministry of Panchayat and Local Development (1980)	Ministry of Tourism, 1977 (later Ministry of Culture Tourism and Civil Aviation)			National Trust for Nature Conservation Act, 1982	
	The Decentralization Act (1982)	Tourism Act, 1978			3 rd Amendment of NPWCA, 1989	
7 th Plan (1985-1990)		Poverty Alleviation, Adventure Tourism Development				
Constitutional Monarchy - Multiparty Democratic System (1990 - 2005)	8 th Plan (1992-1997)	Tourism Policy, 1995	Nature Conservation, Cultural Heritage Preservation and Product Diversification	Neoliberal Economic Policy	4 th amendment of NPWCA, 1992	Participatory and Utilitarian Conservation Policy
	Village Development Act, 1992					
	District Development Committee Act, 1992					
	9 th Plan (1997-2002)	NTB, 1998	Public-private partnership, Nature Conservation, Cultural Heritage Preservation and Product Diversification, Regional Tourism Promotion	CAMR, 1999 CAMD, 1999		
	Local Self-governance Act, 1999					
	Rural Development Plan, 1999					

Direct Rule by King (February 2005-March 2006)	10th Plan (2002-2007) Poverty Alleviation Ordinance, 2003 and Poverty Alleviation Fund Act, 2006		Poverty Reduction, Employment Opportunities, Product Diversification, Regional Tourism Promotion, Sustainable Tourism Development	
End of Monarchy (2006)	Interim Constitution of Nepal (2007) Rural Access and Decentralization Projects/Priority Investment Plan II (2007-2016)			Neoliberal Economic Policy
Federal Democratic System (2008)	Good Governance Management and Operation Act, 2008 Interim Three Year Plan (2008-2010) Three Year National Development Plan (2010 – 2013) Environment Friendly Local Governance Framework, 2013 Thirteenth Development Plan (2013-2016)	Tourism Policy, 2008 Tourism Vision 2020	Tourism product diversification and extension, Infrastructure development, Tourism benefit sharing and employment generation	Participatory and Utilitarian Conservation Policy

Source: Own illustration based on MoFALD, 2013; NPC, 2013b, 2011b; PAF, 2012; The Asia Foundation, 2012; Thakali, 2012; MoEST, 2012; NTNC, 2012; MoLD, 2011; GoN, 2011; ADB, 2010; Croes, 2006; Khanal et al., 2005; Liechty, 2005; Cox, 1994; Heinen and Kattel 1992

and environmental injustice and inequity. The foundation for such injustice and inequality was laid during the early stages of state formation (pre 1951 A.D) and development that had the exclusionary and state controlled protectionist policy.

Until 1951, Nepal was an isolated country ruled by Oligarch Rana rulers for over Century (Thakali, 2012; Cox, 1994). This period was important for Nepal's development history from two points. First, its exclusionary foreign policy that aimed to deter the expanding British imperialism that had colonized its southern neighbour, the present day India, Pakistan and Bangladesh, although left Nepal insulated from such external political force, it had also left the country 100 years out of development process. Second, the regime also institutionalized the isolation policy internally, such as the caste system based social isolation, or exclusion policy. Although, it is difficult to trace the origin of social exclusion in Nepal, the genesis of the caste system can be traced from the reign of King Jayasthiti Malla in Kathmandu, about 700 years ago (Subedi, 2010). However, the documented historical and cultural context for such customary system has its root in the 19th Century. It was during the rule of Rana oligarchy, the Nepalese caste system and the patriarchal gender system of

the dominant groups were reinforced (Bennett, 2008). The '*Muluki Ain*' or National Code of Nepal (NCN), implemented in 1854, had divided all the Nepalese into four-fold caste hierarchy: *tagadhari*, or "twice borne"; *matwali*, or "liquor drinking"; *pani nachalne*, "water untouchable" and *achhut*, "untouchable" (Subedi, 2010; Bhattachan et al., 2009; World Bank, 2006; Cox, 1994).

Caste based hierarchy are ranked along an axiom of purity and impurity (Cox, 1994), laying out the strict codes of inter caste behavior and punishment for their infringement. Although, *Muluki Ain* was abolished in 1951 (Cox, 1994), discrimination and social exclusion was deeply embedded in political and social spheres of life (Jones, 2010). Such culture also influenced the natural resource use and distribution (Thakali, 2012). These contexts played fundamental roles in the sustainable development process in the country including in the case study area.

The modernization period during the Panchayat system (1962-1990) and Constitutional Monarchy and Multi-Party Democratic System (1990-2005), began the organized development, institutional reformation and policy formulation for development, tourism and conservation. The recent political events, such as the Maoist revolution (1995-2006) and the post Maoist revolution (2006 A.D. onwards), resulted the abolishment of over two century old Monarchy system, and heralded the federal democratic political system in Nepal. Since the basis for this political change lie on bringing socio-political transformation in the country, the discourse of Nepalese politics now concentrates on federalism, ethnic identity and devolution; shifting the balance of power from central, 'top down' to peripheral 'bottom up' political process of governance regime. Such contexts not only permeated the country's political regimes, but also laws, policies and plans in such a way that they have profound bearing in development and conservation contexts and their implications on sustainable NBT management within the PAs, including the ACA.

Development regime

From the development context, the Village Development Act (1992) and District Development Committee Act (1992), serve as important base for decentralized development thinking. Within the Mustang district, such national development policy restructuring coupled with the Road Development Plan (1999), provided legal frameworks for government organizations to strengthen and promote overall economic growth (GOEC-NEPAL, 2013), changing drastically the livelihood contexts, including the NBT. The major global sustainable development programme, such as the UN's MDG of the 90s, the PRSPs, and Rural Access and Decentralization Projects of the government under the Priority Investment Plan II (2007-2016), and programmes of the Department of Road (NPC, 2011b), are important contexts that led to the road development and rapid globalization of local economy related development trends in the study area.

In Nepal, such changes took place within the context of two important global and regional events. Globally, the emergence of the 'Washington Consensus' and the liberalised economic policy of the early 1990s, facilitated by the multilateral development agencies (MDAs) (Sawtee, 2007), and regionally, the rise of the

economic and military power of capitalist India and its imposition of a year-long trade and transit embargo in the country (Shrestha, 1992), are the important drivers of change. Being a landlocked country, such forces of change not only weakened Nepal, but also made it dependent on the MDAs (Shrestha, 1992). This changed the course of development paths, including the rising influence of the non-governmental organizations (NGOs) and MDAs in the national development plans. Such change contributed to the reorientation of development policies within the MoFALD, towards a more participatory and inclusive system. The Local Self Governance Act (LSGA), 1999, legally endorsed the concept of self-governance and devolution of authority to the local government institution, such as the DDC (Thakali, 2012; Rai and Paudel, 2011).

The LSGA (1999) became the fundamental milestone that paved the way for participatory governance of the development activities (Lama and Job, 2014; The Asia Foundation, 2012). The Local Governance and Community Development Programme (LGCDP), 2008 provided important strategic leverage to make the development interventions, pro people. These developments facilitated government to move local government institutions from transactional governance, distributing services to the people, to transformational governance, empowering people, increasing their ability to bring about positive change (MoLD, 2011). Such governance is ensured first, by devolving the state authority, resources and responsibilities to the local government institutions, such as the DDC and VDCs, to deliver services to the people (MoLD, 2011). To enable effective governance services to the people, good governance practice via accountability and transparency is ensured. In accordance with rule 273 (D) of LSGA (1999), the government's budget speech of FY 2063/64 (2007 A.D.) announced the performance based financial reward, or grant system (MoLD, 2009). It is governed by the Good Governance Management and Operation Act, 2008 (MoLD, 2011). Second, it mandates for a greater role for citizens in the functioning of local government institutions in the development and service delivery act of the government, carried out through the formation of user groups, management committees and other grassroots constituencies, such as the All Party Mechanism (APM) (The Asia Foundation, 2012).

The latest development plans and policy documents, such as the The Three Year National Development Plan (i.e., Twelfth Development Plan), the EFLGF (2013) and the Thirteenth Development Plan are the result of the political policy debate that aim at addressing climate change and sustainable development issues. The Three Year National Development Plan recognizes the potential threats posed by climate change to sustainable development and emphasized the need to integrate climate change into development plans and programmes (NPC, 2013a). Call for integration to make all proposed development plans climate-resilient (MoEST, 2012; 33) has been fundamental in the development of the Climate Resilient Plan (2011) (NPC, 2011a). The Thirteenth Development Plan goes a step further in adopting the concept of green economy to minimize the impact of climate change on natural resources and sustain economy (NPC, 2013b).

The EFLGF is fundamental towards making such local level development planning process climate friendly. The aim of this framework is to mainstream environ-

ment, climate change and disaster management in the local planning process via, i) making individual and local governance systems environment friendly in its sustainable development approach ii) increasing local ownership and iii) encouraging collaborative development approach (MoFALD, 2013). Both LSGA and EFLGF provision the vertical and horizontal networks and partnerships within the district and VDC levels, such as the Environment Friendly Governance District Coordination Committee (EFGDCC) and Environment Friendly Governance Village Coordination Committee (EFGVCC). Within the district level, the DCC framework has a provision to invite the Chief of PAs to become the member of the coordination committee (MoFALD, 2013). The NAPA and LAPA policy guidelines facilitates the adaptation process at the local level, via formation of the District Coordination Committee (DCC), representing all the actors (government, NGOs, private, local community) within each DDC (Inagaki and Gerwal, 2012; Dhungana et al., 2013). Both MoSTE and MoFALD are lead institutions, while the VDCs and DDC are recognized as key delivery and implementing institutions (Chaudhury et al., 2014).

Tourism regime

From the sustainable tourism development context, the tourism legislation, policy and plans reflect the overall historical, evolving political and development philosophy and paradigms of the country. The history of tourism development in Nepal begins with its opening to the outside world in 1951. Century of isolation, followed by the global limelight gained during the ascent of Mt. Everest in 1953, made Himalayan Kingdom of Nepal both intriguing and exciting exotic and mystic place. Such eccentricities became the greatest pull factor for thousands of tourists, especially explorer, mountaineers and those who believed in environmentalism, counterculture and anti materialism. Adventure and hippie tourism became the starting point of the great development phenomenon known as tourism in Nepal (Liechty, 2005).

Various development plans and policies served the process of promoting and institutionalizing tourism development in the country. The 1st Plan (1956 – 1961), focussed on the economic development plan with the strategy focused on accelerated growth of non-agricultural activities, such as tourism (Sharma, 2006). From 2nd (1962 – 1970) till 6th Plan (1980 – 1984), tourism policy and plans focused on foreign exchange earning, improving employment opportunities, and promoting the economic development and infrastructure development. A ten year Tourism Master Plan of 1972 that came during the 4th Plan (1970 -1974), gave the government strategic direction for long term tourism planning. Up until the 6th development plan, the focus of the plans has been to improve infrastructures in identified tourist centers, preserve national heritages and promote Nepal as a destination of international tourism. The 7th Plan (1985 – 1990) showed the first attempt to formulate a distinct tourism development programme with a long term prospective for poverty alleviation. Within these periods, the nature and scope of the plans evolved from being centralized, 'top down' and urban focused tourism development approach, to decentralized, participatory, poverty reduction and adventure tourism development focused approach.

From the tourism development process point of view, institutionalization of the tourism industry at national level has been started right from the 1st Plan. Establish-

ment of the National Tourist Development Board (NTDB) in 1957 and later its replacement by Department of Tourism in 1959, reflected government's commitment in incorporating tourism as one of the priority sector of the country. The 10 Year Tourism Master Plan (1972) became a crucial milestone in institutionalizing tourism in the country. Firstly, it defined the distinctive roles of the government, as a policy adviser to oversee major tourism related issues and long term developmental plan, and secondly, as stated by MacLellan et al., (2000), led to the establishment of the Ministry of Tourism and Civil Aviation (MoCTCA). The 7th plan period is also crucial from socio-economic standpoint, while for the first time tourism policy was focussed on poverty alleviation and adventure tourism development.

The 8th Plan (1992 – 1997) that came after the reinstatement of democratic political system in the county, laid a strong foundation for private sector participation in promotion, management of facilities and provision of quality services. The adoption of the neoliberal economic policy and priority has given opportunities to the private and foreign investors to invest in tourism industry. The Tourism Policy (1995) recognized the importance of tourism, among other sectors, to the national economy (MacLellan et al., 2000) and encouraged both private sector and rural communities in the tourism promotion and development activities (Adhikari, 2005). The policy focused in diversifying tourist products and opening up new areas for tourism, pointed out to the potential for rural tourism and local participation in identifying and marketing rural tourism resources (Nepal, 1998). The 9th Plan (1997 – 2002), led to the establishment of the state level tourism organization, the Nepal Tourism Board (NTB) in 1998, heralding the institutionalization of the tourism development process through active public-private partnership (ppp) model. Established with the mandate to promote Nepal in domestic and international arena and to function as an autonomous body, the NTB's orientation and operations have been under the influence of promoting more of the private sector's, as opposed to public sector's interests.

The 10th Plan (2002 – 2007) focused on economic growth and poverty reduction through product diversification, expanding benefit down to the village level, via regional and sustainable tourism promotion. After the 1990 peoples' democratic movement, this period was one of the politically most intense times. The government's inability to solve the maoist problem and the growing state of political instability led the King Gyanendra to take control of the executive power in 2005. Although this direct rule by the King did not last more than 13 months, this period is of fundamental value to Nepal's effort in reducing poverty and bringing sustainable development. The 10th Plan also known as PRSP marks government's concerted and consolidated effort in addressing poverty via long term policy and planned development approach. The PRSP aimed to reduce poverty from 38% in 2001/2002 to 30% in 2006/2007 and enhance human well being, contributing towards attaining the MDGs (NPC, 2006). In order to bring the excluded communities, such as the poor and socially excluded groups into the mainstream development programme, Poverty Alleviation Fund (PAF) was introduced, which is established through the Poverty Alleviation Ordinance, 2003 and governed by the PAF Act, 2006 (PAF, 2012).

Post Maoist revolution and monarchy periods catapulted the country into federal democratic political system. The current tourism development priorities and

plans are influenced by two policy documents: Tourism Policy 2008 and Tourism Vision 2020. Both of these documents envisage tourism as a major contributor to Nepal's economy (MoCTCA, 2009, 2008). The focus of these policies lies on tourism product diversification and extension, tourism infrastructure development, tourism benefit sharing and employment generation.

One of the fundamental political barriers within the tourism regime is the lack of tourism policy and programme, reflective of existing development and climate change contexts, challenges and the sustainable development imperatives. One of the reasons for such policy oversight and strategic deficiency, is attributed to the lack of participation of the Ministry of Culture, Tourism and Civil Aviation (MoCTCA) at the national level climate change council. Established in 2009, the council represents the highest level of institutional arrangement for facilitating climate change programmes in Nepal. The council composition shows representation from various Ministries except from the Ministry of Tourism and Civil Aviation. Whether deliberate or not, such lack of participation of national level tourism decision makers has several implications, starting from national level policy formulation and strategic planning for climate friendly tourism, to the local level decision making and adaptation institutional mechanism. This is a major gap with long term sustainability implication for NBT in the study area.

Conservation Regime

The political regime change induced conservation discourse has also contributed to the reorientation of Nepal's conservation initiatives towards more participative approaches (Keiter, 1995). The concept of conservation in the PAs was primarily initiated for the protection of wildlife, especially the rhinos and the tigers (Bhatt, 2003). The era of modern conservation began in the 1950s, driven exclusively by the interest of the Royal family. The late king Mahendra approved the first Wildlife law in 1957, offering legal protection to rhinos and their habitat (Heinen and Kattel, 1992). By late 1960s the late King supported the long term wildlife protection and conservation concept. With the support of the Food and Agriculture Organization (FAO), UNDP, and the help of a foreign advisor who surveyed from 1970 to 1973, the government of Nepal began the six year-long National Parks and Wildlife Conservation Project (NPWCP) in 1973 (Heinen and Shrestha, 2006). Later on, the passage of the National Parks and Wildlife Conservation Act (NPWCA) (1973) provided legal basis for the establishment of national parks and the state level government organizations, such as the Ministry of Forest and Soil Conservation (MoFSC) and Department of National Parks and Wildlife Conservation (DNPWC), to manage the PAs.

The concept of "Conservation Area (CA)" entered the PA management regime during the 3rd Amendment of the NPWCA in 1989, with the establishment of the ACA. As per the sub section 2 of section 3 NPWCA (1973), MoFSC entrusted the management responsibility of the ACA to the NTNC. Section 16 b of the Act provided the management responsibility to the NTNC for 10 years, by publishing a notification in the Nepal Gazette in 1992 (MoFSC, 2014a). The NTNC has administrative and financial autonomy, both of which are guaranteed by and clearly stipulated in

the Nepal Gazette. Such legitimate provision has given the NTNC and ACAP managers greater agility and freedom in deciding where and how to spend their own limited resources, while maintaining essential roles of nature conservation, planning, coordination, and law enforcement within the ACA. What followed thereafter is the historical making of the globally successful PA management model and ecotourism project, the ACAP, managing 5 districts, such as Kaski, Lamjung, Manag, Mustang and Myagdi, through its UCOs. With the cabinet decision of January 2015, NTNC has the mandate to manage the ACA until 2019 (The Kathmandu Post, 2015).

The CAMR (1996) and CAMD (1999), provide the jurisdictional roles and responsibilities to the ACAP UCO Chief, in provisioning the structural institutional arrangements, such as the CAMC, aimed at providing the local participatory decision making platforms and opportunities for the local community, as well as the government representative (i.e., VDC Chairman). In CAMR there is the provision to include VDC Chairman as de facto member of the CAMC (NTNC, 2012). In the current context of the lack locally elected VDC representative, the VDC secretary has been taking part as the ex-officio member at the CAMC.

As stipulated in the CAMR and CAMD, the CAMCs are entrusted with VDC level organizational operations (via formation of specific subcommittees), planning, implementing and coordinating the conservation and development activities. With regards to management mandates and jurisdictional responsibilities, the NTNC Act (1982) entrust the ACAP and the CAMCs to promote natural resource and wildlife related scientific research within the ACA; while CAMR provisions prohibits harvesting of the resources, such as forests, sand, stones, minerals prior to approval from CAMC, or the ACAP Chief.

Exclusive to the NPWCA, CAMR and CAMD frameworks, there are other sectoral local and global policies, such as the Soil and Watershed Conservation Act (1982), Water Resource Act (1992), Forest Act (1993), Environment Protection Act (1993), Biodiversity Conservation Strategy (2002), Nepal National Biodiversity Strategy and Action Plan (2014-2020) and Aichi Target 11 (Borrini-Feyerabend et al., 2014; MoFSC, 2014b; Heinen and Shrestha, 2006). These policy guidelines are crucial from biodiversity conservation, sustainable NBT development and collaborative adaptation governance mechanisms.

Structural component of CAMC and TMsC

There are 27 ACAP affiliated NBT institutions in the study area. The VDC level institutional arrangements, such as the CAMCs manage natural resources, while the TMsCs manage the tourism business and services for sustainable NBT development. The structural dimension of CAMCs operating within the case study area is illustrated to understand its structural composition (see Table 5.3). As the table shows, the CAMC composition comprises of a 15 member executive committee. The subsection 2 of section 8 of the CAMR accords special provision for including women and members of marginalized group (such as DAG) within the CAMC, and entrust rights to the Officer in Charge (OIC) of the ACAP, to nominate 5 members belonging to such groups (MoFSC, 2014a). Its subsection 4 stipulates the tenureship of CAMC for 5 years.

Table 5-3: Structural profile of the CAMC

Institution	Total Members	Ethnic Composition			Gender	
		Thakali	Other ethnic group	DAG	Male	Female
CAMC Lete	15	10	3	2	12	3
CAMC Kobang	15	12	1	2	11	4
CAMC Tukucho	15	11	2	2	12	3
CAMC Marpha	15	10	2	3	12	3
CAMC Jomsom	15	13	1	1	11	4
CAMC Kagbeni	15	11	3	1	11	4
CAMC Muktinath	15	12	2	1	12	3

Source: Own compilation

The section 11 of the CAMR accords rights to the CAMC to form subcommittees assisting it in planning, implementing and coordinating different thematic programmes (MoFSC, 2014a). The TMsC is the key subcommittee of the CAMC, responsible for tourism management in the study area. The TMsC comprises of a 13 member committee represented by hotel/lodge owners, with the goal of promoting tourism with minimum environmental impact, and maximise tourism benefit to the community. There are also other individual tourism service providers, such as restaurant/cafe operators, shop owners (souvenir/retail), guides and porters that operate as informal institutions. The CAMC, TMsC and Forest Management sub Committee (FMsC) are the key VDC level institutional arrangements for managing tourism and forest resources. Through such arrangement, a political platform for wider participation, empowerment and exercising of the management authority is ensured. Such structural governance mechanism plays key role in directing the conservation and development activities to the path of sustainable NBT development.

Structural component of the DDC and VDC

The local governments, such as the DDC and VDC operate through the DDC and VDC Councils. As told by the Technical Assistant of the DDC Mustang, such locally elected DDC and VDC councils are the key decision makers for all the VDC and district based development planning. The devolved authority stipulated under the LSGA (1999), provided important platform and opportunities for the local government. However, the absence of the locally elected village representatives since 2002, has affected the institutionalization of the local governance system (Rai and Paudel, 2011). The transitional arrangement, under such power vacuum situation, as informed by the VDC Secretary of Tukucho, involves the deployment of civil servant and a provision of an All Party Mechanism (APM). The APM is an official directive that endorsed and promoted informal deliberative space, a mechanism that emerged out of the need for the politics of consensus, especially in the light of institutionalizing peace and reconciliation process in the country (The Asia Foundation, 2012). The goal of APM, as informed by the VDC Secretary is about:

“all party consensus building, participation and networks. There is thus coalition of different interest group represented by Maoist, Nepali Congress, United Marxist Leninist, local representatives, health and agricultural staff, mothers groups, DAGs, village reformation committee (former Mukhiya system), responsible in the management of the village development affairs.”

Of those other I/NGOs involved in the adaptation activities, it is worth exploring the case of Hariyo Ban Programme, in due regards to its comprehensive strategic and programmatic involvement in climate adaptation planning process in the ACA, including in the case study area. Hariyo Ban is a landscape level programme approach consisting of the Chitwan Annapurna Landscape (CHAL) and Terai Arc Landscape (TAL) areas; covering two-third land cover of Nepal. The programme integrates ecosystem and livelihood components to address the dual goal of making climate smart biodiversity conservation planning, and integrating local level adaptation planning with regional and national level contexts (WWF Nepal, 2013). It is a multi-actor, multilevel collaborative institutional approach to ecosystem based adaptation, undertaken by Nepal’s major development and environmental organizations, such as the World Wildlife Fund (WWF), NTNC, Cooperative for Assistance and Relief Everywhere (CARE) and Federation of Community Forestry Users, Nepal (FECOFUN); actively promoting the five year long (2011-2015) ‘Hariyo Ban Programme’ in the CHAL and TAL areas. Sharing his view on the collaboration modality of Hariyo Ban Programme, the Climate Change Adaptation Coordinator (Care Nepal) stated:

“The Hariyo Ban Programme consortium was built on the basis of the institutional strengths and expertise of collaborating organizations to address biodiversity and climate change issue by enhancing the capacity of local stakeholders at national, regional and local level to plan, implement and monitor local adaptation initiatives. The WWF and NTNC brought their expertise in the field of biodiversity conservation, while CARE and FECOFUN in community development.”

5.3.1.2 Informal institutional arrangements

The informal institutional arrangements in the study area include the individual NBT households, the traditional village governance system, such as Mukhiya system and religious institution. These constellations of informal institution have a long history in their experience of governing the resources and development process (discussed in section 5.2). The claiming of the village governance rights is based on the customary practices and ancestral association with the land and resources. As informed by the former TMsC Chairman of Kagbeni, such customary practice and rights, as well as the village boundary demarcated by the ancestors, formed the basis for governing the resources by the Mukhiya system.

In addition to such arrangement, the religious establishments and leaders also provide political milieu for the Mukhiya system. Elaborating further into the roles of the religious leaders, the Monastery In-Charge of Kagbeni explained:

“The high Lama of the Kag Choede Thupten Sampteling Gomba provides a patron role in the village governing system, such as Mukhiya system. Although important decision regarding resource governance is taken by the Mukhiya, this will be carried out after consultation with the religious leaders. The high Lama in fact plays advisory, advocacy and monitoring roles in governing the village resources for development and culture protection.”

Of particular importance are their roles in guiding the livelihood practices (discussed in section 5.3.2).

Although, customary rights and practice of village and resource governance provided the general political milieu in the study area, the Mukhiya system and its political autonomy has also its root in the historical political negotiations done by the Subbas (discussed in section 5.2) and the institutionalization of such system. Hence, the continuation and operation of the Mukhiya system is observed in all the 7 VDCs of the study area.

5.3.2 Institutional response to climate change

The institutional responses to vulnerable NBT resources (such as tourism, agriculture/horticulture and natural resources) discussed in section 4.1.2, demonstrate the mix of both traditional and modern approaches. Lists of the vulnerable NBT resources, the response actions and types; including the factors (arising from the immediate drivers of change and underlying issues) affecting the participants and the dimension of their adaptation knowledge and power, are outlined in the table 5.4. At the face value, participant’s response actions to the impacted NBT resources, appear to have been associated with climate variability and change driven vulnerability. However, an in-depth probing of the issues reveal that the vulnerability is triggered by range of non climate factors, listed in the table as immediate drivers of change and the underlying issues for such change. These findings are based on data gathered through interviews, FGD and workshops.

5.3.2.1 Response to tourism impacts

The response to tourism impacts, especially to the tourism infrastructure and business, is mainly related to natural disasters, such as floods and landslides. Such disasters damaged the hotels, lodges, bridges and tourists trails, disrupted their operation and tourism business. Natural disaster related impacts are also felt in the natural resources (discussed later in this section). The flood and landslides specific disasters and their vulnerability are specific to the Lete and Kobang VDCs of southern belt and the Tukuhe VDC of northern belt. The informal institutions, such as hotel owners, farmers, the Mukhiya and religious leaders used traditional response approach to deal with the impacts.

As informed by the participants of the FGD, the community conduct rituals practices, such as ‘*Hum Puja*’, ‘*Tamo Puja*’ and ‘*Siddha Puja*’, for timely and adequate rainfall, and also to protect the villages from natural disasters. The Larjung flood

Table 5-4: Dynamics of institutional response to the vulnerable NBT resources

Vulnerable NBT Resources	Response Actions Types		Immediate Drivers	Underlying Issues	Adaptation Knowledge
	Traditional Approach	Modern Approach			
Tourism Infrastructure and Business	Pray to God for protection of livelihood, property and lives against floods and landslides in Lete, Kobang and Tukuhe VDCs	River basin retention, River training, Forest Plantation	Deforestation, Lack of compensation	Fragile geological and ecological landscapes, Weaker traditional governance capacity, Lack of land use management plan, Lack of comprehensive disaster management plan, Lack of institutional collaboration	Psychological, Cultural and Political
Agriculture/ Horticulture	Pray to Serpent God, Ritual procession to Kag River during irrigation canal construction (Kagbeni and Muktinath VDCs), Ritual procession to 'Gurusambo' Cave during irrigation canal construction (Kobang VDC)	Irrigation facilities, Technical knowledge and experts' advice	Availability of water for agriculture, Pest and diseases, Lack of human resource	Adversities caused by the natural (ecological and climatic) and man made constraints (insufficient infrastructures, socio-economic disparity, out migration)	Cultural and Political
Availability of Drinking and Irrigation Water	Pray to Goddess of Rain, Worship the drinking water source (Jomsom, Jharkot and Kagbeni), Repair maintenance of the source of water, and irrigation canals	Rain water harvesting and Kali Gandaki River water extraction (Kagbeni village), Drinking water reservoir tank construction (Jharkot village), Drinking water pipeline distribution, Forest plantation and babwire fencing	Insufficient and lack of infrastructures	Socio-economic disparity, Lack of comprehensive water management plan, Increasing demand, Out migration	Psychological, Cultural and Political

Source: Own compilation based on interview, FGD and workshops

and Sauru landslides in the Kobang VDC took away lives, damaged hotels, trails and bridges, while the Chokhopani landslide in Tukuhe VDC, also killed the villagers, damaged property and apple orchards. The participants responded to such impacts via religious means and practices. Praying to God, seeking his forgiveness and blessings to protect the land and lives, are commonly observed cultural practices, against such disaster situation. The community of Tukuhe believed that the Chkhopani landslides occurred due to villagers cutting off religious tree of that area. A participant of the FGD informed:

“I prayed and made the ritual sacrifice of a Rooster, asking God’s forgiveness. I cannot prove scientifically the existence of the divine power, but to my utter surprise since this ritual ceremony, our area has been spared from such disaster. This has immensely affected by psychological state of mind and compelled me to believe in the power and presence of such force. Moreover, it is our customary duty to nurture and protect our religious and cultural practice,” (Farmer, Tukuiche VDC).

Such cultural association with forest is not unique to the community of the southern belt only. The view of the participant from northern belt such as Kagbeni also substantiates such importance:

“Forests in and around religious sites are holy and treated as gods’ sanctuary. Village norms (religious belief and cultural practice) guide the locals to protect and nurture such forests as a means of gaining good karma,” (CAMC Chairman, Kagbeni).

Despite such strong moral and traditional values attached to forest and cultural duties for its protection, villagers’ act of cutting religious trees points the direction to the deforestation issues that are economy and development driven. Tukuiche, including Lete and Kobang VDCs are the hotspots for timber production, a newly emerging trend caused by the rapid demand for timber in housing construction in the northern belts of the study area and beyond (such as Upper Mustang). The deforestation caused by the demand of timber production for housing construction is linked with the operation of the Pairothaplo-Jomsom-Ghoktang road, an economic transit route aimed at linking China with India (Lama and Job, 2014). Besides such economy and development dimensions, the weaker governance capacity of the Mukhiya system is also believed to have caused the deforestation. The weakening governing capacity has its root in emerging politics of development (discussed in section 5.3.1) and its structural and functional governance limits (discussed in section 5.4), affecting the governance capacity of the Mukhiya system.

As far as the modern approach is concerned, reponse actions included river basin retention, river training activities and forestation programmes, supported by the DSCO, ACAP and DDC. In addition to physical response, farmers and hoteliers also sought compensation for the loss and damage with such organizations. While these organizations had no specific funds to address the damage of such scale, they did not get the support. Former TMsC Chairman of Tukuiche whose apple orchard and property was damaged by Chokhopani landslide told:

“I prepared the inventory of damage done to the property and submitted to the district agriculture development office six-seven times, but got no compensation. I took this issue to ACAP, DSCO and DDC. They said that they will receive some quota budget to compensate our loss. Till date we have not seen a single penny and therefore we are very discouraged.”

When approached the DSCO to find out more on compensation related issue, its Officer mentioned:

“DSCO does not have the fund to support the scale of the compensation amount that the communities are seeking. While this is the case of most of district based organizations, we discussed with the Local Development Officer (LDO) regarding the prospects and possibility of establishing the basket relief fund. I especially informed the LDO that if the DDC initiates this process, DSCO can contribute Rs. 100,000 to this relief fund. However, my argument is that while DDC has the huge sum of money, it should contribute more. The DDC has not shown any initiatives.”

The LDO of DDC Mustang, in answering the queries on the compensation issue and basket relief fund said:

“We are so much stressed by the recent events of disasters, especially the flooding of the river banks. There has been additional financial stress upon us, as the communities are demanding for the compensation and relief support. The frequent occurrence of disasters has added additional burden to development initiatives and achievements, and also stress on our limited financial resource. The only support we can afford to provide is the relief support of humanitarian nature, and not the compensation or disaster management support.”

The insignificant disaster relief funding of the district based organizations is one of the important driving factors, affecting the community and their capacity to be resilient. However, underlying issues resulting from the fragile geo-physical and ecological landscapes, such as the steep altitudes, arid conditions, mountain terrains and Himalayan headwaters gushing down with force, make the area very prone to landslides and floods. The flow of the Kali Gandaki River was found to be substantially affected, not only due to factors, such as geological conditions, steep topography, snow cover/glacier melt, but also by the lack of landuse management plan to address the development pressure arising from the road development. Rapid and haphazard development activities, such as the deforestation and building hotels/guest houses, along the floodplains of the river have enhanced the vulnerability of tourism infrastructure and businesses. Equally important is the issue of lack of disaster management plan and collaboration among formal organizations to set up relief fund.

5.3.2.2 Response to agricultural and horticultural impacts

Institutional responses to agricultural and horticultural impacts demonstrate different approach and contexts behind. In the Kagbeni and Muktinath VDCs of northern belt, and the Kobang VDC of southern belt, the response approach to agricultural/horticultural impacts is both traditional and modern. In the Kagbeni and Muktinath VDCs, the ritual practices, such as praying to Serpent God ‘Naga’, seeking his blessings to protect the village and its harvest against drought, disease and pests, and ritual procession to ‘Lhumbuk’ (Kag River), during irrigation canal constructions, are ceremoniously and routinely practiced. In the Kobang VDC, the ritual procession to the holy site ‘Gurusangbo Cave’, during irrigation canal construction is observed. Such ritual practices are specific to these VDCs, and not available in other VDCs. The

reason for such specificity is related to the dispositions of these VDCs to ecological and climatic constraints and their water availability status.

Table 5.5 shows the water availability status in the case study area. The Kagbeni and Muktinath VDCs' agricultural sensitivity to water availability is associated with the fact that they are the driest VDCs with less rainfall. Despite the availability of irrigation canals in Kagbeni and Jharkot villages, the natural constraints due to arid conditions made the community of these villages very sensitive to such scarcity. Agricultural sensitivity of the Kobang VDC to water, despite the area being wetter part, lies in the insignificant irrigation facilities, making it reliant on rainfall. These natural constraints have influenced the psychology of the participants and their cultural association with ritual practices.

As far as modern approach is concerned, the case of Tukucho, Marpha and Jomsom VDCs stand out best from rest of the VDCs. Although the agriculture and horticulture of NBT community are affected by the changing climate (such as less

Table 5-5: Water and human resource availability status

VDCs within the Study Area	Settlements within Round Annapurna Trek	Water Resource	Irrigation System	Human Resource
Muktinath	Ranipauwa, Jharkot and Khinga	Dry Area Less Rainfall Insufficient Irrigation	Jharkot	Exodus of local youths for education and jobs. Lack of manpower.
Kagbeni	Kagbeni and Eklebhatti	Dry Area Less Rainfall	Kagbeni	Exodus of local youths is prevalent, but not as serious as felt in Muktinath.
Jomsom	Jomosm	Good irrigation facilities	Thini	Exodus of local youths. Lack of manpower compensated by inflow of immigrants from outside the district.
Marpha	Marpha and Puthang	Good irrigation facilities	Marpha and Syang	As above
Tukucho	Tukucho	Good irrigation facilities nearby villages	Tukucho	As above
Kobang	Larjung, Kobang and Khanti	Rainfed agriculture.	Insignificant Irrigation	The exodus of local youths for education and jobs. Lack of manpower.
Lete	Ghasa, Lete and Kalopani	Rainfed agriculture. Some cultivated land has access to irrigation facilities	Insignificant Irrigation	As above

Source: Based on FGD and workshops

snowfall), reduced water for farming and increasing pests and disease, they have strong convictions in their capacity to manage the issue. During the FGD, the Mir Mukhiya of Tukucho told:

“Farming activities and practices are very well advanced in Tukucho. We are not in 0 point! The main credit to this goes to the excellent irrigation system in this area. 90% of our agriculture depends on irrigation water. That is why our agriculture is very best in this district.”

The factors, such as the provision of agricultural infrastructures and good access to services play crucial roles in this regard. As shown in the table 5.5, these VDCs have very well developed and intricate irrigation system. The district based agriculture, horticulture, and development line agencies are located in Jomsom and Marpha VDCs. These contextual dispositions gave these VDCs extra edge, compared to the others, in terms of access to service opportunity to the community, and enhance their capacity.

However, at an individual level, there are different experiences of response actions. While addressing to the impact of intense and excessive rainfall on agri-pro-duce, the interviewees from Tukucho and Lete VDCs expressed:

“A specialist who came to see my farmland suggested me to spray Dithenium. I did it and my potatoes remained unaffected by the intense excessive rain. People do not adapt to available technology. It is important to adopt and adapt to changing situation, it will help us to sustain the potato productivity.”

“Our people are not dedicated in finding out the solutions. Not committed to follow the instructions properly. If they do not see the result immediately, they simply abandon the practice (especially in terms of effective use of pesticides and technological knowledge in farming).”

“I sprayed the medicine one year but the pests did not die. So, I neither used the pesticides, nor planted the potato in the farm. Now all I do is plant the buckwheat and let the farm uncultivated, rest of the months.”

These views demonstrate two lines of thoughts. The first two views suggest the technical solutions to the problem, which based on the participants’ perspectives, lie on seeking experts help and guidance and being properly informed to use the technical know-how. Adopting and adapting to changing situation and perseverance seem to be the strategies of these participants. The second view suggests of having sought for techlogical help, yet brought unsuccessful result in solving the problem. One off effort, changing farming produce and leaving the land fallow seem the strategy of this participant. The underlying factors determining such diverse response capacities are explained by the fact that the first two interviewees represent the local elites of Tukucho and Lete/Kalopani villages. They belong to rich tourism households, have college and high school degrees and hold positions as Mukhiya and Chairman of Mothers Group. The latter participant belongs to a poor farming

household and is illiterate. Socio-economic disparity is the biggest constraint for the poorer households to be resilient.

Besides such socio-economic disparity driven vulnerability, out migration of the local youths for better education and jobs, is affecting the individual family structure and workforce, a key factor influencing the livelihood practices, such as agriculture and horticulture. The view of the Mothers Group Chairman of Jharkot explains this situation:

“From our village, leaving aside 8-10 households, the rests have their family members working in the USA, Korea and Japan. They have earned lots of money, so their children are sent to Pokhara and Kathmandu for schooling. The situation now is such that the villagers have become rich but have no family members to support them in their works. There is a huge shortage of workforce in the village.”

Aging population and out migration of younger people for study and jobs are important bottle neck, which is threatening to disrupt the social and organizational structures and the economy within the community. However, the impacts of such human resource scarcity are disproportionately felt in the study area. Table 5.5 shows that in Jomsom, Marpha and Tukuche, the lack of human resource especially the labour shortage to work as helpers in the hotels/lodges and in the farmlands, are met by the DAG, or in-migrants from outer districts. The influx of in-migrants, or economic migrants could answer why percentage share of total population of non Thakali in Jomsom, Marpha and Tukuche, as discussed in section 5.2, is higher. The new labour force filling the gaps in farming and tourism are only those for rich tourism households, who could afford the high labour costs to hire them. Middle income and poor households left with no children to support them, have either altered the types of farming produce that are less labour intensive, or have left the land fallow. In general, the elderly people are left from having to operate and manage hotel/lodge business and farms, and to respond to the additional pressure from changing climate, on their own.

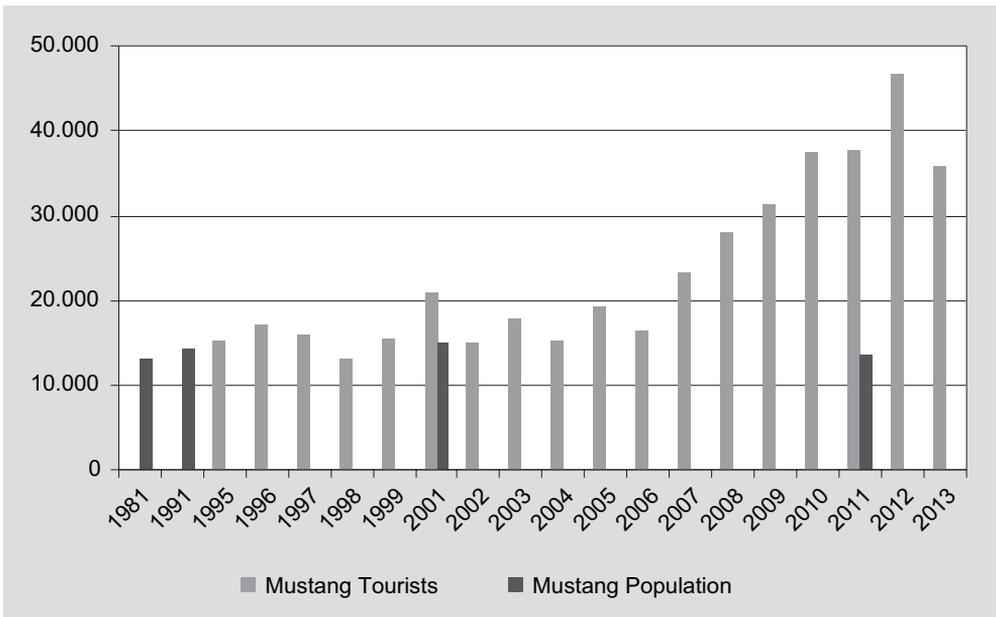
The changing farming practice, or leaving land fallow are the short term response action, while in the longer term, lack of educated younger generation in the area means lack of human capability to harness knowledge that best integrate both traditional and modern skills. Population data of the district in last four decades shows very nominal increase of 11% and 5%, between 1981-1991 and 1991-2001, and a decrease of around 10%, between the years 2001-2011(see Figure 5.5). Without even factoring in the issue of lack of human resource related challenge to respond to climate change impact, increasing tourists' number and rapid development are imposing extreme management pressure to the tourism business community and the management organizations (see Lama and Job, 2014). The finding shows that the average annual growth of tourists since 1995 accounts for 36% (discussed in section 5.2.3). Comparing the 2011 tourist population data with that of local population, it is evident that the tourist population is more than 2 times higher than the local population (see Figure 5.6). The additional need for this decreasing population to deal with adaptation challenges intensifies the human capability problems, already under strain from development pressures.

Figure 5-5: Four decades of population development trends in the Mustang district



Source: CBS, 2013; DDC, 2010; Vinding, 1998; ICIMOD, 1991

Figure 5-6: Tourist arrival and population growth trends in the Mustang district

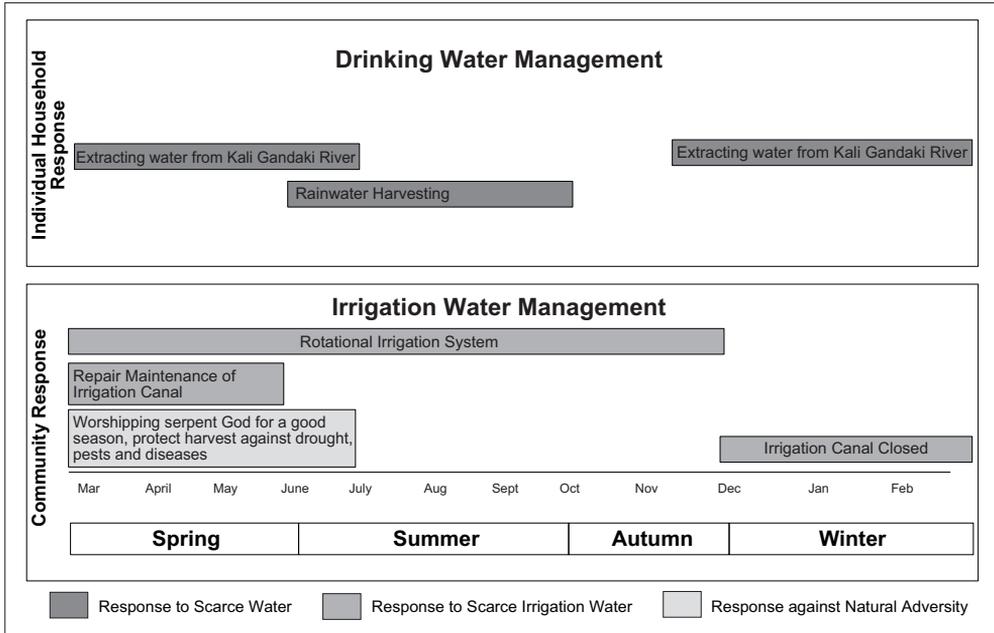


Source: ACAP Jomsom Tourist Checkpost, 2014; Tamang and Gurugn, 2014; CBS, 2013; DDC, 2010; Vinding, 1998 and ICIMOD, 1991

5.3.2.3 Response to natural resource impacts

The natural resource vulnerability to climate change is mostly felt in the water resources, especially in the availability of the drinking and irrigation water. In the Kagbeni and Muktinath VDCs of the northern belt, the response of the participants demonstrates both traditional and modern approaches. The response mechanism of the individual and community to water resource impacts is illustrated in the figure 5.7.

Figure 5-7: Traditional response mechanisms to water resource impacts



Source: own illustration based on interview, FGD and workshop

As shown in the figure, the response to scarce drinking water in Kagbeni includes some modern approaches, such as the rainwater and snow harvesting in the tanks, pots and pans. Some of the households have begun extracting water from the Kali Gandaki River to meet their daily chores. In Jharkot village of the Muktinath VDC, community with the support from the DDC have constructed water storage tanks.

From the traditional approach perspective, religious establishments, such as high Lama (Buddhist Priest) have strong influence in the political and social order of regulating village resource governance system (discussed in section 5.3.1.2 and in this section). Under his leadership, a ritual practice to protect harvest against drought, disease and pests is performed. Such tradition is rooted in the spiritual world of the serpent god 'Naga', which is an important spirit that affects weather and disease. Elaborating more on this, the Monastery In-Charge of Kagbeni informed:

“Naga symbolizes the spirit associated with nature and its divine power, which is translated in the form of weather and diseases. Being respectful to and caring for nature is the key principle to leading a harmonious life. Going against such principle brings misfortune in the form of disasters and diseases.”

This shows an inherent reciprocity between Naga and nature, and also between the spiritual, natural and the human world, or the society. Such interconnectedness is the foundation of the religious, cultural and indigenous belief system that govern the lives and the society of Kagbeni. In addition to such ritual practice, the high Lama also determines the dates of irrigation canal repair/maintenance, and also its operational calendar, demonstrating his influence in the resource management affair.

Water being a scarce resource in Kagbeni, such natural constraints is overcome by operating rotational irrigation system. The demand exceeds the supply during the spring time (Feb to April), due to low river discharge caused by the low temperature slowing the snowmelt process. Such coping mechanism, infused with regular repair/maintenance of irrigation canal and ritual practices, forms the essence of traditional resource governance and responses. A complex inter-linkage of religion, nature and social aspects of the life and maximal optimization of water resource use, made the individual and the community resilient to natural adversities and challenges.

The availability of drinking water in the southern belt is affected mostly by the scarcity resulting from the lack of sufficient infrastructures. A small farmer from Lete/Kalopani village told:

“We don’t have private tap for water use. I collect water from the community tap. We need to make requests to the Mukhiya, but since we are not very strong our request has not been heard so far.”

Simply by constructing more water storage tanks and drinking water facilities do not guarantee the long term solutions. It was found out that the sensitivity of the water supply to scarcity was also heightened due to weak infrastructure and mismanagement. Shedding light on such issue, an interviewee mentioned:

“Drinking water supply system is not reliable as the infrastructure is very rudimentary. Also our people have the bad habit the leaving the water in the public tap open, even when it is not in use,” (Hotel Owner, Kagbeni).

Factors other than infrastructural and behavioural aspect affecting the drinking water availability include harsh environmental conditions and comprehensive planning and budgetary limitations. The following remark from the DDC Mustang’s Technical Staff and LDO highlight the complex nature of this problem:

“When I first came to Jomsom, I was surprised to find out the DDC supporting drinking water project, repeatedly, year in and year out. Later did I realise that the drin-

king water pipes that we supported did not withstand the winter seasons. The extreme cold temperature had clogged and burst the pipes, and so we had to support the community again the year after. This is the regular phenomena here.”

“We do not have strong internal revenue, hardly 5-6 lakhs (i.e., 5000 – 6000\$). We are also the district with very minimum fund for infrastructures. Until 2064, we were allowed to collect the royalty fee from electricity and tourism, but the budget speech of that year nullified entire district based accounts provision and mandated the deposition of the royalty into central treasury.”

5.4 Understanding institutional adaptive governance capacity

5.4.1 Process of adaptation governance: ACAP Jomsom and DDC perspectives

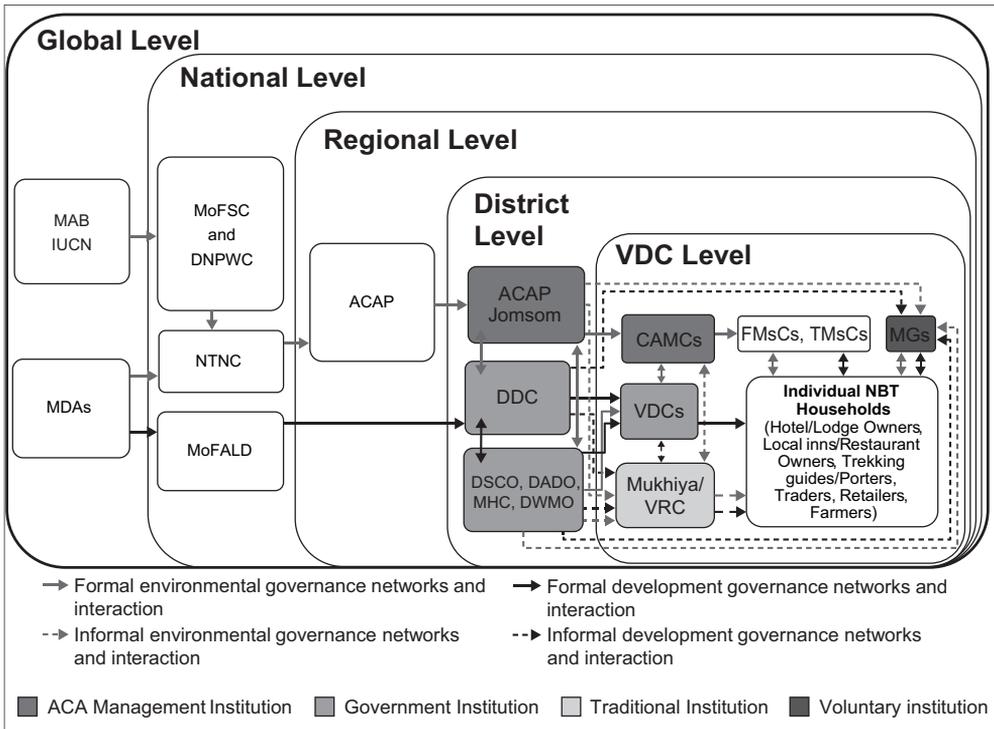
In the case study area, tourism is accorded a highest development value in due regards to its capacity to bring multiple benefits to the community. Highlighting the value of tourism the LDO of DDC, Mustang told:

“No other enterprise provides multiple benefits than tourism. In Mustang tourism has benefited hotel/lodge owners, resauranteaur, retail shops, farmers, guides, porteres, and transport service providers and so on.”

While tourism is a resource sensitive sector, a unique system of governance regulates and manages resouces key to its sustainability.

As discussed in the section 5.3.1, institutional governance landcapes in the case study area consists of the constellation of formal and informal organizations, governing the NBT resources. The ACAP Jomsom and DDC represent the established, or fomal governance mechanism, while the Mukhiya/VRC and individual NBT households represent the non-formal; both guided by the participatory decision making process. The formal participatoiry decision making process and institutional interaction, between the ACAP Jomsom and DDC, is orchestrated as per global-local legislative, policy and governance mechanism, while the non-formal, as per traditional village governance (discussed in sections 5.3.1.1 and 5.3.1.2). These insitutions are thus embedded within global-local multilevel institutional arrangements, influencing their governance processes and decision making, and vice versa. Figure 5.8 shows the dynamic governance mechanism facilitating institutional adaptation for NBT sustainability. The grey and black arrows indicate the formal global-local conservation and development networks and processes of decision making, while the dotted gray and black arrows, indicate the informal networks and processes, between ACAP Jomsom, DDC and Mukhiya system/VRC, and between Mukhiya/VRC and individual

Figure 5-8: Multilevel institutional adaptation landscape within the case study area



Source: Own illustration

NBT households. Other district based conservation and development organizations, such as the DSCO, DADO, MHC and District Water Management Office (DWMO), guided by the sectoral policies, plans and guidelines, also interact with the ACAP Jomsom, DDC and VDC levels organizations (discussed in section 5.3.1 and 6.3.1).

For conservation related participatory governance, the district and VDC level organizations, such as the ACAP Jomsom, CAMC, TMsC and FMsC operate under the legislative arrangements stipulated by the NPWCA, NTNC Act, CAMR and CAMD. These participatory institutional mechanisms enable and empower the individual NBT households and ACAP affiliated NBT institutions, to engage in tourism related livelihood activities, and in managing the resource for the NBT sustainability. They also partner with the key district and VDC based government institutions, such as the DDC and VDCs. These institutional arrangements enable the opportunities for inter organizational networks to participate in, and promote participatory governance within sustainable NBT development discourse. These district and VDC level conservation and development institutions represent the local level development governance mechanisms, key to resource governance, adaptation decision making and mainstreaming adaptation into development planning. These activities are carried out with the involvement of the individual NBT households.

Other district base organizations, such as the DSCO, DADO, MHC and DWMO, also partner with the ACAP Jomsom and DDC affiliated organizations, or the individual NBT households. These district and VDC based formal organizations also coordinate with traditional organizations, such as the Mukhiya/VRC, and voluntary organizations, such as the MGs. Thus, the scope and role of the Mukhiya/VRC transcends both the nature of programme (development and conservation) and governance level (VDC and district levels). However, it is important to note that such institutional partnership with the Mukhiya is limited to the formality of consultation only. The formal executional and operational development and conservation matters are carried out by the ACAP Jomsom and DDC affiliated organizations only.

From multilevel governance standpoints, the ACAP's direct governance network is based on three-tiered participatory governance structures, with the ACAP Pokhara, as the regional governance body, responsible for policy, facilitation and technical support; ACAP Jomsom, as district based local governance body, responsible for 'bottom up' decision making and participation, and the NTNC Kathmandu, as the national body, responsible for policy and advisory roles. As discussed in section 5.3.1.1, the state level MoFSC and DNPWC via NPCWCA, CAMR and CAMD, authorizes NTNC for its legislative, advocacy and facilitating roles in managing the ACA. The state level MoFSC, in turn, is guided by the much larger global framework of PA management, the MAB and IUCN (Becken and Job, 2014; Lama and Job, 2014; Meur, 1997).

The DDC's governance network is based on two-tiered approach, stipulated by the LSGA, 1999. Such arrangement is guided by the principles of people's participation in the development process through representative democracy and decentralization of authority (The Asia Foundation, 2012). As discussed in section 5.3.1.1, the DDC and VDC councils are the key local government institutions responsible for development governance in the study area. These councils operate as both the executive and management body, with their roles expanding from policies, programme and financial planning, taxation, fees and service charges, to administrative duties (The Asia Foundation, 2012). Such local governance mechanism is fed into the national governance level i.e., the MoFALD, via the DDC. The MoFALD in turn, is guided by the global development frameworks and the MDAs policy guidelines (discussed in section 5.3.1.1).

5.4.1.1 Process of governance within the ACAP Jomsom

Within the participatory governance mechanism of the ACAP, the CAMCs function as the lowest political order institutionalizing and engendering sustainable NBT resource governance system. However, when it comes of process of resources governance, these organizations are facing many criticisms. There are concerns over the political malpractice of participatory governance space, especially when it comes to equitable participation and accountability to the local community. Members of the marginalized groups and local youths complain about the CAMC becoming the hostage of the ruling local elites, limiting their access to such decision making platform. Sharing such view, a young local Inn Operator from Tukuiche told:

“It is very hard for younger generation like us to take position at the executive committee level. There are handfuls of people who are controlling the CAMC and also taking advantage of their positions.”

To ensure inclusive representation within the executive committee, the ACAP’s OIC is entrusted with the rights to nominate 5 of the 15 member executive committee of the CAMC. However, the former OIC of the ACAP mentioned that very often, during the nomination, recommendations are sought from those very influential members, raising the question of inclusiveness and accountability. The structure of the CAMCs, especially their socio-political composition, presented in section 5.3.1.1, shows that it is mostly dominated by the Thakali ethnic group and male members of the society.

The local youth claiming the CAMC members taking advantage of their positions is a sensitive issue, for both the ACAP and for the credibility of the CAMCs. When I probed further on this matter, the former OIC of the ACAP stated:

“There are instances where CAMC was found preparing the annual budget plan without discussing with the villagers. The participation was found to take place among executive members, and at times, between Chairperson and secretary only. There is a huge mistrust and dissatisfaction among the local villagers.”

Criticism also arises in terms of the CAMCs’ weakness in enforcing the conservation rules and regulations. The views of the ACAP Jomsom and DSCO representatives shed light on the inter-organizational relationships related issues, such as the Mukhiyas being uncooperative in matters related to environmental governance responsibilities, and that the CAMC members not taking firm stance against Mukhiya’s controversial decision, as critical challenges affecting the CAMC’s performance, as well as long term well being of the community.

“CAMCs cannot take their decisions until and unless they consult with the Mukhiyas. Even if they find some issues important to take decisions, if the Mukhiya suggest otherwise, they will speak the words of Mukhiya and not take decision based on the rules stipulated within the CAMR,” (OIC, ACAP, Jomsom).

“When you look at the community structure here, the decisions makers are at one level, while the community, at the other. The decision making mechanism in general is very much individual/hierarchy driven. Individual who are influential (such as Mukhiya) can do and has taken decisions that may not be participatory in its process. Such decision may not be fruitful for the community in general, or in long term basis, yet such practice is prevalent here,” (DSCO Officer, Jomsom).

Besides these functional governance deficits, issues related to structural governance gap also affect the operational and management capacity of the CAMCs. Sharing such view, the OIC of ACAP Jomsom told:

“We have failed to bring Mukhiya within the CAMC’s decision making mechanism. We are on our own island of assumption that because the CAMC is the judicial operational body, our job is done. Number one priority is that we need to ensure that CAMC takes the lead role in the conservation related and livelihood matters, but with strong cooperation and partnership with the Mukhiya.”

Adding a complex challenge to such process oriented governance issues, is the the weakening administrative and management capacity of the ACAP Jomsom. From the administrative standpoint, frequent changes of the OIC, lack of technical staffs to manage tourism, and insufficient staffs to manage natural resource programmes, are important factors. The fifteen member staff composition the ACAP Jomsom UCO has one OIC, three tourism assistants and two natural resource assistants. In the past five years, the UCO has seen transfer of its three OICs. In the last two years, technical staff position overlooking tourism management programme is vacant. The three tourism assistants that are available are responsible in operating the visitor information centre and tourism check posts, located in the Mukthinath, Puthang and Ghasa areas.

In terms of the natural resource, the most crucial source of tensions and management challenges within the area; its management responsibility lies on the shoulder of mere two technical staffs. Road development, globalization of local economy and the geopolitical contestation for energy (such as hydro-power), have accelerated the development activities and pressure on the forest and water resources in the area (see Lama and Job, 2014). Such activities are in direct conflict with the conservation policies and resource management philosophy of the ACAP that require strong monitoring, regulatory and management tactics. One of the reasons for frequent changes of the OICs is related to the community pressure on the ACAP and its higher management body, against those OICs who were trying to enforce strict environmental rules.

5.4.1.2 Process of governance within the DDC

The problem associated with political malpractice within the structural and functional governance aspects of the institutions and their weakening governance capacity, is not specific to the ACAP and its CAMCs only, but common among all the institutions, including the DDC. The absence of locally elected bodies, such as the district and VDC councils in the area meant that these local governance mechanisms remained defunct. In its place, the transitional measures, such as the APM and deployment of civil servant at the VDC level, and appointment of local government officer at the DDC, are in place. And in the absence of the regional governance body, the APM, the VDC Secretary and DDC’s Officer have become extended arms of the state government the MoFALD (The Asia Foundation, 2012).

The political vacuum at the local governance level, the changing resource use and development contexts, triggered by the LSGA provision, coupled with the ongoing political instability in the country, have triggered the political malpractice within the development activities in the area. There is a sense of dissatisfaction with the DDC and VDC among the district based conservation organization such as the DSCO. The DSCO Officer informed:

“The DDC has huge fund. Its development aid for the VDC is purely based on the decision of the village council. In its absence, the decision is taken by the APM. With unregulated discretion, the APM can spend such fund in any number of activities, or the entire fund to one particular activity. Such trend has led to the culture of unscrupulous participatory practice and also change in the mindset, among community members.”

The sensitivity of such problems with wider political and development implication is further enhanced by the weaker DDC’s administrative and management capacities. The lack of technical staffs and frequent transfers of the LDOs, have not only reduced its management capability, but also stretched the limits of existing staffs in programme planning, coordination and monitoring within the district. This has not only put the strain on the administrative body, but also lowered the quality and performance of the development services, affecting the funding availability within the DDC, to plan and implement crucial development activities. Sharing such views, the Technical Assistant and the LDO of the DDC, Mustang informed:

“DDC is extremely short staffed. Although my job is related with information management, these days I am also doing planning related activities and conducting training.”

“Based on the budget announcement, it is now mandatory for the district to meet the criteria of the minimum conditions and performance measure (MCPM) to qualify for block grant. We did not qualify for it as we did not meet the criteria. We need at least 13 lakhs (i.e, 13000 \$) to support our staff, from where would we fund the development activities is a big question.”

Frequent transfer of the LDO and the challenges it posed on the effective implementation of the district development activities was expressed as the major concern by the former Member of Parliament/UML Party Member of Mustang. The limits of the DDC and VDC’s functional ability challenged by the weaker administrative and management conditions, meant its inability to think or address issues that are beyond such mundane activities. One such issue is the operationalization of the district and VDC based climate change adaptation coordination committee, such as the EFGDCC and EFGVCC. When inquired about their roles in facilitating district and VDC based climate change adaptation activities, the DDC staff and the VDC secretary informed:

“We have received no such deliberate information, or guidance from the Ministry in integrating adaptation programme into development planning. We had a 3 day awareness workshop on climate change organized by the Ministry and that’s it,”
(Technical Assistant, DDC, Mustang).

“My work is stretched beyond my capability. From administrative work to programme planning, and from coordinating with APM to budget management, there is so much that a single staff can do. Climate change adaptation is a least priority issue. There has not been any official communication from the authoritative body above, neither from the district, nor from Kathmandu, regarding this matter,” (VDC Secretary, Tukucho).

Beyond such administrative and management specific issues, prevailing unstable political condition of the country is identified as the most important issue of contentions, affecting both the ACAP Jomsom and DDC to take leadership roles and perform sound conservation and development activities in the area. Sharing the challenges faced by these organizations in their day to day operational activity, the ACAP Jomsom and DDC officials mentioned:

“Years of political instability in the country have resulted into the culture of social misconduct and political impunity within the society. People are taking decisions and actions of their will. Such climate of social irrationality and political radicalization has affected the spheres of political and governance influence of all the organizations working in Jomsom. I’m afraid that if this culture of impunity and political radicalization continues for long, the issues of conservation, tourism development and climate change adaptation will go beyond our control,”
(Former OIC, ACAP, Jomsom).

“In the present context, the ACAP has adopted the strategy of being less assertive and authoritative, in expressing its views in conservation and development matters, even when we know that it is not in the best interest of the organizational goals. But it is not only our case, all the other development agencies in Jomsom are becoming less confrontational with the community, thinking that they might go against their wishes,”
(Tourism Assistant, ACAP, Jomsom).

“Political instability has direct impact in the governance capacity and continuity of all the development and conservation related work,” (LDO, DDC, Mustang).

Politicization of the environmental and development governance and the corresponding institutions, right from the national to local level are the worst and critical challenges faced by the institutions. Several articles published in 2012 weekly newspaper ‘Nepali Times’, also report on the concerns over the political interference and threats to ACAP and its participatory governance mechanisms.

“Nepal’s Annapurna Conservation Area Project (ACAP) survived a war, upheavals in Kathmandu and the tragic death of its founding members in a helicopter crash six years ago. But it may not survive the interference of short-sighted politicians during the country’s present fluid transition,” (Rai, 2012).

“The post 2006 political transition and upheaval turmoil has taken toll on the ACAP which is suffering from political interference and greed. The absence of local elected village and district councils, the local government is in the hands of three main political parties (Nepalese Congress, United Marxist and Leninist and Maoist), accountable to no one and driven by the party politics, they have been using provisions in the LSGA to wrest control over natural resources from ACAP’s CAMCs,” (Guragain, 2012).

5.4.2 Process of adaptation governance: Mukhiya system perspectives

As far as the traditional governance is concerned, the adaptive capacity of the Mukhiya system and individual NBT households are affected by the factors, such as the autonomy, customary governance mechanism, including the process and tactics, such as the political negotiation, adjust and adapt (discussed in sections 5.2 and 6.2). The resilient capacity of the Mukhiya system and its continuity in the study area, despite the historical multiple political upheaval, polycentric policy and institutional arrangements, and resource governance contestations from the ACAP and DDC, as suggested by Thakali (2012) highlights the strategies, such as ‘negotiate, adjust and adapt’, as the key capacity elements. Behind such engrained resilient characters lie factors, such as a sense of ownership among, and the protectionist behavior of the community towards the resource, village territory and their rights over such resources. Sharing such view the Mukhiya of Marpaha told:

“Irrespective of the ACAP’s and governments’ rules and regulations, local indigenous and customary rights to resource use and its governance is strictly protected and practiced within the Mukhiya system.”

However, when viewed from the VDC specific process and procedural aspects of governance mechanism within the Mukhiya system, different internal and external factors do affect its governing capacity. Table 5.6 provides a synoptic view of the process and procedural aspects of participation and decision making within the Mukhiya system.

As demonstrated by the table, in the VDCs of Thak Satsae and Panch Gaun (except Jomsom), the positions of Mukhiya is restricted within the patrilineal clans of Thakali (such as Jwarchan, Hirachan, Pannachan and Lalchan of Panch Gaun, and Bhattachan, Sherchan, Tulachan and Gauchan of Thak Satsae). In the Jomsom VDC of Panch Gaun, and the Kagbeni and Muktinath VDCs of Bara Gaun, the entire household member can contest for the position. From Thak Satsae to Bara Gaun areas, the position of Mukhiya, its legitimacy and the forms of governance range from autocratic and exclusionary, to democratic and inclusive in nature. Through practice of the hereditary Mukhiya system in the Lete VDC, to nomination of only patrilineal Thakali for the position of Mukhiya in Kobang and Tukucho, different forms of autocracy and exclusions is institutionally encouraged. There is also no fixed term for Mukhiya’s position in these VDCs. For instance, in Kobang VDC, the Mukhiya has been holding this position since last 15 years. This is also the only VDC where a female is heading the Mukhiya system.

The case of Kagbeni in Bara Gaun area indicates democratic and inclusive approach, which not only facilitate inclusive and accountable decision making process, but also inculcate the culture of shared responsibility among every household member, to take turns to become Mukhiya and contribute to governing the village affairs. In addition to this, the political leaderships played by the religious leaders also is crucial in enhancing the social resilience capacity and social cohesions within

Table 5-6: Profile of the traditional organization (Mukhiya system)

Socio-cultural Division	VDC	Representative Types	Remarks	Participatory Governance
Thak Satsae	Lete	Hereditary	Mukhiya from four patrilineal clans. No fixed term.	Autocracy Exclusive
	Kobang	Nominated	Mukhiya from four patrilineal clans nominated. No fixed term. Mukhiya from Bhujungkot village is the only female Mukhiya and has been holding this position for over 15 years.	
	Tukucho	Nominated	Only Chan Thakali households are entitled to become Mukhiya. No fixed term.	
Panch Gaun	Marpha	Nominated	Mukhiya from four patrilineal clans nominated. Responsibility shared on a rotational basis. Each Mukhiya has two Katuwals (Assistants), one of those belong to DAG. The DAG has to be borne in Marpha and his household registered.	
	Jomsom	Nominated	Two Mukhiyas nominated for two years. All households are entitled to contest the position.	
Bara Gaun	Kagbeni	Shared	Three Mukhiyas and two Katuwals nominated. Responsibility shared every year on a rotational basis.	
	Muktinath	Shared	Mukhiya is nominated. All households are entitled to contest the position. Responsibility shared on rotational basis.	

Source: Interview, FGD, Thakali, 2012

the society (discussed in section 5.3.1.1). Such sentiment is also shared by the former TMsC Chariman of Kagbeni:

“Our Mukhiya system is strong and intact due to two important reasons. First, our Lama plays active role and involve in every aspects of village governance system. Second, we have the provision of three Mukhiyas in the Kagbeni village. We made this provision so that if one is out of the village, other two can carry on with their duties.”

Adding complexity to the governance capacity is also the issues of external factors. External factors, such as changing socio-economic development contexts brought by the LSGA 1999 provision and road development, and thereby the accelerated development activities, are important threat factors (Lama and Job, 2014). While the core essence of the Mukhiya system and their political contestation for conservation and development is about protecting the village territorial interests and rights over natural resources, the accelerated resource exploitation and development has the likelihood of overstraining its governing capacity.

In addition to this, the sensitivity of the governing capacity of Mukhiya system was also found to be strongly correlated with the population dynamics. The finding in section 5.2 suggests about the changing demographic compositions in the study area. The Bara Gaun area is still predominantly inhabited by the local ethnic group – Gurung, while the Panch Gaun and Thak Satsae areas are losing out on its local ethnic population – the Thakali. In the Bara Gaun area such dominance of local ethnic groups plays key role to maintaining unity, socio-political relationships and cohesion, and in strengthening the Mukhiya system. While in the VDCs of Thak Satsae and Panch Gaun, the limit of Mukhiya systems' capacity is found to be intensified by the out migration of local youths and increasing economic immigrants, who do not have similar cultural worldviews and follow the traditional rules and norms. The views shared by the Mukhiyas of Puthang and Kobang further testify the issues concerning changing demography and challenges for the Mukhiya system.

“In Puthang almost everyone is from outside. There are 65 household here, of this a quarter of people came from Bara Gaun, a quarter from Thak Satsae, and another quarter from places all over Nepal such as Dhading, Myagdi, Pokhara and so on. Operating village governance system has now become very difficult in this area.”

“Mukhiya system in Kobang is at risk. Out of 36 households, only 10 are inhabited by the Chan Thakali, the rests are all non Thakali. We have now become minority groups. Lack of unity and cooperation among community are the major challenges affecting the village governance system.”

These internal and external factors have direct implication in the Mukhiya system, especially its structural and functional governance capacity.

Beyond such operation and management related governance issues, the engrained cultural and institutional biases among the community and the Mukhiya system towards established conservation and development organizations are important barriers, with long term and effective institutional adaptation governance implications. The view of a hotel owner from Kagbeni demonstrates such bias:

“The traditional rights to govern the resources should be respected by both the DDC and ACAP, and village governance system be given responsibility to manage the resources of their village. DDC and ACAP should not interfere with the traditional rules and responsibility of the local community,” (Hotel Owner, Kagbeni).

Such orthodox and exclusionary behaviour affect the potentials of the traditional governance system and their integration within the collaborative governance mechanism, needed for transitioning the institutional adaptation governance in the study area.

5.4.3 Process of adaptation governance: Hariyo Ban Programme perspectives

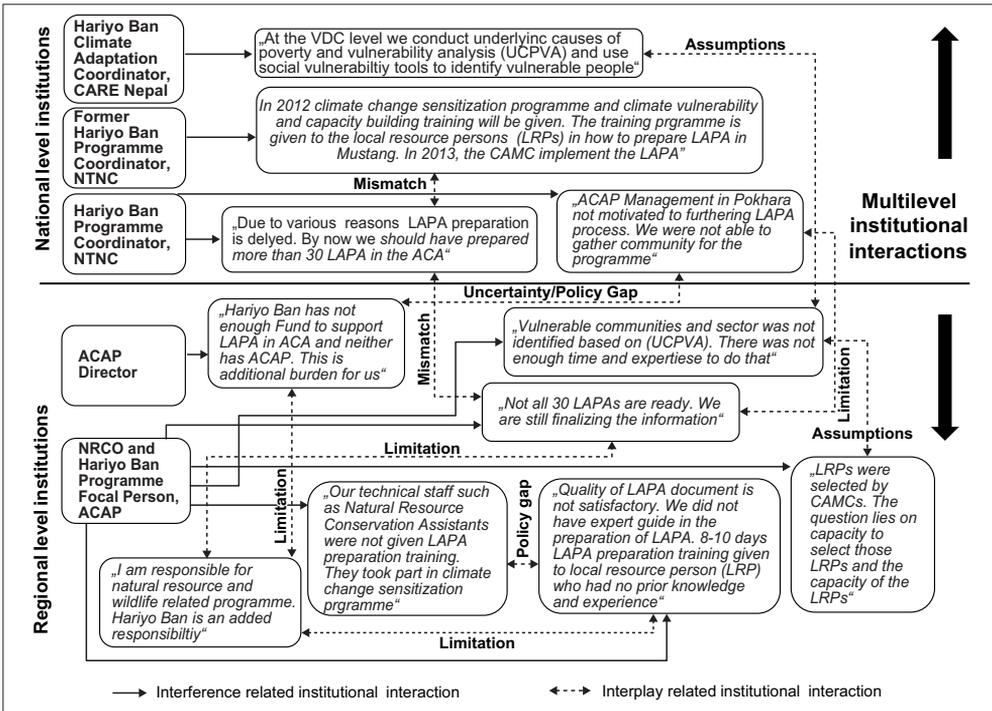
Besides the institutional networks of the ACAP, DDC and Mukhiya system, the Hariyo Ban Programme is one of the key institutions implementing adaptation programme in the study area (see section 5.3.1). This multi-actor consortium, along with its national and regional adaptation partners, such as NTNC and ACAP Pokhara, initiated the LAPA preparation programmes in the ACA, including in the Mustang district. Its objective, as the Hariyo Ban Climate Change Adaptation Coordinator informed, *“is to mainstream adaptation planning into government framework to help the community, VDC and the local government to integrate adaptation issues into their development plans.”* The LAPA planning exercise, as informed by the Climate Change Coordinator, NTNC, focussed on identifying vulnerable sectors key to livelihood. It did not identify tourism as a priority sector, but as sub-theme under infrastructure.

The actions taken by different Hariyo Ban Programme institutional representatives, such as Hariyo Ban Programme Climate Change Coordinator - Care Nepal, Hariyo Ban Programme Coordinator – NTNC, ACAP Director and Hariyo Ban Programme Focal Person - ACAP Pokhara; their political orders (national and regional level) and the processes behind, is illustrated in the figure 5.9. Differently patterned arrow indicates the types of institutional interactions occurred. The line arrow indicates the interference related institutional actions, while the dotted arrow indicates the interplay or the reciprocal relationships between two institutional actions. The following discussions elaborate on the narratives of the regional and national level institutions of Hariyo Ban Consortium, presented in the figure.

The Climate Change Adaptation Coordinator, Care Nepal, mentioned that prior to LAPA preparation, district and VDC level ‘underlying causes of poverty and vulnerability analysis’ (UCPVA) was carried out, using the tools that would assist in generating contextual ecosystem and community based knowledge and information on vulnerability.

The Hariyo Ban Program Coordinator, NTNC informed that in 2012, two activities were planned. The first activity, climate change awareness programme, was targeted to the ACAP’s technical staffs to sensitize them on the issues. The second activity, climate vulnerability and capacity building training, was aimed at training the Local Resource Persons (LRPs) to use LAPA tools and methodologies to assess vulnerability and prepare local adaptation plans. For this, the CAMCs were given the responsibility to nominate 1 LRP per VDC for such training. He further informed that the prepared LAPA will be implemented by the CAMCs in year 2013. However, in 2014, when I followed up on the progress of LAPA programme, a newly recruited Hariyo Ban Coordinator informed about the delayed progress. Reasons, such as the lack of motivation

Figure 5-9: Adaptation governance process during LAPA preparation



Source: Own illustration based on the interviews

among ACAP Pokhara management staff and their inability to timely gathering of the community for the programme, were given for the delay. Nevertheless, he informed that they should have prepared more than 30 LAPAs in the ACA.

To follow up on what he informed, I visited the ACAP Pokhara office and met with the director and Hariyo Ban focal person. When I asked the reason behind slow progress on LAPA preparation, they narrated interesting accounts. The Director of ACAP Pokhara told:

“Hariyo Ban has not enough Funds to support LAPA preparation programme in the ACA, and neither has the ACAP. This is an added burden for us.”

Besides funding, the uncertainty that hovered around the future of the ACAP, served as the critical issue, affecting the state of mind of the ACAP management officials including the Project Director. As discussed in section 5.3.1.1, the management responsibility of the ACA is accorded to the NTNC by the MoFSC, which is implemented via the regional governance arrangement, the ACAP. As per the original plan, NTNC was to hand over the management responsibility of the ACA to the local community, but a decade long Maoist conflict followed by the displacement

of local institutional structures and functions meant, reverting the achievements it gained in the field of participatory governance and local institutionalization, back to zero. Against such turmoil political and institutional context, it was necessary for the NTNC to lengthen its tenureships of managing the ACA that was ending in 2012. Its request to the MoFSC for ten more year extension that would allow it to reinstate and reinstitutionalize its disrupted local organizations, prepare the exit plan and build capacities of the organizations to manage the area, was rejected by the then maoist led government. Instead, the cabinet directed the MoFSC to find alternative arrangement to manage it. After the massive protests from the local communities of the ACA and from the conservation experts, the NTNC was finally given, first, a six months extension, and later, a two year term to come up with the plan. My 2014 field visit to the ACAP office coincided with such politically induced uncertain time period.

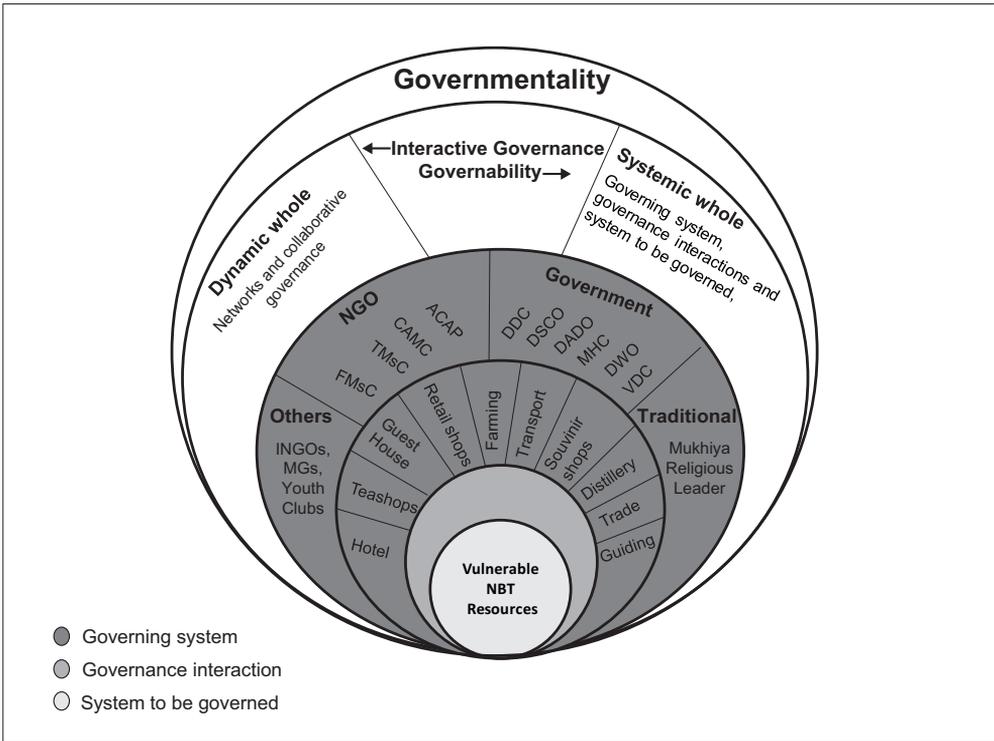
Leaving aside such political uncertainty issue, the burden caused by the limited fund to operationalize LAPA activities, was also felt in the administrative capacity. To cope with the additional responsibility of managing LAPA programme, staffs were assigned additional duties and roles. In ACAP, its Natural Resource Conservation Officer (NRCO) also worked as the Hariyo Ban Programme Focal Person, to facilitate the LAPA preparation programme. When asked how he is managing the LAPA activities, he informed that his work is affected by several limitations. Being the NRCO, his knowledge, skills and time was mostly taken up by the much demanding resource management duties, leaving him with little time to facilitate the LAPA activities. In addition to this, the lack of expert knowledge in handling the climate adaptation programme is also expressed as the major limiting factor. He further mentioned that the natural resource conservation assistants (NRCAs) at the local level share similar burdens.

Overstretched workload with underequipped knowledge and capacity means underperformance and compromised quality of work. Hence, contrary to the 30 LAPAs informed by the Programme Coordinator, NTNC, the NRCO told that not all were ready. Combination of the factors, such as the capacity of the NRCO, the political uncertainty of the ACAP's tenureship and management limbo, and the timely unavailability of participants, all affected the LAPA preparation process. As far as the quality of the work is concerned, the remarks of the NRCO that no UCPVA analysis was carried out, stating less time and knowledge limitation of the LRPs and their capability to effectively use tools for UCPVA, was an important reason. In additions, the NRCO informed that the approach of giving LAPA preparation training to the LRPs, but not to the NRCAs, who are key VDC level facilitator, was a major drawback. He views that relying solely on the LRPs for the LAPA preparation activities, who had just 8-10 day training, but no prior knowledge and experience, was a major weakness of the LAPA preparation approach. Weakness in the sense that the quality of the documents produced was not upto the standard. He also mentioned that it had also to do with the types of LRP nominated for such training and the capability of the CAMCs who carried out such nomination.

5.4.4 Governmentality of NBT institutions' adaptation governance

From the findings (discussed in sections 5.3.1, 5.4.1, 5.4.2 and 5.4.3), it can be stated that the adaptation governance context for NBT institutions in the case study area is dictated by polycentric policy environments, multi-actor institutional arrangements and governance interaction at different political orders (local to global). Based on these findings, the governmentality aspects of NBT institutions can be summarized and presented as in the figure 5.10.

Figure 5-10: Governmentality of the NBT institutions in the case study area



Source: Own illustration

As shown in the figure, the governmentality of the NBT institutions from the adaptation governance perspective is about the totality of governance consisting of the interactive governance and governability. The interactive governance suggests about the dynamic nature of governance context operating in the study area. This means that the context for governance in the study area is no longer and not just between the established institutional orders of formal institutions, such as the ACAP Jomsom and DDC only. Polycentric policy contexts (discussed in section 5.3.1) and the politics of adaptation (discussed in section 6.3.1), suggest about the

multiple legal frameworks, devolved and diffused institutional boundaries (both structural and functional) spreading over multiple NBT institutions. Such contexts have produced multiple institutions and their interaction within the horizontal landscapes of the formal and informal NBT institutions (such as DDC, ACAP Jomsom), other district based organizations (such as DSCO, DADO, MHC, DWMO), other I/NGOs (such as Hariyo Ban Programme), Mukhiya, religious groups and individual tourism households.

Devolved and diffused institutional boundaries have also embedded the NBT institutions within vertical power structures, situating the NBT institutions within the global-local adaptation governance landscapes (discussed in sections 5.4.1 and 5.4.3). Such contexts have resulted into the multilevel networks and collaborative governance. As discussed in sections 2.2.3.2, 2.3.2.2, 5.3.1 and 6.3.1, the legal frameworks of global-local development and climate change adaptation policy guidelines, creating the enabling environment for the collaborative governance among formal/informal institutions, are critical factors behind emergence of different networks and collaboration among the NBT institutions in the study area. Currently three distinct types of networks and collaborations are operational within the governance landscape of the study area. The informal NBT institutions operate within the social network and customary governance, formal institutions such as ACAP Jomsom and DDC, within the participatory governance networks, while the Hariyo Ban Consortium, within the collaborative governance networks. Although non operational, there is also government led district and VDC level collaborative adaptation coordination committee (such as the EFGDCC and EFGVCC).

When looked from the governability perspectives, adaptation governance is about the systemic nature of the governance. In the case study area, it consists of the governing system, such as the institutional arrangements, the governance interactions and the system to be governed, such as the vulnerable NBT resources (discussed in section 5.3). The governing system consists of constellation of the NBT institutions and their legal frameworks with polycentric policies (such as development, tourism, environmental and climate change adaptation policies) that are facilitating/contesting NBT development and adaptation interests and powers in the study area.

Governance interactions also play critical role in affecting governance capacity of the NBT institutions. Findings from sections 5.4.1, 5.4.2 and 5.4.3 show that the social vulnerability of these institutions is driven by the political ecology of the global-local institutional interactions, for development, tourism, environmental and adaptation governance. The sensitivity of the institutional governance capacity is triggered by the political and procedural aspects of the institutional decision making and governance approach. Whether it is the ACAP Jomsom, DDC, Mukhiya system, or the Hariyo Ban Consortium for that matter, their governing capacities are affected by the underlying socio-politics, political economy and mundane management related issues. Established governance mechanism that promotes interventions oriented development and adaptation, as opposed to those that consider institutional interactions in its totality (i.e., interference, interplay and intervention), is a fundamental issue affecting the governability of the vulnerable NBT resources.

5.5 Summary

Institutional adaptive capacity of the NBT institutions, as viewed in this study, is about the social resilience and adaptive governance capacity. The social resilience hinges on social-political construction of adaptation knowledge and power, contingent on institutional interactions that operate within a sphere, constructed as the social and political spaces. Adaptation knowledge and power constructions are contingent on several factors. First, the diverse dispositions of the study area that are reflective of the social, political and economic contexts, makes it a plurality construct. The PA site is beyond the current static geographic connotation and the MAB philosophical construct that considers it as the sites of producing scientific knowledge and values for scientific learning. Second, factors that include an array of formal and informal institutional arrangements, their social, political and economic dispositions, including the influence of the diverse legal frameworks make adaptation knowledge and power, a socio-political construct. Legal frameworks comprises of complex and varied development, tourism, environmental and adaptation legislations, policies, plans and the governance model. The legal frameworks are reflective of the evolving political regimes, which also influences the structural and functional characteristics of the institutions.

Adaptation response to vulnerable NBT resources is reflective of how institutions perceive the risks, the nature of risk and their ability to address such risks. Formal institutional response actions are influenced by modern approach, while the informal institutions use both traditional and modern approaches. Traditional response is tied closely to historical relationships with the environment, development and political contexts and the cognitive memory passed through social relations. Political economically, socio-economic factors and political positions of the participants; the experiential knowledge gathered through climate-culture-landscape nexus in governing the resource and livelihood; the strategy of 'negotiate, adjust and adapt'; and the social learning, serve as the critical factors influencing their capacity to respond. This shows that institutional response capacities are driven by factors, such as the socially defined roles, power and the experiential knowledge of the NBT community.

Similarly, institutional understanding of climate change is a value-laden construct, reflective of the predisposed socio-cultural and political assumptions, values and beliefs. The formal institutions' interpretation of adaptation and response actions are based on orthodox reductionist, science based assumptions, while that of informal institutions, on the varied worldviews. Tacit local knowledge form the basis of how the informal institutions understand and respond to climate change impacts, while the socio-cultural system form the basis of well organized and efficient social networks such as the Mukhiya system. These are critical factors contributing to the social resilience capacity of the informal institutions.

The adaptive governance capacity of the ACAP Jomsoms and DDC are affected by, first, the established governance orders guided by the participatory governance and institutional arrangements. The ACAP Jomsoms is embedded within three

tiered governance order located at national, regional and VDC levels. The DDC is embedded within two governance order at the national and VDC level. These institutions interact with informal institutions, such as Mukhiya/VRC and individual NBT households, and other district based conservation and development organizations and I/NGOs.

The adaptive governance capacities of the ACAP Jomsom and DDC are influenced by the functional governance challenges, brought by the elite capture and political malpractice of decision making and development platforms, and the weakening political leaderships, administrative and management deficit within the organisations. Mukhiya system's governance capacity in general appears resilient driven by the factors, such as the autonomy, customary governance mechanism and tactics of political negotiation, adjustment, social learning and adapting system, as per changing external environment. Yet their capacities are challenged by issues, such as the hegemony and exclusionary institutional behaviours. Exclusion, social and political discrimination observed in the internal process of adaptation governance are the result of the historic institutionalization process of these informal institutions, as per state political systems and ideology that had elements of social exclusion and cast based discrimination within the systems. The dynamics of socio-cultural and political divisions are key factors affecting the true democratization and inclusiveness within the Mukhiya system. Such intra organizational democratic governance rhetoric coupled with the impact of decreasing and changing demographic composition are affecting the governance capacity, especially in the southern belts of the study area. In the northern belts, democratic practice, inclusive structural governance, religious and political leaderships, predominant and intact indigenous group, play key role in enhancing resilience and governance capacity of the system. In addition to this, the exclusion based discriminatory behaviour, observed in the external processes of governance that discount the power and political importance of the formal institutions and their rules, is the critical factor in limiting the scope for the collaborative governance initiatives between formal and informal institutions in the study area.

The LAPA initiatives and mainstreaming approach is an important step towards linking adaptation and local development plans, and in facilitating collaborative institutional approach. However, at the operation level, the process demonstrates the rhetoric of participatory and collaborative governance that is fraught is coordinated intervention. The governance capacities of the regional and national institutions are affected by the administrative, management, human capability and political contexts. The discounting of such political and procedural dimensions of adaptation governance had direct impact in effective implementation of the LAPA preparation programme. Limits of the capacities of the collaborating partners is orchestrated by the reductionist, scientific and incremental adaptation approach, that separate adaptation planning from political and procedural aspects of the adaptation governance.

6 NBT institutions' adaptation to climate change: A socio-political perspective

6.1 Introduction

This study explored the social dimensions of sustainable NBT development and adaptation issues within the social resilience and adaptive governance perspectives of the NBT institutions that are responsible in operating tourism services and managing the resources at the individual households and organizational levels. This chapter presents the analysis of the study findings in relations to the research questions aimed at generating empirical knowledge about the social resilience and adaptive governance capacities of the NBT institutions. Section 6.2 discusses the findings on how the study area as sites of knowledge production and socio-political relationships, is located within the sociological contexts. Section 6.3 presents the discussion on the findings related to social resilience capacity exploration. Sphere as an analytical construct displays significant overlaps between knowledge and power spaces. Hence, the scope of exploring social resilience capacity lies not in pick pointing individuals, single organisational, or village representative knowledge and power, but to paint a holistic picture on the state of local adaptation knowledge and power dynamics (institutional arrangements), among these institutions, and how they are produced and affect their response capacities. These are discussed within the thematic topics of politics and political-economy of adaptation (sections 6.3.1 and 6.3.2). Section 6.4 discusses how adaptive governance capacity, framed as the quality of governance construct, hinges on the political and procedural aspects of adaptation governance and governmentality. The chapter concludes by highlighting the value of the analytical constructs, such as the quality of governance, in transitioning the current ad-hoc institutional adaptation approach to effective direction.

6.2 Mustang as multiple sites of adaptation

Sustainable NBT development within the ACA is guided by the MAB's philosophy of PA as sites of producing scientific knowledge. The IUCN Category VI and the management philosophy that guides the PA governance, consist of the low-level non industrial use of natural resources compatible with nature conservation (Borrini-Feyerabend et al., 2013). The institutional culture of managing the ACA and the NBT development, is based on treating the ACA as sites of static spatial area and zonation, and sustainable development, as balanced approach between resource conservation and economic development. However, the NBT development approach and the management strategy of the ACA, no longer reflect the current sustainable development contexts, management challenges and collaboration needed in the case study

area. The changed national development policy, such as the LSGA has legitimized local individuals and organizations' rights over, and the use of, natural resources.

As sites of cultural and ethnic identity, the case study area also represents as sites of cultural heritage and traditional villages, governed by the local village governance system. Such social networks and the cultural ties, bounded by the belief system and traditional norms, shape the worldviews of the informal institutions, their knowledge system and its use. As sites of economy, its scope and scale in Mustang is much broader and larger than at the time when the ACA as IUCN VI PA category is envisaged. Tourism now is more than the natural recreation oriented activities, such as NBT, consisting of pilgrimage, leisure and adventure sports. Subsistence agriculture and horticulture have now become commercial enterprises. Energy development and focus that once was limited to micro-hydro and solar power production for hotel operation, have now shifted into the production of mega hydropower. The river system along the Kali Gandaki is now registered under several private companies for this purpose. With Pahirothaplo-Jomsom-Ghoktang road, the historic economic salt trade route of Mustang is in the process of being converted into an economic transit corridor between China and India. From the conservation standpoint, the National Biodiversity Strategy and Action Plan and the CBD Aichi Target 11 have expanded and consolidated the PA coverage beyond spatial geographic imageries, to ensure the involvement of broad range of actors, diversify governance types and improve management effectiveness and quality of governance (Borrini-Feyerabend et al., 2014).

From development governance standpoint, the political division of the study area as district and villages also disregards the cultural meanings and local governance values, the area hold. Limiting the site within the spatial and political geographic construct, fails to account the dynamic property of the study area constantly under flux brought by the interacting social, political and economic contexts (discussed in section 5.2). These location specific contexts, coupled with the changing global-local sustainable development and climate change policies, have not only transformed the development context in the area but also diffused the static geographic and political boundaries, embedding it into global-local boundary system. Such policy shift is reflective of the growing interests on equity and justice related global-local legal frameworks, discussed in section 2.2.3.2. These frameworks highlight the values of human capability and social learning for addressing adaptation and development challenges and calls for unlocking the human potential, to understand the psychology, society and behavior of the humans involved in the development (World Bank, 2015; UNDP, 2014). From the study findings, it is apparent that unlocking institutional social resilience and adaptive governance capacity require more than the status quo approach and understanding of adaptation issues, response and management practices.

Based on this discussion, it can be argued that the equity and justice based approach to institutional adaptation starts from conceptualizing the study area as sites of plurality constructs, socio-political relationships and learning. This condition creates opportunity to begin appreciating the multiple site specific contexts, institutions' roles and their influence in problematizing adaptation issues, motives and value behind response actions and management interests.

6.3 Institutional adaptive capacity: Social resilience perspective

6.3.1 Politics of institutional adaptation

The current NBT and adaptation contexts in the case study area are the reflection of the state level evolving political, development, conservation and tourism regimes and policy changes, and the changing relationships of the institutions with the people and the environment. From the findings, the status of legislation, plans and policies that govern NBT institutions and the types of organizations (both formal and informal) responsible for adaptation in the case study is summarised and presented in the table 6.1.

Table 6-1: Summarized legislative frameworks for institutional adaptation

	Formal Institution			Informal Institution
	Government Organization	ACA Management Organization	Sectoral Government Organizations	Traditional Organizations
Institutional Arrangements	DDC, VDC, APM, User Groups	ACAP, CAMCs, TMsCs, FMsCs	DSCO, DADO, MHC, DWMO, VDC	Mukhiya/VRC, Religious Leaders
Legislation and policies	Development Board Act (1956),illage Development Act (1992), District Development Act (1992), LSGA (1999), Rural Development Plan (1999), PRSP (2002 - 2007), Poverty Alleviation Ordinance (2004), Rural Access and Decentralization Projects/ Priority Investment Plan (2007-2016), Poverty Alleviation Fund Act (2008), Good Governance Management and Operation Act (2008)	Wildlife Conservation Act (1958), NPWCA (1973), NTNC Act (1982), 3rd Ammendment NPWCA (1989), 4th Ammendment NPWCA (1992), CAMR (1999), CAMD (1999)	Sectoral Acts: Soil and Watershed Conservation Act (1982), Water Resource Act (1992), Forest Act (1993), Environment Protection Act (1993), Biodiversity Conservation Strategy (2002), Nepal National Biodiversity Strategy and Action Plan (2014-2020)	Traditional Autonomous Village Governance System
	Tourism Master Plan (1972), Tourism Act (1978), Tourism Policy (1995, 2008), Tourism Vision 2020			
	NAPA (2010), Climate Change Policy (2011), Climate Resilient Plan (2011), LAPA (2011), Environment Friendly Local Governance Framework (2013)			

Source: Own compilation

From the development perspective, the state policy of the pre modernization era of Nepal with the strict isolation and exclusion approach, nurtured by the oligarch political system, provided the important historical development contexts. The mode of governance and development was characterized by the exclusion policy of external and internal nature. Externally, isolation as a strategy to protect nation against the advancing British Empire, was a successful move. However, it had also isolated Nepal from any forms of outside contacts. Internally, social exclusion based governance and development, stratifying people based on castes and class are important factors affecting the human development process in Nepal. The seeds for functionally and structurally generated poverty are rooted in the legal system of these historic modes of governance and development, characterized by the exclusion policy of external and internal nature. Such system is a priori characterizing the political system and behavior of the institutions (Aldashev, 2009). A considerable body of research in the development economies suggests a strong correlation between the historical origin of a country's law and legal rules/regulations, as well as the socio-economic outcomes (La Porta et. al, 2008).

The wide-ranging political regime change, followed by policy restructuring from exclusionary to neo-liberal policy restructuring and changes to the current post-structuralist federal democratic political system (Thakali, 2012; Askvik et al., 2011; Sawtee, 2007; Liechty, 2005), took place as part of the political and social movements to fight against political, social, economic and environmental injustice and inequity. Each changing political regime has resulted into political, development and governance change that are pro people, equity and justice based. These political developments have resulted into paradigm shift in both development and conservation discourses.

Within the development context, from the Decentralization Act (1982) to LSGA (1999) and EFLGF (2013), the political process shifted the development thinking from participatory to equity, justice based, pro-people and towards collaborative governance direction. Hence the 21st Century development landscape of Nepal is centered on good governance in general and devolved institutional power and local governance, in particular (MoLD, 2011). Such devolved policy frameworks shifted both the polity and politics. Shifting of the authority, resources and arrangements from state to local government i.e., from MoFALD to DDCs and VDCs, formed the basis to deliver services to the people; while inclusiveness, transparency and accountability (the principles of good governance), to guide the collaborative governance for sustainable development. In terms of adaptation governance, the notion of collaboration has produced vertical and horizontal governance networks through the formation multi-actor district and VDC based climate change adaptation committees, such as the EFGDCC and EFGVCC.

From the environmental governance perspective, the conservation policy is reflective of national legal, policy and programme agendas, which in turn is reflective of country's development politics. The evolving development politics have thus resulted into paradigm shifts in the politics of both resource conservation and tourism development in the ACA in general, and the study area, to be precise. Such parallel

evolutionary shift is valid until the period of the 90s. The NTNC Act 1982, NPWCA 3rd Ammendments 1989, CAMR 1996 and CAMD 1999 indicate how the motives for sustainable NBT development in the ACA resulted into NBT management approaches that are participatory, yet, economic growth and utilitarian conservation oriented. However, the post 90s period of rapid and radical development, governance change and policy restructuring, had little effect in the conservation and tourism legislation and policies. The lack of NPWCA, CAMR and CAMD amendment, as per changing development policy and political contexts meant that the ACA management approach is still highly influenced by the orthodox dominant philosophies of ecosystem management and policies, such as the participatory, utilitarian and biodiversity conservation.

Besides the established ACA governance frameworks (such as NPWCA CAMR and CAMD), other local and global sectoral policies, such as Soil and Watershed Conservation Act (1982), Water Resource Act (1992), Forest Act (1993), Environment Protection Act (1993), Biodiversity Conservation Strategy (2002), Nepal National Biodiversity Strategy and Action Plan (2014-2020) and the Aichi Target 11, are crucial in the biodiversity conservation, NBT development and collaborative adaptation governance contexts. These developments are important in two important ways. First, it has helped to redefine the conservation and the values of the PAs, from static regional level biodiversity and habitat protection, to dynamic and landscape level standpoints. Second, it has opened up political space for multi-actor and multilevel interactions, key to collaboratve governance mechanism. The other district based conservation and development organizations (such as DSCO, DADO, MHC, DWMO), the key adaptation partners of the ACAP Jomsom and DDC, are guided by the sectoral policy guidelines. These contexts, including the argument of Borri-Feyerabend et al., (2014), provide important philosophical and empirical contexts to expand and consolidate the ACA coverage and management approach, beyond spatial geographic imageries, and include social and political dimensions of the sustainable development and adaptation, diversify governance types and improve quality of governance.

Lack of tourism policy and programme, reflective of existing sustainable development contexts and challenges, are key policy oversight and strategic deficiency that have cascading effects in both the national and local level tourism institutions' apathy to climate change adaptation for sustainable tourism development in the country (discussed in section 6.4.1). Since 90s, the MoCTCA instead of taking lead role in tourism sustainability related development and environmental matters of public interest, has become the hostage of economic growth focussed development approach and private sectors' agenda and interests. Neo-liberal mode of tourism development, followed by the establishment of NTB, has not only limited the roles of the MoCTCA, but also concentrated NTB's role to regulate and facilitate the private sector initiatives in tourism promotion and marketing (Adhikari, 2005). The Tourism Policy 2008 and Tourism Vision 2020 are yet another sustainable development rhetoric motivated in furthering private sectors' interests.

States sustainable tourism development planning and the NTB's ppp model have facilitated the participatory spaces for private companies, as opposed to creating inclusive spaces for both public and private interests. According to Forsyth (2010), the offering of business incentives to private companies and issuing them contracts to offer public services, are important context in institutionalizing the culture of short-term economic interests and hegemonic alliances, as opposed to longer term collaborative partnership based on shared interests. The existing tourism policy, vision and ppp model act as bottlenecks, as they do not reflect the pro-people, justice and collaborative forms of sustainable tourism development thinking and governance mechanism; as envisioned by the EFLGF (2013) and Climate Change Policy (2011).

Challenges also arise due to discrepancies between climate change policy, development plans, and NAPA guidelines. The country's major climate change policies, the 12th and 13th development plans are geared towards promotion of a green economy for low-carbon development path, adaptation and resilience capacity enhancement of local communities (NPC, 2013a; MoEST, 2012). The 13th Plan explicitly emphasizes Nepal's commitment to adopt green economy to minimize the impact of climate change on natural resources and sustain economy (NPC, 2013b). NBT, the most salient carbon friendly development activity that contributes to achieve this development path, and that is highly vulnerable to the climate change impacts, has not received due attention within the NAPA guidelines. Given that the NAPA is key national policy guideline for designing LAPA, this gap is a major shortcoming and is likely to relate to a national lack of basic information on the impacts of climate change on tourism and opportunities for the development of adaptation strategies. The combined effect of the national lack of sustainable tourism policy and strategic vision, coupled with lack of national and local adaptation policy guidelines for tourism, have two implications. First, lack of representation of tourism decision makers within the state level Climate Change Council, and second, the discounting of tourism issues within adaptation planning at the local level (discussed in sections 5.4.1 and 6.4.1).

In terms of climate change, its policy and plans in Nepal parallels with the emerging transformative development governance frameworks. The combined policies, such as the Climate Change Policy, 2011, the Climate Resilient Plan, 2011, and the development frameworks for adaptation governance, such as the EFLGF, 2013, provide strategic leverages to government's transformative development and adaptation governance thinking. Adaptation has now been recognized as part of a critical response strategy for addressing climate change impacts to achieve environment conservation, human development and sustainable development goals. These changing development and climate change adaptation thinking indicate two emerging contexts in the study area. First, it has opened the local political and social spaces, and inclusive decision making opportunity, directly influencing the sustainable development outcomes. Second, such emerging trend is a clear sign of the conversion of the society into poststructuralist environment, where knowledge, power and capacity reside upon polycentric governance, as opposed to hegemonic.

Both tourism and climate change being cross cutting issues, the institutional adaptation should bear a broader outlook on sustainable NBT development con-

cept, integrating social and political dimensions of adaptation and governance approach.

As far as informal institutional arrangements are concerned, the cultural, historic political and economic development contexts are important factors in this regard. From the cultural context, the customary practice, norms and boundary demarcation, provided base for the claim over resource access and use rights policies. From the political and economic perspective, the political contestations, the economic importance of the Mustang district as a salt trade route, played crucial roles; first, in allowing the community to retain autonomous status of the area, and second, to control economic development process.

The practice of political and administrative autonomy had both positive and negative implications in the informal institutions. From the positive aspect, it allowed for the proper institutionalization of the traditional governance system and the enhancement of the social and resource governing capacities of such institutions. These factors made the community and the system resilient to changing external political, development and environmental contexts. However, the negative aspects is that the benefits of special political provisions and the opportunities gained out of such economic development process, were mostly reaped by the handful of Thakalis, working as the Subbas (Custom Contractors) (Vinding, 1992), while the rests were excluded from such opportunities. Such structurally generated income poverty provided important contexts for class warfare in the study area. To a large extent, such behaviour of excluding the 'others' by those members became institutionalized through the Mukhiya system (discussed in sections 5.4.2 and 6.4.2), which they learned through the acculturation of the practice of caste based discrimination and social exclusion that was strictly followed by the ruling elites of Kathmandu.

6.3.2 Political economy of institutional adaptation

The integral approach, especially the micro narrative and diagnostic queries (as discussed in section 3.2), allowed holistic investigation of the institutional response to vulnerable NBT resources. The findings illustrated in the table 5.4, not only provide a composite picture of all the factors affecting the institutional response capacity, but similar to what Pelling et al., (2008) suggest, also helped unpack how adaptation knowledge and power align to sociological processes of institutional adaptation.

The findings show that the institutional response to vulnerable NBT resources is both traditional and modern in its approach. The traditional response mechanism, such as praying to God to protect land, resources and lives against natural disasters, excessive or less rain, in the Lete, Kobang and Tukuhe VDCs, or to the Serpent God for good harvest and to prevent drought in Kagbeni and Muktinath VDCs demonstrate how ritual practice based response actions form an integral part of the cultural way of life and the knowledge base. Such cultural expressions as a response mechanism emerge out of the strong religious values, thereby invoking the cultural belief and practices.

The informal institutions represent individual NBT households of different socio-cultural and political group and their social networks. They are bounded by religious belief, practice and traditional resource governance system. These culturally imbued social groups and organizational networks, similar to what has been discussed in section 2.2.2, act as an important system of knowledge, produced through cultural interaction, operating within a social space, via socio-political relationships between the individual NBT household, religious leaders and Mukhiyas. Such culturally induced response approach is responsive to, and reflective of the climate, ecology and geographic conditions. From a broader institutional perspective, these findings suggest the strong evidence of the intrinsic climate-culture-landscape specific relationships and interactions. These dynamic relationships and interactions between the informal NBT institutions and their environment form the basis for construction of 'knowledge of' and 'knowledge for' coping with external threat factors, and an important context, contributing to their social resilience capacity.

Despite such strong knowledge base and response actions, the underlying political-economy driven development challenges are critical factors generating different vulnerability contexts. For instance, the issue of deforestation, despite the presence of strong moral obligations and cultural traditions of protecting forests, can be implied to the weaker traditional governance capacity. The traditional norms and rules governing the resources not only invoke cultural belief and values, but through normative practice of resource governance, regulate the social norms and practices within the village governance system. Political leadership of the informal institutions is crucial to ensure that cultural specificities induced resource governance values are intact. Hence, both political leadership and cultural specific resource governance values and norms are key factors affecting the response capacity of the informal institutions and their social resilience capacity.

The modern approaches to respond to the impacts of natural disasters on tourism infrastructure and business, implemented by the DDC, ACAP Jomsom and DSCO, do not suffice to make the participants resilient to natural disaster impacts. The limits of such approach are associated with immediate and underlying threat factors. The immediate and underlying drivers, such as the deforestation and insufficient compensation support, lack of comprehensive land use management and disaster management plans, are critical factors limiting these organizations' effort to reduce participants' vulnerability against natural disasters. Beyond such political economic process, the fragile geological and ecological conditions, steep topography and the force of the Kali Gandaki River, are important natural adversities imposing natural disasters, with the scale and frequency, constantly exposing the community to such disasters (Upreti and Yoshida, 2005). Vulnerability of tourism community to natural disasters is widespread and common in the study area, especially below the Jomsom VDC (Lama, 2010). Given these contexts, it is beyond single organizations' capacity to address the issue effectively. This highlights the context for, and the value of collaboration among all those organizations, for which political will and leadership is needed. Lack of institutional collaboration is one of the biggest governance capacity issues, affecting the institutional response to natural disasters. Hence, I argue that the response to the impacts of natural disasters is beyond technical issues where

dimensions of psychological, cultural and political knowledge and power influence the adaptation process.

The vulnerability of NBT institutions due to agricultural and horticultural impacts, are as much induced by the climate variability and change, as by the non-climate factors, such as the natural adversities, the effects of increased development pressures, prevailing political instability, poor governance context and poverty. The natural adversities, such as the arid conditions and less rainfall make the northern belt by default, a water scarce area for agriculture. Such condition is a bottle neck for sustainable agriculture in the Kagbeni and Muktinath VDCs. The conditions of natural scarcity influenced the psychology and the development of efficient water management practices that allowed the community to cope and to sustain their livelihood. The strategic combination of cultural practices and local water governance system constitute the local response mechanism and elements, and also contribute to their resilience capacity. In the southern belt, the vulnerability of the institutions, despite Kobang and Lete VDCs being the wettest part of the district, lies in their lack of good irrigation facilities and dependency on the rain fed agricultural system.

In the entire study area, the case of Tukuche, Marpha and Jomsom VDCs show that their capacities to deal with impacts on agriculture and horticulture are stronger, than the rests. Several factors, such as the availability of good irrigation facilities and accessibility to government agricultural and horticultural service centers, put these VDCs in the advantageous positions, making them technologically and infra-structurally capable to make agriculture and horticulture, resilient to climate change impact. However, when viewed into a deeper societal level of such VDCs, there is a stark differential response capacity among participating individuals. The social local elites, in due regards to their political influence and socio-economic dispositions, have better access to tap into the necessary experts' help and information, while those without, have no options than to change farming types or abandon the practice altogether. Among those resilient social local elites are also the Mukhiyas, who as discussed in section 6.3.1, have greater political influence and economic standings to increase their chances of becoming resilient.

Vulnerability of the NBT institutions due to impacts on water resources and their traditional response, are influenced by the cultural belief and values, while modern approach, by technical solution oriented ideals. In general, the availability of drinking and irrigation water, and the responses of these institutions, has cultural, socio-economic and political dimensions. The response to reduced drinking water availability is as much related to decreasing level of water at source, as to the combination of other development ills, such as insufficient and lack of infrastructures, lack of human resource and local knowledge. Underneath such threat factors lay issues, such as the socio-economic disparity, lack of comprehensive water management plan, increased tourists demands, and out migration. Prevalent socio-economic disparity has undermined the capacity of the poor NBT households to be resilient to decreased drinking water availability. Lack of comprehensive water resource management planning and limited budget availability, add a complex mix to this problem of drinking water shortages in Mustang. This has not only affected how the sustainable water development is to be achieved, but is also responsible for unsustainable response approach, such as piecemeal and ad hoc institutional response actions.

There is also human resource and capability related factors affecting the informal institutions ability to respond to impacts. For instance, the ability of the local community to understand and adopt technological know-how, availability of local youths and socio-economic disparity, emerged as key issues affecting NBT institutions' response capacity. Aging population and out migration of younger people are important bottle neck, in reducing the resilience capacity of the individual NBT households. The socio-economic disparity and thereby the differential vulnerability exposure and response capacity, are important justice and equity related issues. These are the critical human development issues, increasing the sensitivity of the informal institutions to NBT resource vulnerability, and reducing their adaptive capacity. Their sensitivity is high, considering the dynamics of the risks brought by emerging tourism development pressure and climate change. Sustainable approach to tourism development and adaptation within the climate and development policies, put heavy emphasis on human development. The Nepal Human Development Report (GoN-UNDP, 2014), clearly emphasizes that Nepal's path for sustainable development lies in unlocking human potentials, especially by enhancing the productive abilities of citizens and reducing inequalities. From the HDI standpoint, although Mustang and Manang districts have the highest HDI score (GoN-UNDP, 2014), the major challenges of long term nature, such as the emerging de-population trend and socio-economic disparity within communities, are critical human development issues. Informal institutional response capacity connotes adaptation knowledge and power of social, political and economic dimensions.

From the formal institutions perspective, insufficient fund and lack of comprehensive accounting of the tourism development and adaptation plans are important factors, affecting the capacity and the ability of these institutions to respond sustainably. Similar to what Wall (1997) suggest, sustainability of the insitutional approach hinges on the comprehensive aspects, such as the development philosophy, process, plan and programmes. From this discussion, it is argued that, similar to informal institutions, the capacity of the ACAP Jomsom and DDC are also affected by the political economy of the development and governance issues. Formal institutional response capacity thus connotes adaptation knowledge and power of political economic dimensions.

From this discussion, I argue that the issues of climate change and development are strongly correlated. Hence, as discussed in section 2.2.3.2, adaptation and development are inseperable issues. The NBT resource vulnerability and institutional social resilience capacity, are the issues of social and political economy of development, and of human development and capacity. The response capacities of the insitutions and the processes involved, are the product of the institutional interactions. As discussed in sections 5.2 and 5.3, they correlate with different contextual social, geo-physical, political and economic factors and dispositions of the individuals/organizations; the psychological, cultural and political dimensions of knowledge constructions; and political economy of development and governance, thereby affecting the relationships and interactions among NBT institutions. Within the governance context, the sociological thinking and approach that investigate and explains the quality of governance, examining the process, or 'looking at what lies beneath' the

institutional adaptation, and how it is governed, or 'looking at dynamic and systemic nature' of adaptation governance, is critical for effective institutional adaptation.

6.4 Institutional adaptive capacity: Adaptive governance perspective

6.4.1 The process of adaptation governance

To understand the adaptation governance contexts, the case of NBT institutions is located within the evolving political, development, environment and adaptation governance policy arenas, from the global, national to local contexts. The legitimate positions of the ACAP Jomsom and DDC, guided by the global local legal frameworks, and Mukhiya system, by the traditional governance frameworks, are crucial factors in governing the resources for NBT management in the study area. This shows that there is both dynamic and complex nature of the resource governance contexts, driven by complex processes of conservation and development focused intra and inter-organizational arrangements and interactions, occurring between the ACAP Jomsom, DDC and Mukhiya system. External to these institutional networks, the collaborative networks of Hariyo Ban Programme, implementing LAPA preparation programme, also add a complex layer to this governance networks.

From the findings, the adaptation governance capacity of the NBT institutions is summarized and presented in the table 6.2. In general, decentralization, participatory and devolved decision making formed the fundamental governance basis for these institutions, as well as the important determinants of their functional capacity. However, when viewed from the political and procedural aspect of participation, decision making and governance aspect, these organizations have different governance capacities and limitations. The quality of adaptation governance, key to institutional adaptive capacity, is about the process and procedural aspects of decision making and governmentality; it is discussed in the following sections.

6.4.1.1 Governance capacity of ACAP Jomsom and DDC

In terms of the environmental governance capacity, the ICDP and participatory governance are the hallmarks of the ACAP and its subsidiary district and VDC based NBT institution's success in sustainable NBT management. Such governance model not only helped increase consciousness of these institutions on the importance of conservation for tourism, but also provided an inclusive political space, to actively engage in conservation focussed development activities (Ojha & Sarkar, 2012; Baral et al., 2007). However, their governance capacities are affected by the lack of external and internal policy and polity restructuring. The lack of conservation and tourism related legal frameworks (such as NPWCA, CAMR, CAMD, Tourism Policy and Tourism Vision), supportive of changing sustainable development and adaptation policy guidelines, and the lack of collaborative governance mechanism, integrating

Table 6-2: Unpacking NBT institutions' adaptation governance capacity

NBT Institution Governance Types	NBT Institution	Governance Capacity of the NBT Institutions	
		Enabling Environment	Human/Institutional Resource
Formal - Environmental Governance	CAMCs and TMsCs	External policies NPWCA, CAMR, CAMD, Tourism Policy, Tourism Vision. Lacks both external and internal adaptation governance mechanism	Lacks inclusive representations of diverse socio-economic groups (DAG, youths, poor community)
	ACAP		Lacks sufficient and competent technical staffs
Formal – Development Governance	DDC and VDC Councils	External policies LSGA, LSGR, GGMOA, EFLGF	Lacks locally elected government (DDC and VDC Councils), APM
	DDC	District and VDC level adaptation governance mechanism EFGDCC and EFGVCC	Lacks sufficient and competent technical staffs
Informal - Traditional Village Governance	Mukhiya and Religious Leaders	Autonomous and customary rules and regulations	Lacks local youths, decreasing local population. Lacks inclusive representations of diverse socio-economic groups (DAG, youths, poor community)

Source: Own illustration

the formal and informal organizations, are important policy and polity failures in this regard. Internally, issues ranging from the exclusion of diverse socio-economic groups, non-democratic decision making political space, homogenization or selective participation within the CAMC, are critical factors. The CAMC, which is the functional decision making unit (Baral, 2013b), its institutional governance capacity is suffering from the rhetoric of participatory decision making and governance. These processes and procedural aspects of governance are impeding the inclusive and justice dimensions of the institutional governance capacity.

Based on the findings (see section 5.3.1.1), such political malpractice can also be argued to have been rooted in the broader institutional ideology i.e., the utilitarian conservation based participatory governance model of the ACA, that parallel the neo-liberal development era of the 90s. Thus despite the normative organizational philosophy of the ACAP, such as ‘conservation with human face’, envisaged to guide the participatory resource governance at the operation level, the human value of conservation importance is highly undermined by the activities of economic rationality and interests. Such management context, proved a perfect incubator for rural elites to gain access to, and secure positions in the formal institutional decision making platforms, to further their economic and political interests and capacity. And while the socio-political dynamics of the NBT governance, especially from social justice and its interface with human capability for NBT sustainability, have never been contested,

issues such as increasing socio-economic disparity, sense of alienation among vulnerable groups, lack of conservation responsibility and interests among those institutional members, insufficient influence, enforcement and willingness among the CAMC members, are affecting the capacities of these institutions. Such development ills are not unique to the case study area only, but endemic in rural regions of developing countries including Nepal. According to Bostörm (2012), Van de Walle (2002) and Ashley and Maxell (2001), persistence of poverty, despite the concerted effort of the government and the MDAs for sustainable development, is due to insufficient attention to the social and political economic factors which is perpetuating inequalities and disparities within the rural regions of the developing countries.

Besides these community perspectives, the general perception among the officials of the ACAP Jomsom and DSCO, suggest the lack of interests and good cooperation from the locals and the Mukhiya in matters related to conservation, in due regards to the community becoming more business motivated and not having time for environmental and social welfare works. This is perceived as one of the key factors for the weaker enforcement capacity of the CAMCs. The changing economic scope brought by the road development and the ongoing political instability, provided additional incentives to further such disparity among vulnerable NBT institutions, and political misconduct within the participatory governance mechanisms by dominant rural elite members of the community. Such finding is not unique to this case study area only. Baral et al., (2007) in a study conducted in the Ghandruk UCO of the ACA, also found issues concerning equitable participation and benefit sharing among community members and CAMC's performance in enforcing the conservation regulations. This suggests that the question of volition action of those involved in decision making is critical issue for effective participatory governance. Hence, although local institutional mechanism for participation and governance is in place, the lack of functional governance competence of the CAMCs, in due regards to their lack of, or deficit interests, are important factors affecting the institutional governance capacity. Management issues arising from the administrative challenges faced by insufficient tourism and natural resource programme related technical staffs, and frequent transfer of the OICs, are critical governance capacity issues. Such challenges affect the quality of the governance, especially the process of adaptation programme planning and implementation. Political interference in the management related activities (Baral, 2013a), and the culture of complacency developed within management level are another important capacity issues.

Such culture of political malpractice and management challenge caused by volition action and political instability in the country, are not unique to the ACAP Jomsom alone, but is prevalent among the DDC and Mukhiya system too. Within the DDC, the external factors, such as the ideals of LSGA, LSGR, GGMOA and EFLGF, not only created the enabling environment for good governance (through decentralized, accountable, equity and justice based development planning and implementation), but also provided institutional arrangements, such as the district and VDC councils, EFGDCC and EFGVCC, for effective district and VDC level governance and adaptation. In the absence of locally elected government, such as the DDC and VDC councils, the APM, a de facto participatory political space of resource gover-

nance for development practices, was provisioned. However, contexts such as the political vacuum caused by the lack of local government, weaker political leadership of the DDC and VDC officials, meant the subjection of the LSGA and APM to misinterpretation for the political convenience of the party affiliated members and their vested interests, as opposed to the principles of accountability, equity and inclusive development approach.

Lack of legitimate local government organizations, such as the district and VDC councils also affected the operational aspects of the EFGDCC and EFGVCC. Hence, although the EFGDCC and EFGVCC represent the transformative local governance mechanism for mainstreaming local adaptation into development planning, absence of local government, limited DDC and VDC staffs and their capacity, are critical barriers to operationalize such collaborative governance based local adaptation mechanism.

Political malpractice within participatory governance landscapes of the case study area, is not unique to Mustang district alone. It is identified as one of the burgeoning problem prevalent at the local level governance scale of Nepal (The Asia Foundation, 2012). The precedence of politics over legality has been a defining feature of Nepal's transition over the last seven years and this has had direct effect upon the state and society (Adhikari et al., 2014). It is not a complete absence, but rather a degeneration of the rule of law is what reported as major issue, deeply undermining the essence of participatory governance (The Asia Foundation, 2012). Cases of rising corruption and the misappropriation of development fund have made major headlines in recent years in Nepal (Adhikari et al., 2014; Bell, 2014).

The issues fueling the management challenges also stem from the frequent changes of the DDC officials and lack of capable and technical DDC and VDC staffs, which are critical human resource related issues. Such administrative challenges have several management implications. Frequent changes of the LDOs have weakened the political leaderships, institutional strengthening and management maturity process. Overstretched roles and duties of the DDC and VDC staffs to compensate the political vacuum, created by the lack of local government have overstretched the capacity of the officials. Such issues, coupled with lack of competent technical staffs have on one hand, limited the scope of their roles to everyday administrative issues, and on the other, inhibited their capacity to engage in a long term development and adaptation related programme planning and management. Such cases of operational lethargy demonstrate the classical example of the policy practice discordant.

From the policy standpoints, the restructured development policy guideline (such as the LSGA, GGMOA and EFLGF) is aimed at facilitating the inclusive and good governance practice, the one that hinges on principles, management sophistication and intricacies, and for which a strong and dynamic local political leadership and institutional process is required. However, in the current climate of destabilized local institutional structures, weak political leaderships and management capacity, institutionalization of good governance, devolved and inclusive development, and adaptation governance mechanisms, such as district and VDC councils, EFGDCC and EFGVCC, are the biggest challenge.

6.4.1.2 Governance capacity of Mukhiya system

The governance capacities of the informal traditional village governance system, such as the Mukhiya system, are also affected by the external and internal factors. The autonomous and customary based endogenous resource governance rules, regulations and their contexts, are challenged by the rapidly changing economic development contexts, brought by the LSGA, and the accelerated development activities (such as road development). While the core essence of the Mukhiya system and its political contestation for conservation and development, is about protecting the village territorial interests and rights over natural resources (Thakali, 2012), the accelerated resource exploitation and development occurring in the study area, is overstraining its governing capacity. Such limit of capacity is further intensified by the outmigration of locals and increasing infow of the economic immigrants, who do not have similar cultural worldviews and follow the traditional rules and norms. Decreasing local population and lack of unity, or social cohesion is threatening to destabilize the Mukhiya systems, especially in the southern belts of the study area.

However, there are internal political and procedural aspects of governance too that have contributed to the Mukhiya system being at risks or less resilient. The internal factors are related to the equity and justice dimensions of the village governance. The democratic decision making within the village governance system, is suffering from accessibility and accountability issues. The autocratic exclusionary governance practice, common in Thak Satsae and to some extent in Panch Gaun area is important context. The social divisions of people based on castes and the institutional behavior of the Mukhiya system, as discussed in section 5.3.1.1, is reflective of the historical association of Mukhiyas with ruling elites of Kathmandu and their political system that believed in social exclusion and autocracy. The VDCs below Jomsom, located within the Thak Satsae and Panch Gaun areas are also the areas with highest concentration of DAGs and other ethnic groups (discussed in section 5.2).

When looked from social dimensions, poverty is starkly pronounced in the Mustang district. The prevalent poverty, socio-economic disparity and the political malpractice of excluding the diverse community members from the decision making platforms, are critical inclusiveness and accountability issues. Such institution-alised structural and functional corruption is not unique to the case study area only. Increasing unevenness in public access to social entitlements, power, knowledge, wealth and basic human rights, are critical issues locking the poor and powerless inside a permanent underclass cage in Nepal (Dahal, 1999).

Findings also show that the Muktinath and Kagbeni VDCs of Bara Gaun area, in due regard to their democratic and inclusive practices, coupled with stable and predominant Gurung population, rendered its governance capacity to be strong and resilient. Strong social resilience, as discussed in section 6.3.2, is an important factor binding the community and social networks, such as Mukhiya system together. However, the failure of the Mukhiya system to account to the changing political, social and development contexts, whether within the internal process of village governance context, or external process, such as the changing sustainable development

and adaptation governance frameworks, are critical capacity issues. Despite Mukhiya's transcending scope and role in resource governance and institutional collaboration with district and VDC level formal organizations (see section 5.4.1), perceptions among local communities and the Mukhiya that discount the formal institutions' legitimate positions and roles in governing resources is an important barrier for collaborative governance.

6.4.1.3 Governance capacity of Hariyo Ban Consortium

The institutional interactions that occurred during the LAPA preparation programme demonstrate processes of adaptation that are multi-actor and multilevel governance oriented. It also demonstrates the intricacies and dynamics of interactions that occur during such multilevel institutional adaptation interventions. The finding demonstrates how the governance capacities of the national and the regional level Hariyo Ban Consortium partners are affected by the interference and interplay oriented institutional interactions. The findings suggest that the LAPA preparation programme, the quality of the document produced and its likelihood of being effectively implemented in the Mustang district, reside beyond reductionist and technological solution oriented interventionist approach. The issues, as generic and mundane, as administrative and everyday management capacities, to those, such as dominant development ideology, assumption based institutional approach, policy gaps, uncertainty and limitations, have been found to influence the process of governance.

The dominant ideology and assumption based issue is related to the way adaptation is problematized and the LAPA programme is designed. It is seen as apolitical issues, and the tools and framework designed to produce the adaptation knowledge, is scientific and technical. Expert/consultant led adaptation framing, policy guidelines and the tools, designed to produce such knowledge, have little room for including the voices and choices other than those predetermined by such guidelines. The assumptions that the availability of the tools for UCPVA and trainings offered to LRPs, would suffice to enhance their skill to prepare LAPA; or their selection responsibility left to be carried out by the CAMCs alone, would ensure the capable LRPs being nominated for the training, in practice, demonstrated the different realities. The findings show that the issues, such as limited time and knowledge of the LRPs, their inherent capacities to absorb knowledge and skills, the ability of the CAMCs to select competent LRPs; all such processes affected the successful outcome of the training programme and the quality of the LAPA document produced.

The governance capacities are also affected by the the administrative and management challenges. The mismatch between planned action and outputs, due to initial Programme Coordinator leaving the job and the time lapsed in recruiting new Coordinator in NTNC, coupled with factors such as political uncertainty of the ACAP tenureship and management limbo, and the overstretched workload and capacity of the NRCO, are critical process related governance issues. These issues demonstrate the political and management limitation related constraints. The observed management limitation related constraints were also caused by the policy gaps, external and internal to the ACAP management guidelines. External factors, such as the lack of conservation and tourism policies, reflective of changing devel-

opment and adaptation policy guidelines, and the lack of integration of tourism policies within such guidelines, act as major bottleneck to guide the comprehensive ACAP management plan. Internally, the management plan of ACAP problematizes climate change as issues of natural resource management implications. The response strategy, accordingly, is framed from the ecosystem and mitigation and not from human dimensions perspectives (NTNC, 2012). The ecosystem focused LAPA preparation approach not only display strategic void for tourism, but such lack of focus also discount the scope of the human and livelihood contexts, within the sustainable development dimensions.

When viewed from the institutional interaction standpoint, the coordinated adaptation interventions oriented approach has its limits to address the governance capacity issues that are political and procedural in nature. The regional and national level organizations, such as the ACAP, NTNC's and Hariyo Ban Programme's capacity to facilitate and govern the LAPA preparation at the local levels, are affected by the institutional interference (i.e., the everyday operational, political relationships, management practices and challenges). Such act of interference, on one hand, has affected the ability of the institutions, and on the other, compromised the effectiveness of their multilevel relationships, power and capacity. Such reciprocal relationships observed as interplay, are found to affect the organizational capacity of the ACAP and NTNC. These intangible processes are the key factors to producing the contextual adaptation knowledge and power dynamics, which in turn are influenced by socio-political, economic and environmental dispositions and interior perspectives of the collaborating institutions. The multilevel everyday operational and management processes and issues, and their dynamics, have direct bearing on the effective adaptation intervention at the local level.

Hence, as discussed in section 2.3.2.1, effective institutional adaptation hinges on the social and functional ability, and the contingent institutional behaviour to accommodate to continuous changing environment. This implies that the institutions and their capacity are embedded within the sociological and organizational field of adaptation processes. The institutional approach aimed at planning and implementing prescribed adaptation interventions alone, is not sufficient for effective institutional adaptation.

When looked from a big picture perspective, the root cause behind such intervention oriented institutional adaptation approach, whether in case of the ACAP Jomsom and DDC, or the Hariyo Ban Consortium, lies in the ideologies that drives these institutions. The established orthodox ideologies that govern these institutions are important contexts creating political barriers. Political barriers arise from the two existing political control (and the emergence of the local governance contexts). First control is the issue of theoretical and methodological control. These institutions and their adaptation approach are dominated by the reductionist and essentialist thinking, embedded within neoliberal development paradigm and modernism theory. There is also the fact that the resilience literatures at the societal level are less developed compared to the ecosystem resilience that has a rich history of over four decades of its conceptual development (Berkes and Ross, 2013). These contexts led to the institutionalization of the environmental and ad-

adaptation governance approach and the regime, grounded in ecosystem based essentialist perspective, as opposed to the human, or social system based holistic perspective.

Second control is about the political control. For instance, the government policies is an outcome of global-national political interactions and subjectivities, be it in terms of development, environmental or climate change governance. On a wider scale, the global policies mediated through national government, subjected local institutions, inducing their participatory space to essentialist and reductionist approach. The policy domains and institutional arrangements have created a space where linkages, hierarchies and interdependencies predominate the formal NBT institutions (such as ACAP Jomsom and DDC) and other I/NGOs (such as Hariyo Ban Consortium). Such institutionalization process has greatly influenced the psychological and political understanding of the adaptation, its framing and governance contexts. Hence, the understanding of knowledge and power is based on reductionist and technical knowledge, dominating the institutional response to climate change (discussed in sections 5.3.2 and 6.3.2) and the LAPA preparation programme (discussed in sections 5.4.3 and 6.4.1). Such governance framing lacks collaborative and polycentric institutional integration and networking

Beside such big picture based political control, internal political control via political malpractices and exclusions are important factors influencing the ACAP Jomsom, DDC and the Mukhiya system's political and social space of decision making. The intra and inter institutional alienation from NBT resource and adaptation decision making, on one hand, has limited the inclusive governance space, and on the other, generated piecemeal programmes, making them ineffective. Whether it is the ACAP Jomsom and DDC affiliated VDC level institutions, or Mukhiya system, one common theme with regards to governance process is about ensuring meaningful participation in the adaptation governance processes and collaborations among different organizations.

Similar to what Adger et al., (2009) suggest, the involvement of constellation of the NBT institutions, their political influence and the values they portray are not only diverse, complex and dynamic, but also act as limits, if these values are not deliberated. Adaptation approach needs to take into account the complex and dynamic processes of institutional interactions beyond adaptation interventions. The existing institutional adaptation approach, whether in local level tourism governance context, such as in case of the study area, or at the regional and national levels, are not sufficient to address the adaptation governance issues effectively.

6.4.2 Governmentality of the adaptation governance

Based on the findings from sections 5.3 and 5.4, the governability of adaptation governance is both dynamic and systemic and hence to be treated as adaptive.

The dynamic governance nature is resulting due to transformative policy guidelines that are rapidly changing the social and political relationships, power dy-

namics and institutional interaction among the NBT institutions. Such contexts, in combination with the political economy of adaptation, as discussed in section 6.3.2, suggest how institutional response to climate change are resulting into governing mix of networks and collaborations.

The governability of these institutions is contingent on the policy and polity integrations. In terms of NBT adaptation governance, the national lack of sustainable tourism policy and strategic vision, coupled with lack of national and local adaptation policy guidelines for tourism, is an important barrier. Besides, the ACA management philosophy and the institutional arrangements under existing conservation policy guidelines (such as the NPWCA, NTNC Act, CAMR and CAMD), neither reflects the devolved local development and collaborative adaptation governance frameworks, such as the EFGDCC and EFGVCC, nor accommodate the broader and systemic biodiversity conservation policies such as the Nepal National Biodiversity Strategy and Action Plan and Aichi Target 11, that redefined the conservation values and PA governance contexts, beyond static and monocentric institutional arrangements. There is thus the need for tourism and conservation policy updates. This is to be followed by the polity integration beyond existing participatory governance networks that facilitate the polycentric governance contexts and collaborative institutional arrangements in the study area.

The value of, and the need for policy and polity integration is argued from the fact that the system to be governed, i.e., the NBT being cross cutting in nature, the impact of climate variability and change are multi-sectoral (such as tourism infrastructure/business, water, forest and agriculture/horticulture). The NBT resource related impacts and the collaboration need, crosses institutional, economic, ecological, social and political boundaries. Having said that, it is important to note that the systemic nature of the NBT (discussed in section 2.1.5) and the inseparable link between climate change and development (discussed in sections 5.3.2 and 6.3.2) builds a strong case to treat the governance capacity within a systemic construct of governmentality.

The findings suggest that beyond policy gap and polity integration, institutional ideology also influences the governability aspects. Issues concerning how tourism development, conservation and governance is framed; play key role in facilitating the institutionalization process (structural and functional arrangement of the ACAP Jomsom, DDC and Mukhiya system), the approach and behaviour of the NBT institutions. In terms of the NBT development, the dominant market economy of 20th century and the development opportunities to further economic interests act as important drivers, affecting the development ideology and perception of the individual NBT households. Similarly, the orthodox conservation and PAs management philosophy, and the promotion of scientific and biodiversity focused policy are other critical factors, influencing the political and cognitive processes among decision makers. These contexts not only influenced the institutionalization of the ACAP Jomsom and DDC, but also created political spaces and meanings that influenced the political-ecology of sustainable tourism development and governance arrangements in the study area. Hence, within the established institutional order, ACAP Jomsom and DDC are recognized as the two main formal institutional mechanisms,

responsible for sustainable NBT development and integrating adaptation into development planning. This is an important political barrier, particularly while the findings show how the development and adaptation governance frameworks have opened political space for polycentric, devolved and collaborative governance.

Within the traditional resource governance context, the internal governance processes of exclusion oriented political, social and economic development, and village governance, are key to institutionalizing the Mukhiya system that reinforced the unequal relations in roles, functions, decision, rights and opportunities among the communities. Such contexts, similar to what Dani and de Haan (2008) suggest, perpetuate a hegemonic relationship and unequal political, social and economic status among people. Externally, Mukhiya system's protectionist and inward looking attitude, discounting the legitimacy of formal institutions are critical institutional bias, affecting the collaborative governance process.

As discussed in section 2.2.4 there is a political and informed understanding among policy makers and scientists of the need and value of collaborative governance in mainstreaming adaptation to development planning. Within the case study area, the diffused social and political boundary means that power and control of ACAP, DDC and Mukhiya are shared constructs, both horizontally and vertically. The horizontal power diffusion is demonstrated by the socio-political governance model in section 5.3.1, while vertical power diffusion, by the multilevel institutional adaptation landscapes model in section 5.4. These contexts demonstrate the NBT governance landscapes that are collaborative in characters.

6.5 Summary

The politics of adaptation for NBT institutions are influenced by the global-local development, tourism, environment and climate change legislative frameworks. Such diverse legislative frameworks are reflective of the evolving political regimes. The context for adaptation is brought by transformative development and climate change policy shift, making local NBT institutions, their roles and the governance space, key to transitioning tourism development and adaptation into effective and sustainable direction. Such policy and political mileage created conducive environment for development and adaptation policy guidelines and frameworks, such as the EFLGF, EFGDCC, EFGVCC, NAPA and LAPA.

The development and climate change policies mirror the changing political regimes. The post 90s development contexts and policy guidelines continue to evolve and transform according to changing political regime and climate change policy guidelines. The VDC and DDC Acts (1992), LSGA (1999), EFLGF (2013), Climate Change Policy (2011) and Climate Resilient Plan (2011), have radically transformed the political and development contexts, policy and governance landscapes from hegemonic to transformative regime. The EFGDCC and EFGVCC, represent the transformative institutional structures designed to facilitate mainstreaming of adaptation into local development planning.

However, NBT institutions are faced with several policy, polity and politics related challenges. First, the speed of political decision making within the development and climate change contexts (such as the legislative and policy restructuring, favoring transformative adaptation and inclusive decision making) is faster than the speed of environmental and tourism decision making and development contexts. There is no national level tourism and conservation legal frameworks that address environmental and climate risks for sustainable tourism development. Both the tourism and conservation policies are influenced by the neoliberal mode of development that separate social from the economic development and ecosystem management politics. ACAP's philosophical approach of balanced conservation and development and the national policy frameworks, is no longer relevant to the changing sustainable development imperatives that calls for complexity and system management, the one that is reflective of equity, justice and climate resilient sustainable tourism development vision.

Second, the existing national and local level adaptation policy and plans, such as the NAPA and LAPA, do not integrate tourism within the evolving adaptation discourse. Third, ACAP's institutional arrangement is suffering from the gaps observed in the NPWCA, CAMR and CAMD frameworks envisaged in the 90s. The institutional arrangement is juxtapositioned within the established institutional order of monocentric networks and cooperation, as opposed to polycentric and collaborative governance.

At the case study area level, ACAP Jomsoms' policy, planning and polity are influenced by such national policy and polity environment contexts. The DDC is affected by post-structural mode of sustainable development and resource governance. The Mukhiya system is influenced by the customary resource governance. Beyond the case study area, the Hariyo Ban Programme is guided by the collaborative approach to institutional adaptation.

Institutional response to climate change demonstrates the combination of both traditional and modern approaches being applied by the participants. The response approach of informal institutions is both traditional and modern. Traditional approach embodies the cultural worldview, rooted in the strong religious belief, rituals, traditional norms and practices. Informal institutions represent unique socio-political group bounded by traditional resource governance system, such as Mukhiya system. The unique cultural fabric of the informal institutions and their interconnectedness with the religious, cultural and indigenous belief system, are the foundations that govern the livelihood and society in the case study area. Cultural specificities based response action is based on tacit knowledge produced through cultural interaction via social relationships among informal institutions. Adaptation knowledge from this standpoint is an intrinsic knowledge. Such response actions are also reflective of their institutional adaptive capacity, mediated through social network such as the Mukhiya system.

Traditional approach is not only the expression of cultural worldview, or religious manifestation of the society, but also the reflection of climate-culture-landscape nexus. The cultural specificities based response actions are in tune with, and practiced within the limits of the environmental, climatic conditions and the dispo-

sitions, specific to the northern and southern belts. Such practices demonstrate not only the informal institutions' acute sense of multiple connection with the site (the study area), but also reflect strong place based coping approach. These contexts expose them to different vulnerability situation, response need and capacity contexts that determine the social resilience capacity. The multiple associations with the site, holistic thinking, fluidity and place based approach are important factors influencing the psychological and cultural behavior of the informal institutions, their knowledge constructions and resilient capacity.

The effects of climate variability and change are hard to separate from the effects of increased development pressures and existing ills. Natural disaster impacts in hotel infrastructure and business is as much driven by climate events, as by the immediate and underlying drivers of change. The availability of drinking and irrigation water at the face value seem to have caused by climate variability and change, but underneath the development ills, such as ineffective/mismanagement, socio-economy disparity and human resource, are critical factors affecting the response capacity of the institutions. Hence, besides climate variability and change, the vulnerability of the NBT resources and the resilience capacity of the institutions are contingent on the political economy of the development and the social vulnerability of the institutions in correlation with the political, social, economic and environmental dispositions.

The multiple threat factors arising from climate, non-climate factors, and from the immediate and underlying drivers of change underscores the limits of institutional adaptation approach of formal institutions that are hoc, piecemeal, incremental, monocentric. It is beyond the capacity and scope of a single organization, such as the ACAP Jomsom, or DDC, and the impact analysis driven institutional approach alone to respond to the impacts effectively. The limit of the modern institutional approach means that the response capacity is contingent on traditional and modern approaches, on the socio-political relationships and collaborative interactions among all NBT institutions. Such integrated nature of relationships raises the value of all three social dimensions of response capacity, such as psychological, cultural and political dimensions. This reinforces the value of both formal and informal organizations and social constructions of adaptation knowledge, and the need for an adaptive governance approach.

The sociological approach to investigating and explaining the adaptive governance capacity is about investigating the quality of governance. Within this construct, the process of institutional adaptation, and how it is governed is critical for effective institutional adaptation. Although decentralization, participatory and devolved governance formed fundamental functional basis for adaptation governance capacities of the NBT institutions, at the operation level, their capacities are affected by the factor, such as the institutional adaptation approach. Such approach is critical in affecting the attitude and behavior of the institutions that are influencing the process and procedural aspects of governance, for adaptation and NBT sustainability. The institutional approach, guided by the exclusionary policy, polity and politics of resource governance, are critical factors affecting the inclusive and collaborative governance mechanisms.

Political and procedural aspects of the governance of the ACAP Jomsom, DDC and Mukhiya system are affected by the underlying political ecology of resource governance. The participatory and decentralized governance processes of these institutions suffer from the paradoxes, such as the inclusive participation, accountability, regulatory and implementation issues. Such issues are observed in both internal and external process of governance mechanism, produced as a result of the culture of political malpractice, weaker management capacity and political instability.

Within the ACAP Jomsom, external factors, such as the legal frameworks and the institutional arrangement, juxtapositioned within the established institutional order of monocentric networks and cooperation, exclude both DDC and Mukhiya system. Despite the availability of broader and systemic biodiversity conservation policies such as the Nepal National Biodiversity Strategy and Action Plan and Aichi Target 11, that shifted conservation values and PA governance contexts into systemic and collaborative contexts, lack of PA conservation legislative frameworks updates, act as bottleneck in transitioning the conservation regime from participatory to collaborative governance direction. Internally, exclusion of the diverse socio-cultural and economic groups, non-democratic decision making and homogenization, or selective participation within the CAMC (the lowest decision making political unit), are critical factors. Within the DDC, lack of locally elected government organizations, misinterpretation of the APM for political convenience of party members and their vested interests, have compromised the devolved political space of development governance.

Similarly, the informal institutions suffer from the criticism of being hegemonic, exclusionary and autocratic. Socially biased institutionalized culture, that gave rise to biased political system, social stratification and natural resource use rights and distribution, are important factors influencing the behavior of such institutions. Such behavior is reflective of the deeply rooted, state level social and economic discrimination oriented political and development process. The processes and practice of the Mukhiya system, accountable for, and offer privilege to one social group, over the other, are important historical contexts for the production of structural income and social inequality. The institutionalization process that continued during different stages of state formation and development era reinforced the Mukhiya system, and the political and socio-economic disparity among the community, in the study area.

Externally, there is no strong on the ground political leadership, management capabilities and collaborative consensus, to facilitate and operationalize the EFG-DDC and EFGVCC, prepared by the MoFALD, and LAPA, prepared by the Hariyo Ban Programme Consortium. Political instability, political impunity and a decade long process of state restructuring have destabilized local institutional structures and functioning mechanisms.

Governance capacities of Hariyo Ban Consortium are challenged by the combination of internal and external political and procedural aspects of adaptation governance, occurred during LAPA preparation programme. Internally, issues as generic and mundane, as administrative and management capacity related challenges, are critical factors, affecting their governance capacities. Beyond operation level, their

capacities to effectively govern the programme are also challenged by the institutional ideology, policy gaps and politics of governance, thereby influencing the institutional approach, the behavior of the decision makers and their capability.

The central argument that can be drawn from this discussion is that understanding institutional adaptation needs to consider the complexity, dynamic and varied nature of the socio-political dimensions of, and context to adaptation processes, and equally varied perceptions of the institutional understanding of adaptation and sustainable tourism.

Inclusive and collaborative adaptation governance, key to effective institutional adaptation, is challenged by both external and internal process and procedural aspects of adaptation governance. Multi-actor and multilevel collaborative governance, and especially the values of, and role played by the local NBT institutions, in adaptation knowledge construction and response actions, are critical factors for social resilience. The polycentric policy, polity and political ecology of adaptation governance means acknowledging and integrating the collaborative governance mechanism within the institutional governance approach, through shared vision, comprehensive strategy and collaboration, both dynamically and systemically within the multilevel governance contexts. Transitioning the existing institutional approach to long term, or effective institutional adaptation requires acknowledging the quality of governance, i.e., the process and the governmentality of the adaptation governance.

7 Conclusion

The global sustainable development and adaptation importance of the local places and its people is one of the most politically and morally implied development discourses in the current world. The global-local policy and political discourse on the value of sustainable development and local climate change adaptation, the role of the local institutions (formal and informal), and positioning of the local governance space within the political enclave of such multilevel governance perspective, have transformed the context for the sustainable NBT development in Nepal, in general, and the Mustang district of the ACA, to be precise. Hence, the value of the NBT institutions and their roles in addressing the global-local sustainable development and adaptation imperatives cannot be contested. Within such transformed development and climate change adaptation policy contexts, the political and strategic discourse emphasise on the need for integrating the NBT development, adaptation and governance within the sustainability triad; the one that looks into the social dimensions of institutional adaptation. However, sociological investigation of institutional adaptation and particularly within the aforementioned sustainability triad, is an under-theorised research topic. Such contexts provided important case for, and rationality behind conducting this research in the first place.

This chapter is divided into three sections. Section 7.1 provides the summarized overview of the research objectives and methods used. Section 7.2 presents the key findings related to research objectives 2 and 3. Section 7.3 presents key findings related to research objectives 1 and 3, especially from the theoretical, policy and practical implication of the study, for a better informed process of sociological understanding and analysis of the institutional adaptation to climate change.

7.1 Research overview

The purpose of this exploratory study was to increase the sociological understanding of the institutional adaptation to climate change. In particular, the study explored and analysed the social resilience and adaptive governance capacities of the NBT institutions, in 7 VDCs of the Mustang district, a popular NBT destination in the ACA, Nepal. The NBT institutions belong to the district and VDC level formal and informal institutions, such as the ACAP Jomsom, DDC and their affiliated VDC level organizations, individual NBT households, Mukhiya System, religious leaders, other district based government organizations, voluntary organizations and I/NGOs; directly or indirectly involved in the tourism service operations and the resource management. Beyond the study area, the institutions, such as the Hariyo Ban Consortium represented the multi-actor and multilevel institutions, responsible for LAPA preparation programme in the ACA, including the Mustang district.

In particular, the study examined the complex sociological process of institutional adaptation, using the sphere and quality of governance, as the analytical framework, and integrative institutional adaptation, as the methodological approach. Such methodological approach was ideal to integrate diverse epistemological, methodological and ontological perspectives dependent construction of adaptation knowledge and power, and the institutional interactions that influenced the social resilience and adaptive governance capacity of the institutions. The scope of this explorative study therefore lies in painting a holistic picture on the state of the knowledge on social resilience and adaptive governance capacity of the NBT institutions. However, to facilitate such dynamic and complex process of investigating institutional adaptation, methodological rigour consisting of multi-methods, such as case study action research was carried out. It included activities, such as the in-depth interview, personal conversation, socio-economic survey, workshops and FGD.

The specific objectives of the study included:

Objective 1: To advance the socio-political understanding of institutional adaptation in relation to sustainable NBT development

Objective 2: To generate empirical knowledge about social resilience and adaptive governance capacities of the NBT institutions

Objective 3: To contribute to a better informed process of understanding and analysing institutional adaptation to climate change

7.2 Towards an effective institutional adaptation direction

In trying to investigate the social dimensions of institutional adaptation to climate change, both objectives 2 and 3 provided important analytical leads. The study found the institutional social resilience capacities to be contingent on socio-political construction of adaptation knowledge and power. Several factors, such as the political, economic and environmental dispositions of the NBT institutions, the associated socio-political processes of knowledge constructions, the institutional interactions operating in a socio-political space and their dynamics, influenced the knowledge and power produced. Both site specific and institutions specific political, social and economic dispositions provided important contexts.

Site specific dispositions gave rise to the study area being a site of plurality constructs. Similar to what Escobar (1998) suggests, and what this study also found, is how the notion of site is more than the static geographic and scientific constructs. The study area constitute strong interface between social, political and economy contexts, rendering it to multiple meanings, values and contestations among constellation of the NBT institutions. It is therefore critical to understand the NBT insti-

tutions, their knowledge and capacities, against the backdrop of such plurality constructs. Treating PAs as the sites of knowledge production and application beyond MAB's protocol of scientific knowledge production, to sites of socio-political relationships and interactions, producing socially and politically constructed knowledge and power, provide an important basis to begin thinking and acting about adaptation in transformative manner (Doyon and Sabinot, 2014; Naughton, 2013; Bahadur and Tanner, 2012).

Equally important is the political, social and economic dispositions of the NBT institutions that have created constellation of the NBT institutions, operating in the study area. These are represented by both formal and informal institutions. Formal institutions, such as the ACAP Jomsom and DDC, are subjected to political and economic dispositions, while the informal institutions, such as the individual NBT households, Mukhiya system and religious leaders, to political, social and economic dispositions. Various global-local legal frameworks manifested as the political dispositions, influenced the structural and functional institutional arrangement of the formal institutions. Within the Mukhiya system, the customary governance framework, social and economic status of the individual NBT households, influenced the structural and functional institutional arrangement. Besides these distinct formal and informal institutions, other district based conservation and development organizations, voluntary organizations and I/NGOs, such as Hariyo Ban represent the adaptation institutional partners.

These site and institutions specific dispositions provide important context for the institutions in how they perceive the risks, the approach they use and their ability to address such risks. Formal institutions used a modern approach, which is orthodox, reductionist and assumptions based, aimed at producing prescriptive solutions to the problem. Informal institutions demonstrated flexibility by using both traditional and modern approaches. Traditional responses are the manifestation of their historical relationships with the environment, development, political contestations, and the cognitive memory. More precisely, their experiential knowledge of adjusting their political and economic positions, livelihood, the resource use access to, the rights over to govern, and the climate-culture-landscape specific response actions, all contribute to their strong social resilience capacities. Such knowledge is not tangible, yet very actively produced and used as part of response process to external threats, such as climate variability and change. Such knowledge resides within the cultural specificities based response actions, operationalized through social networks, such as the Mukhiya system, via social relationships and interactions. This shows that institutional social resilience capacities hinge on social factors, such as socially defined roles, power and the experiential knowledge.

The kind of adaptation knowledge produced and power relations within the NBT institutions, whether, between formal institutions (such as the ACAP Jomsom and DDC), or between formal and informal (such as the ACAP Jomsom, DDC and Mukhiya system), or among multi-actors interacting at multilevel governance scale (such as Haryio Ban), are socio-politically constructed. The social resilience capacities are contingent on adaptation knowledge, power and coping mechanisms of the NBT institutions. The NBT institutions are the crucial local institutions in improv-

ing the NBT resilience against both climate and non-climate factors, and thereby advances the sustainable development and adaptation agendas, for effective institutional adaptation. Their adaptive capacities are affected by cultural, political and economic circumstances (Becken et al., 2013; Ribot, 2013, 2010). These factors, together with their experiential and place based knowledge, have resulted into adaptation specificities. A crucial point to note, critical from the social resilience capacity contexts, is the strong evidence of the intrinsic climate-culture-landscape specific relationships and interactions, resulting into adaptation specifics, key basis for the tacit knowledge and the capacity element.

Adaptive governance hinges on the institutional arrangements (such as functional and structural arrangements), the procedural aspects of the adaptation governance and the governmentality. These are reflective of the diverse legal frameworks, such as the policies and governance arrangement, the interiority perspective of the institutional decision making and governance practices. The functional arrangements of the ACAP Jomsom and DDC are influenced by the polycentric policies, which in turn influence their structural arrangements. Formal institutions' attitude and behaviour in the way they frame adaptation approach, the actions taken and their ability to respond, are reflective of the policy environment, the polity and modes of governance. The Mukhiya system is influenced by the customary village governance system. Established institutional orders and governance mechanism of the ACAP Jomsom and DDC demonstrate participatory and monocentric arrangements, as opposed to collaborative and polycentric. In terms of the ACAP Jomsom, the issues, such as lack of policy and polity integration, institutional ideology based on neo-liberal and utilitarian conservation mode of NBT development and governance mechanism, and reductionist and essentialist institutional approach to adaptation, are critical factors behind such policy-practice discordant. In terms of the DDC, the issues, such as lack of operationalizations of the transformative policy and collaborative governance arrangements are critical factors of policy-practice discordant.

An improved understanding of the social dimensions of NBT institutions adaptation, not only provides important insights for effective adaptation, but also helps address current problems of sustainable development in the light of climate change (Smit et al., 2001; Smithers and Smit, 1997). Effective institutional adaptation hinges on conditions, such as human capability, ethical and moral dimensions of the NBT resource and adaptation governance. The study demonstrates that the vulnerability of individual NBT households is contingent on complex set of political ecological processes of development and resource governance. Right from the institutional ideology, approach, arrangements, to local adaptation planning and implementation, the processes of development are fraught with rhetoric of sustainable tourism development and participatory resource governance. Elites dominated decision making platforms and the capture of the development programmes suggest how culture of political malpractice and political economy have triggered the vulnerability contexts among marginalized, DAG and poorer NBT households. Hence, cultural and political-economic dimensions of vulnerability are the most salient of the factors influencing governance capacity (see Ribot, 2010; Moser, 2009 a, b).

Although, culture is a critical capacity element in influencing the worldviews of the informal NBT institutions, and in strengthening the social networks and coping capacities, the very culture induced social and institutional behaviour of excluding the poor, lower castes/class and the 'others', from the mainstream development and resource governance system, are important conditions resulting into inequality, socio-economic disparity and political marginality. This made institutions disproportionately vulnerable to climate variability and change impacts. Hence, I argue that the social vulnerability of the NBT institutions is contingent on cultural and political economic conditions and dispositions of the interacting institutions.

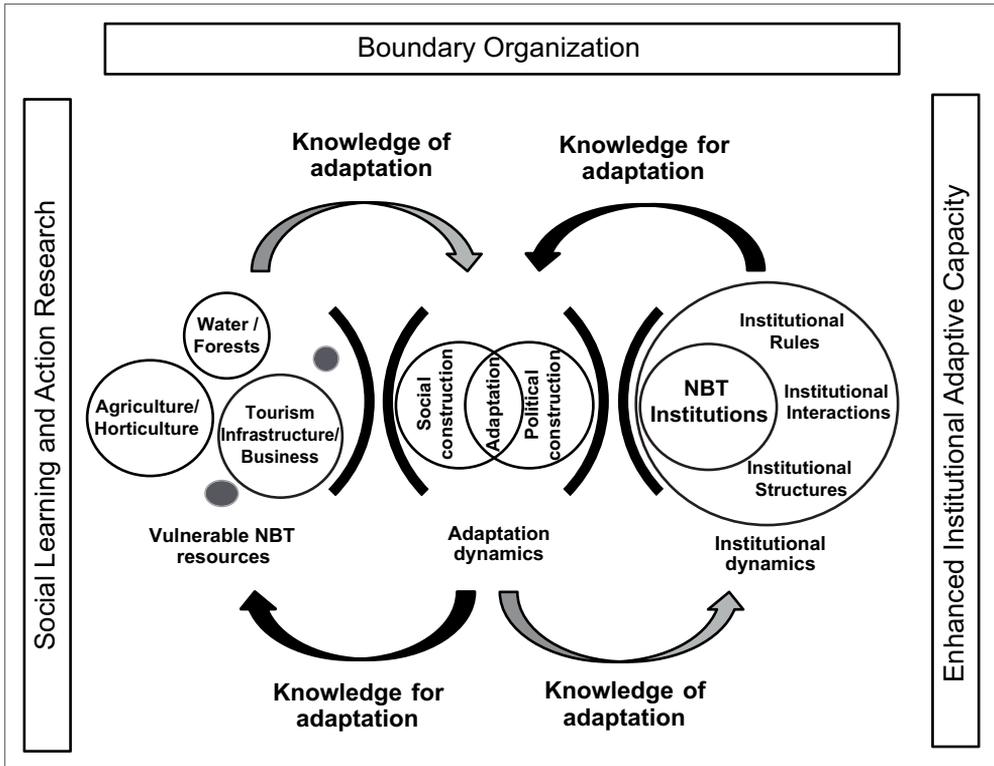
Institutional adaptive governance capacities are also contingent on the process and procedural aspects of decision making. Such processes are found to operate within the political space of multi-actor and at multilevel governance orders (such as the ACAP Jomsom, DDC, Mukhiya, individual NBT households, Hariyo Ban Consortium). The blurred boundaries produced by such context, imply the global-local embeddedness of political, social, environmental, economic and geographic spaces. Hence, local NBT institutions in the study area are embedded within much larger contexts, which impose their own dynamics through their interrelationships and interactions. Locating the local NBT institutional arrangement and the governance context, within the regional, national and global levels of analysis, is an important process to understand the socio-political process of adaptation among the NBT institutions in the case study area.

Social dimensions of the adaptation knowledge and power of the NBT institutions, their institutionalization through various structural and functional arrangements, and the political ecology of the development and adaptation governance, are critical factors shaping the institutional behavior, their approach to adaptation, the kind of knowledge produced and their governance capacities. These factors combine to affect the social resilience and adaptive governance capacities of the NBT institutions. Against such complex and dynamic institutional adaptation contexts, transitioning the existing institutional approach to long term or effective institutional adaptation requires, acknowledging the governmentality of the adaptation governance, the one that treats governance as a dynamic and systemic whole.

Based on this discussion, effective institutional adaptation can be framed as integral adaptive governance concept, consisting of the social and political aspects of NBT resource governance and adaptation decision making (see Figure 7.1).

As shown in the figure, effective institutional adaptation is a dynamic concept consisting of the complex processes of socio-political construction of knowledge, power and governance mechanism. It is contingent on the adaptation and institutional dynamics, consisting of the cognitive, subjective, process and procedural aspects of the construction of the 'knowledge of', and the 'knowledge for' adaptation. As far as the adaptation dynamics are concerned, findings show that the institutional response action emerge out of the socio-political constructions of knowledge and power, operating within the sphere via institutional interactions. The knowledge within this context are political, psychological and cultural constructs, while the power connotes the governance arrangements. The behavior and belief of the NBT institutions are also shaped by the institutional dynamics consisting of the gov-

Figure 7-1: Integral adaptive governance framework

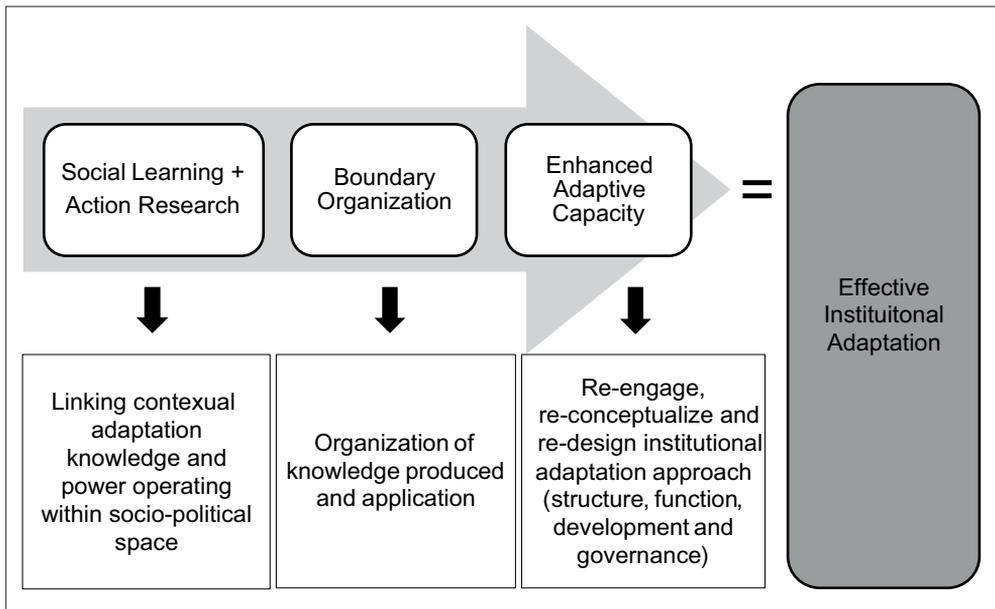


Source: Own illustration

erning system (i.e., the NBT institutions) and their interactions, while responding to vulnerable NBT resource (system to be governed). Given this multi-actor and multilevel institutional interactions, there is a need for polycentric policies and governance arrangements that enable collaboration among all interacting NBT institutions, such as the ACAP Jomsom, DDC, their affiliated VDC based organizations, Mukhiya system, religious leaders, individual NBT households and other district based government, I/NGOs and voluntary organizations.

Based on this discussion and the integral adaptive governance framework, I argue that the social approach to effective institutional adaptation should include three interrelated components: the social learning/action research, boundary organization and enhanced adaptive capacity (see Figure 7.1 and 7.2). The argument for social learning and action research lie on the fact that the deterministic and rationalist institutional approach do not engage in extensive and intensive process of exploring and analysing the diverse voices and choices concerning adaptation understanding, response needs and challenges. While such voices and choices are implicit on socio-political relationships and procedural aspects of knowledge and power operating in the socio-political space, social learning approach with action research methods allow exploring and linking such dimensions.

Figure 7-2: Social architecture of effective institutional adaptation



Source: Own illustration

Social learning and action research being integrative, flexible and praxelological in nature, allow generating knowledge of the institutions, rooted in the everyday life experiences, the meanings they construct, and their volition action, through iterative and plurality process of exploring the nature of adaptation knowledge and power, prevalent in the practical field. Considering the iterative and the plurality of the knowledge constructions brought by the multiple NBT institutions, at multilevel governance scale, it is crucial to organize such knowledge production and use. As discussed in 2.2.3.3, and also demonstrated by the study findings, transforming current institutional adaptation to effective adaptation hinges on organization of knowledge production and their application, and the adaptive governance mechanism, which are neglected field of the institutional interests in the study area. In addition to boundary organization, the emerging multi-actor, polycentric institutional arrangements and the collaborative governance contexts, make it critically important to understand the institutional adaptive governance capacity in totality. The notion of totality comprises both formal and informal institutions, the varied knowledge constructions, worldviews, motivation, attitude and behaviours of the institutions, and the processes and governmentality of adaptation governance. Such rapidly emerging institutional adaptation contexts, suggest for a need to enhance institutional adaptive capacity by re-engaging, reconceptualizing and redesigning the current institutional adaptation approach. Hence, from this discussion it can be implied that the NBT sustainability hinges on all three attributes i.e., social resilience, adaptability and transformability of institutions (discussed in section 2.3.2), responsible in managing NBT in the Mustang district.

7.3 Theoretical, policy and practice implications of the study

The sociological research on understanding institutional adaptation to climate change indicates strong linkages of NBT institutions with human and environment system. Right from the myriad of legislative frameworks to contextual political, social, economic and environmental dispositions of the study area and its people, the NBT institutions are exposed to and embedded within these plurality constructions of site, knowledge, power, policy, polity and political contexts.

The theoretical and analytical grounding for mapping tourism development, adaptation and governance frameworks, as discussed in section 2, shows how these concepts parallels evolutionary shifts, moving towards broad all-encompassing strategy and a system. Parallel disciplinary and development thinking is also observed in the mode of governance, displaying polycentrism, heterarchy and collaborative governance. The study findings show that NBT resource vulnerability to climate change, is an incredibly complex problem, affecting multiple institutions, sectors and governance landscapes. The sheer nature of complexity and institutional response imperatives means taking the collaborated adaptation actions. The critical factors affecting effective institutional adaptation are those arising from the policy discordant and gap issues.

The value of tourism sustainability concept, as a fundamental principle for development and climate resilient future within the study area cannot be contested. Globally, there is a shift in thinking in tourism and adaptation sustainability among major international tourism institutions. International declaration, such as the *Djerba Declaration on Climate Change and Tourism*, *Davos Declaration on Tourism and Climate Change* (2007), and the inclusion of tourism in the regional chapters of IPCC Fourth Assessment (AR4), provided strategic boost for the global tourism industry (UNWTO-UNEP-WMO, 2008; IPCC, 2007). Similarly, the issuing of first position papers by the World Travel and Tourism Council (WTTC) on climate change in 2009, as part of the international agreement to be reached in Copenhagen and *Tourism and Travel in the Green Economy*, organized by European Travel Commission (ETC) and UNWTO, as a lead up to Copenhagen, represented the collective positions of global tourism actors (Scott and Becken, 2010). Within Nepal, the dynamic relationship between NBT development, nature and socio-economy of the regions, makes tourism an important political and sustainable development agenda. The constitutions of the government of Nepal (2072) in a policy related to tourism clearly state, “*the development of ‘ecology-friendly tourism’ as the foundation of economy,*” (Constitution Assembly Secretariat, 2015, p. 30). Tourism is also recognized in climate change policy and country’s development plan, as one of the prioritized sectors to address the country’s sustainable development and climate change related issues (NPC, 2013b).

Despite such political scope and the strategic value, there are many issues arising from policy discordant: First, tourism as a sector does not have a defined national level policy and strategy, addressing the NBT and climate change related sustainability issues. As far as tourism sustainability is concerned, Nepal’s tourism policy

is still guided by the orthodox idea of promoting it as means to reduce poverty, via economic growth. Tourism vision and promotion are aimed at marketing and product diversification for the short term economic gains. The lack of tourism specific national policy and guidelines within climate change adaptation policy guidelines, such as NAPA and LAPA, is another major bottleneck for strategic tourism planning and implementation.

Such national lack of policy and priority is reflected in the practice of discounting tourism at the implementation level, which contradicts with the political provision and interests of the country. The scoping of tourism as a sub-theme of the broader livelihood component during LAPA preparation is a critical issue, both from the strategic and sustainability standpoints. Tourism being a crosscutting issue it needs to be conceptualized in its broadest scope, within which other sectoral components, such as infrastructure, water, agriculture, forest and lands should be framed. Lack of policy and priority is a sustainability issue morally, environmentally and developmentally. Morally, because it puts those community dependent on tourism at a disadvantage position; environmentally, because the resource dependent nature of the tourism makes it highly susceptible to the depletion of resources to unsustainable practice and climate change risks; and developmentally, due to loss of long term economic gains. Within the ACAP, narrow conceptualization of the NBT focused in bringing the balanced state between conservation and development, and not as an overarching paradigm within which several tourism development pathways could be legalized, is the major strategic gap. Similar to what Hunter (1997) suggests, the emerging tourism development trends in the study area display diverse and competing needs and desires of the tourism activities, supply, environmental and economic impacts. Similar to what has been discussed in section 2.1.3, the fundamental problems, such as parochial, lack of operationalization of the social dimensions of tourism sustainability and lack of conceptualization of the tourism site as complex and dynamic HES, are fundamental issues. As far as institutional adaptation to climate change is concerned, NBT sustainability becomes particularly important, both from its social resilience and adaptive governance perspective.

Hence, I argue that advancing socio-political understanding of NBT institutions' adaptation to climate change should begin with the policy reframing, redesigning and integrating it with the evolving development and adaptation policy guidelines.

7.3.1 Contribution to theory

The theoretical implication of this study is that it contributes to; first, generate new theoretical insight to conduct research at the interface between NBT development, adaptation and governance sustainability triade; and second, address the theoretical lacuna observed in the institutional adaptation discourse.

Sustainable tourism and adaptation are the multidisciplinary concepts. Competing, conflicting and contesting connotations of these terms make these concepts complex, and at times, abstract notions. Using the post development and post modernism theoretical perspectives on development, adaptation and NBT sustainability,

the study engaged in the critical review of the diverse conceptualizations of the term sustainable tourism development, adaptation and governance; deconstruct these concepts to highlight the issue and emerging conceptual uniformity; and link these divergent concepts into a comprehensive convergent theoretical framework. Such theoretical framework provided an important basis to frame social dimensions of institutional adaptation; conceptualize sphere and quality of governance, the key analytical lens guiding the process of exploring and analysis social resilience and adaptive governance capacities of the NBT institutions. The convergent sustainable tourism development and adaptation framework served as a new theoretical insight that facilitated the research conduction at the interface between sustainable tourism, adaptation and governance.

As far as institutional adaptation to climate change is concerned, the dominant discourse does not account the social dimensions of institutional vulnerability and response actions. Hence, social dimension of institutional adaptation is an under-theorized concept. This study contributes to addressing such theoretical lacuna by investigating the social resilience and adaptive governance capacity of the NBT institutions, and particularly the socio-political construction of adaptation knowledge, power and governance dynamics that operate within the case study area. Theorizing institutional adaptive capacity from social resilience and adaptive governance for NBT sustainability meant engaging in critical review of various theoretical concepts, disciplines and approaches of development, tourism and conservation, to contextualizing the case of institutional adaptation from NBT sustainability perspectives. By bringing together such divergent, complex and multi-disciplinary tourism and adaptation discourses, an integrated theoretical framework has been designed. Such integrated framework contributed to not only in converging the diverse theoretical discourses, but also in generating the conceptual clarity for institutional adaptation from social dimensions.

Such framework conceptualization also suggests the need for a broader and systemic conceptualization of institutional adaptation. As far as broadening adaptation concept is concerned, it is about integrating diverse institutions (formal and informal), their dispositions (such as social, political, economic and environmental contexts), legal frameworks (policy, plans and guidelines) and institutional arrangements (governance structures and functions). Such polycentric institutions, policies and governance contexts, not only characterize the complex and dynamic nature of adaptation problem, but also embeds adaptation at multi-level governance contexts. Hence, NBT institutions' adaptation is linked with global-local nexus of sustainable development, resource governance and political institutionalizations, which necessitate appreciating and adopting systemic approach to institutional adaptation.

7.3.2 Contribution to policy and practice

7.3.2.1 Empirical contribution

Besides the theoretical contribution, the study also provided the empirical contribution, by addressing the lacunae observed in the field of tourism and adaptation.

While tourism is a blind spot in terms of adaptation and sustainable development in Nepal, challenges for practitioners and policy makers arise from the gaps. Such lack of conceptual clarity in the institutional adaptation approach for tourism, creates a knowledge deficit, crucial for effective institutional adaptation and NBT sustainability. As far as conceptual clarity is concerned, the theoretical foundation established in section 2.1 suggests NBT, a variant of sustainable development, has evolved from poverty-development-economic growth centrism, to an ethical and moral concept, the one that appreciates the human dimensions and nuances of tourism development and governance process.

The NBT sustainability from institutional adaptation perspective is tied up with the livelihoods-social resilience capacity-adaptive governance nexus. The social construction of tourism development and adaptation knowledge, and the multi-disciplinarity, multi-actor and multilevel governance contexts make sustainable NBT, adaptation and governance, a broad all-encompassing concept. Sociological approach to institutional adaptation, as found in this study should be holistic and calls for methodological approach that is integral in nature.

7.3.2.2 Methodological contributions

From the findings and discussions, it is evident that effective institutional adaptation relies on framing of the methodological approach that is integrative, dynamic and flexible. The study used non-essentialist, non-deterministic, narration and diagnostic based research approach to investigate and analyse tourism institutions adaptation to climate change. Theoretically, while it is easy to formulate and propose the framework to analyse the institutional adaptation contexts, the study has shown that it involves an extremely complex and systemic process of conducting research. Right from the complex process of exploring and analysing the wide ranging and multilevel legal frameworks, to a very fluid process of extracting and analysing adaptation knowledge, power and governance dynamics, the process involved integrated all three aspects. The sphere and qualitative governance conceptualizations allowed not only in exploring the nuances and intricacies, dictating adaptation knowledge constructions and governance processes, but also helped generate insights on how such knowledge, power and governance, key institutional adaptive capacity determinants, align to these socio-political processes of NBT development and adaptation.

The complex and integrative nature of this study process also meant an intense involvement of the researcher, as well as the level of expertise and dedication that is needed to bring on board, to investigate, unpack and understand the institutional adaptation dynamics. My familiarity with the research problem, contexts, study area and the community; the level of experience as the researcher, both academically and professionally, provided an important analytical leverage for using this kind of methodological approach. Through my roles as the former Tourism Officer of the ACAP, the Humboldt Climate Protection Fellow, and the PhD candidate of the Julius Maximilian Universität Würzburg; the practical and scientific knowledge and skills I gained, not only provided me an added advantage to engage in the in-depth study exploration process, but also important intellectual leverage to engage in the dialectical process of analysing the issues.

The use of this integrated methodological approach is also important from the political perspectives. The rational approach guided by objectivism, results into the beaurocratization of scientific work through instrumental rationality. By imposing methodological standards, it aims to discourage subjectivities and diversity of knowledge of those institutions that is being investigated. But rhetorically by doing so, it concentrates the political power to its use and advantages. This context is very well explained in this study where the knowledge for adaptation within the formal insitutions, is recognized as those generated using rationalist objective oriented tools. Such knowledge has limited cognitive meaning to the locals, and is not broad and rich enough for effective institutional adaptation.

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Appendices

Appendix 1: Socio-economic Survey and Interview Guide

Date:

VDC:

Ward no:

Village:

Interviewee Id:

Time of Interview:

Duration of Interview:

Socio-economic Determinants:

Position of the Interviewee:

Gender:

Family Status: Household head/housewife/other

Age in years:

Education:

- Illiterate...Literate.....Primary Education...Lower Secondary..... SLC.....Intermediate.....Bachelors/more.....

Major Occupations

- Tourism Business/Services (Hotel, Lodge, Restaurant, Inns, Teashops, Guiding, Portering) Trade, Farming (Agriculture/Horticulture), Transport Others (Remittance etc)

Do you own: Jeep/Tractor/Motor cycle/Donkey/Mule?

What is your approximate income per year?

Are you a member of any organization?

Ethnicity: Thakali/Tamang/Gurung/DAG/Others

Religion: Buddhist/Hindu/Others

Family size:

Age in years	Below 15 years		16 – 25 years		26-35 years		36-45 years		46- 55 years		>55 years	
Gender	M	F	M	F	M	F	M	F	M	F	M	F

Family Education:

Level of Education	Illiterate		Literate		Primary Education		SLC		Intermediate		Bachelors or more	
Gender	M	F	M	F	M	F	M	F	M	F	M	F

1. What kind of tourism service do you operate?
2. What kind of resources do you depend on for carrying out tourism activities?

Assessing NBT Vulnerability and Response Actions

3. What are the key threats to the tourism business and services?
4. What are the key threats to tourism resources?
5. What impacts of climate variability and change are observed in water resources?
 - 5.1. How has it affected water resources?
 - 5.2. What actions have you taken to cope with the impacts? If not, why not?
 - 5.3. Which other institutions are providing the support?
 - 5.4. Are household (individual) or institutions employing any climate resilient practices?
 - 5.5. Are people/institutions generating and using climate information for planning?
6. What impacts of climate variability and change are observed in the forest resources?
 - 6.1. How has it affected forestland?
 - 6.2. What actions have you taken to cope with the impacts? If not, why not?
 - 6.3. Which other institutions are providing the support?
 - 6.4. Are household (individual) or institutions employing any climate resilient practices?
 - 6.5. Are people/institutions generating and using climate information for planning?
7. What impacts of climate variability and change are observed in agriculture?
 - 7.1. How has it affected your agriculture?
 - 7.2. What actions have you taken to cope with the impacts? If not, why not?
 - 7.3. Are household (individual) or institutions employing any climate resilient practices?
 - 7.4. Are people/institutions generating and using climate information for planning?
8. What impacts of climate variability and change are observed in horticulture?
 - 8.1. How has it affected horticulture?
 - 8.2. What actions have you taken to cope with the impacts? If not, why not?
 - 8.3. Are household (individual) or institutions employing any climate resilient practices?
 - 8.4. Are people/institutions generating and using climate information for planning?
9. Have you in the past thirty years experienced any form of natural disaster related event in this region?
10. What are the adverse impacts of the flood?
 - 10.1. What actions have you taken (individual/collective) to deal with flood? If no, why not? If yes, how did you respond to the impact?
 - 10.2. Which institutions provided support to deal with the flood?

11. What are the adverse impacts of landslides?
 - 11.1. What actions have you taken (individual/collective) to deal with landslides? If no, why not? If yes, how did you respond to the impact?
12. Which other institutions have acted to deal with the landslides?
13. Who do you think should have the main responsibility to tackle the issue of climate change? And why?
14. Are you aware of any existing laws and policies for adaptation planning and responding to climate change? If yes, what do you know about it? If not, why not?
15. Are there any traditional system/practice in responding to climate change impact?
 - 15.1. How is it practiced?
 - 15.2. What is its use?
 - 15.3. Is this system working?
16. Do you think that there are many other issues that deserve more attention and response to than climate change?
 - 16.1. If yes, what are those issues and why?
 - 16.2. If not, why not?

Resource Access and Governance (Water, Forest, Horticulture, Agriculture land)

17. Which decision regarding management of the resources (water, fuelwood, timber, livestock, apples, crops etc) do you take?
18. What formal institutions are there in managing the tourism resources?
19. Are there any informal institutions responsible for managing the resources?
20. Which decisions regarding management of the resources are taken by the formal and informal institutions?
21. How are these resources managed by the formal institutions?
 - 21.1. What process do they follow to govern these resources?
 - 21.2. How easy/difficult is it to get your problem heard and why?
22. How are these resources managed by the informal institutions?
 - 22.1. What process do they follow to govern these resources?
 - 22.2. How easy/difficult is it to get your problem heard and why?

Appendix 2: Livelihood portfolio and socio-economic status of the participants

No of Participants	Socio-economic Status	Types of Tourism Institution	Livelihood Options	Average Income/Year	Methods
22			Hotel Owner/Retail Shop/Carpet Weaver/Farmer/Mothers Group Secretary		
			Contractor/Hotel Owner/Trader/Farmer/Retail Shop Owner		
			Retail Shop/Agriculture/ Trade/ CAMC Chairman		
			Hotel Owner/Organic Farming/ Agriculture		
			Hotel Owner/MG Chairman		
			Apple Orchard/Retail Shop /Guest House Owner/Mir Mukhiya		
			Hotel Operator/2Motorcycles		
			Hotel Owner/Trader/Mukhiya/ Chairman of Federation of Nepal Chamber of Commerce and Industries/President of Nepali Congress, District Level		
			Guest House Owner/Farmer/ AppleOrchard/Livestock Owner/JeepOwner/TMsC Chairman		
			Hotel Owner/Cyber Operator/1 Motor Cycle		
			Guest House Owner/Farmer/Apple Orchard/1 Jeep Owner/2 Motor cycles/CAMC Chairman		
			Guest House Owner/Farmer/Apple Orchard/1 Motor cycle		
			Hotel Owner/Trader/Retail Shop/ 1 Motor cycle		
			Hotel Owner/Retail Shop Owner/ Jeep Owner/ TMsC Chairman		
			Hotel Owner/Farmer/Apple Orchard /Retail Shop/1 Jeep, 1 Tractor and 1 Motorcycle /1 Horse/TMsC Chairman		
			Hotel Owner/Retail Shop/Apple Orchard/Micro Bus Owner/CAMC Chairman		
			Hotel Owner		
			Hotel Operator/Apple Farm/Vegetable Farm/ Retail Shop		
			Hotel/Agriculture/Motorcycle/ Horses (3)		
			Social Service/Agriculture/Apple Orchard/Vegetable Farming/ Guest House Operation		
			Hotel/Apple orchard/Vegatable farm/Retail shop		

Rich Households

Big Hotel/Lodge

6 - 20 lakhs

Interview and Survey

Personal conversation and survey

			Distillery		
12	Middle Income	Small Hotel/Lodge	<p>Hotel Owner/Farmer/Mothers Group Member Development worker, hotel operator</p> <p>Hotel Owner/ TMsC Chairman Hotel Owner/Mothers Group Chairman/Retail Shop/Kitchen Garden</p> <p>Hotel Owner/Herder/Farmer Hotel Owner/Apple Orchard Owner/ Farmer Hotel Owner/Farmer/Retail Shop Owner</p> <p>Hotel Owner/Farming/CAMC Member</p> <p>Hotel Owner/Farmer/Retail Shop Owner/Mothers Group Chairman Hotel/Teaching/Social Work/Agriculture/1 Jeep/FMsC Secretary</p>	4 - 6 lakh	Interview and Survey
		Guides	Trekking Guide/Trader/Small Farmland		
			Guide/Cook		
12	Low Income Household	Local Inns/Retail Services	<p>Lodge Owner</p> <p>Hotel Owner/Retail Shop Owner/ Truck Owner</p> <p>Hotel Owner/Safe Drinking Water Station Operator/1 Motor Bike</p> <p>Farmer/Teacher/Apple Orchard Owner/CAMC Chairman</p> <p>Teashop/Handicrafts/Staff Kaligandaki Hydropower</p> <p>Restaurant/Apple Orchard</p> <p>Retail and Dairy Shop</p> <p>Retail Shop/Jeep Owner</p> <p>Souvenir Shop</p>	1 - 4 lakh	Interview and Survey
		Small Farmers	Labour Job and works in the farm		
		Porter			

Appendix 3: Regional and national organizational representatives

S.No	Designation	Organization	Governance Level
1	Project Director	ACAP, Pokhara	Regional Level
2	Natural Resource Conservation Officer/ Hariyo Ban Programme Focal Person	Hariyo Ban Programme, ACAP	National Level
3	Climate Change Adaptation Specialist	Hariyo Ban Programme, Care Nepal	
4	Former Climate Change Coordinator	Hariyo Ban Programme, NTNC	
5	Programme Coordinator	Hariyo Ban Programme, NTNC	
6	GESI Officer	Hariyo Ban Programme, NTNC	
7	Former Programme Coordinator	Hariyo Ban Programme, NTNC	
8	Climate Change Adaptation Coordinator	Hariyo Ban Programme, Care Nepal	

Appendix 4: Interview guide (Regional and national institutions)

Date:

Location:

Interviewee Id:

Name:

Affiliated Institution:

Position:

Time of Interview:

Duration of Interview:

1. What does Hariyo Ban Programme (HBP) do? What are its objectives/role?
2. Where does it work?
3. What are the emerging climate change issues in the ACA and in the Mustang district?
4. Who does it work with (adaptation partners)? National, regional and local adaptation partners?
5. What are the roles of the HBP Consortium?
6. What are the emerging adaptation issues in the ACA?
7. What is the influence of HBP over planning and implementation of LAPA? How does HBP identify adaptation issues and which actions to take?
8. How is HBP Consortium facilitating the planning and implementation of LAPA in the ACA?
9. How did LAPA preparation occur? What process did it follow?
10. What are the major challenges/barriers for LAPA preparation and implementation in the ACA?
11. What policy and planning related gaps/overlaps affect the HBP in LAPA preparation and implementation?
12. What are the strengths and weaknesses of the HBP?
13. What is the longer term institutional adaptation plan of HBP for the ACA?

Appendix 5: Focus group discussion participants (northern belt)

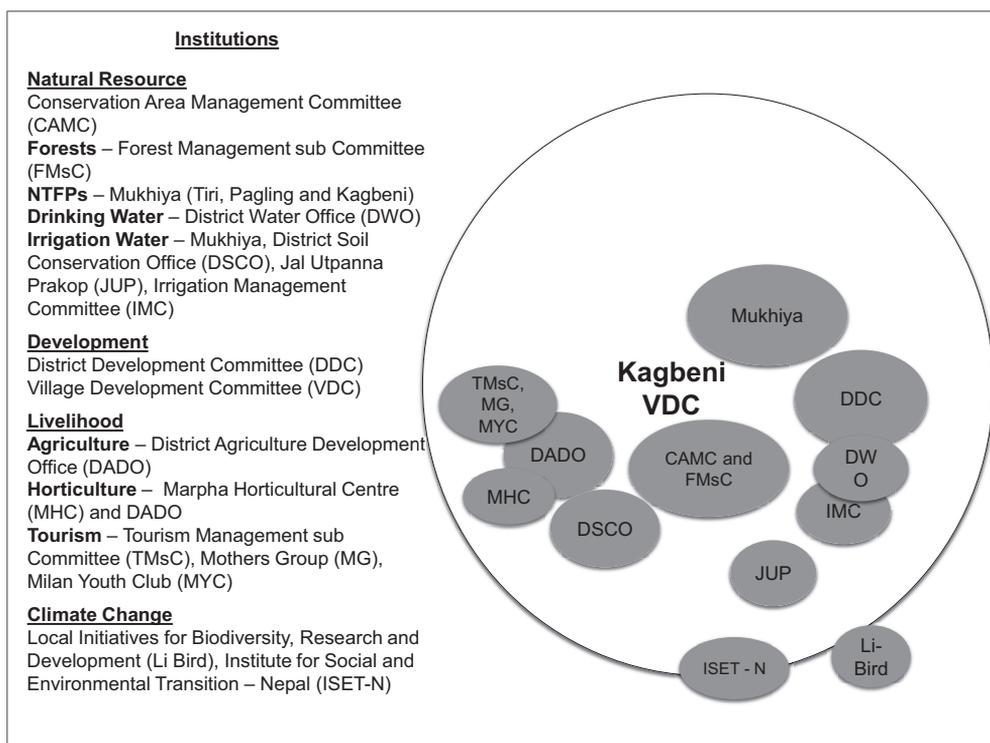
S.No.	Name	Designation	Profession	Gender
Kagbeni VDC				
1	Krishna Gurung	Former Ward Chairman	Hotel and Farming	Male
2	Padam Prasad Sapkota	Health Post Incharge	Government Service	Male
3	Meghana Lhakpa	Hotel Owner	Hotel and Farming	Female
4	Utin Gurung	Hotel Owner	Hotel and Farming	Male
5	Norbu Gurung	Deputy Chairperson, Hotel Owner, Farmer	Nepali Congress District Committee, Hotel, Farming	Male
6	Pema Tshering Gurung	Former Deputy Chairperson, Hotel Owner, Farmer	United Marxist Leninist District Committee, Hotel, Farming	Female
7	Santosh Silwal	Research Student	Student	Male
8	Karma Angya Gurung	Restaurant owner	Restaurant	Male
9	Norbu Tshering Gurung	Hotel Owner	Hotel	Male
10	Karma Chhokle Gurung	Mukhiya	Farming	Male
11	Dhara Gurung	TMsC Chairman	Hotel and Farming	Male
Marpha VDC				
1	Lal Prasad Hirachan	Former DDC Member	Farming	Male
2	Hari Prasad Lalchan	Mukhiya	Farming	Male
3	Bhakti Ram Juwarchan	Mukhiya	Farming	Male
4	Dhan Bahadur Pannachan	Former VDC Chairman	Farming	Male
5	Gyanu Pannachan	Mukhiya	Farming	Male
6	Dhan Prasad Hirachan	Mukhiya	Farming	Male
7	Man Bahadur Juwarchan	Social Work	Farming	Male
8	Bhakti Hirachan	Former DDC Chairman	Farming	Male
9	Chandraman Lalchan	Social Work	Farming	Male
10	Indra Prasad Juwarchan		Farming	Male
Jomsom VDC				
1	Chhetin Gurung	Member of MG	Student	Female
2	Sunita Gautam	" "	" "	Female
3	Jamuna Poudyal	Member	Hotel Operation	Female
4	Saman Kumari Thakali	Farmer, Former Chairman of MG	Farming	Female
5	Neel Kumari Sherchan	" "	" "	Female
6	Palsang Gurung	" "	" "	Female
7	Hak Devi Sherchan	" "	" "	Female
8	Tham Maya Shrestha	Hotel Owner, member of MG	Hotel	Female

9	Mohan Kumari Thakali	" "	Hotel	Female
10	Lakshmi Bhattachan	Teacher, member of MG	Teaching	Female
11	Sashi Devi Gurung	Farmer, Vice Chairman of MG	Farming	Female
12	Yam Kumari Tulachan	Farmer, member of MG	" "	Female
13	Chhe Syak B.K.	" "	" "	Female
14	Kunjang Gurung	" "	" "	Female
15	Kunga Gurung	" "	" "	Female
16	Pema Yangdi Gurung	" "	" "	Female
17	Ngawang Phenjo Gurung	" "	" "	Female
18	Gyaljen Gurung	" "	" "	Female
19	Sonam Chhiring Gurung	" "	" "	Female
20	Kunjang Chheti Thakuri	" "	" "	Female
21	Chhiring Gurung	" "	" "	Female
22	Maina Kumari Gurung	" "	" "	Female
23	Rajani Sherchan	Teacher, Secretary of MG	Teaching	Female
24	Maya Gurung	Teacher, member of MG	" "	Female
25	Chandra Maya Gurung	" "	" "	Female
26	Arpana Gurung	" "	" "	Female
27	Bimala Gotame	Farmer, member of MG	Farming	Female
28	Sharmila Gurung	Teacher, Advisor of MG	Teaching	Female
29	Bijaya Bhattachan	Farmer, member of MG	Farming	Female
30	Palsang B.K.	" "	" "	Female
31	Dil Maya Sherchan	" "	" "	Female
32	Mim Kumari Sherchan	Government staff, Chairman of MG	Government Service	Female
33	Nabina Pun Magar	Labourer, member of MG	Labour Service	Female
Tukucho VDC				
1	Aruna B.K.	Farmer	Farming	Female
2	Govind Shrestha	Head Master	Teaching	Male
3	Gyan Bahadur Thakali (Thulo)	Farmer	Farming	Male
4	Indra Bahadur Tulachan	Mir Mukhiya, Farmer	Farming/Retail Shop Operation	Male
5	Purna Prasad Gauchan	Farmer	Farming	Male
6	Samar Bahadur Thakali	Farmer and Hotel Owner	Farming/Hotel/Retail Shop Operation	Male
7	Bimala Tulachan	Farmer	Farming	Female
8	Hemanta Gauchan	Farmer	Farming	Male
9	Moti Prasad Thakali	Farmer	Farming	Male
10	Kebal Prasad Dhungana	VDC Secretary	Civil Servant	Male
11	Narayan Prasad Bhattarai	Health Post Operator	Tukucho Health Post Operation	Male
12	Purna Lal Thakali	Farmer	Farming	Male
13	Ratan Prasad Jwarchan	Farmer	Farming	Male

Appendix 6: Focus group discussion participants (southern belt)

S.No.	Name	Designation	Profession	Gender
Lete VDC				
1	Binu Gauchan	Hotel Owner, Mothers Group Member	Hotel	Female
2	Parbat Sherchan	Farmer, Mothers Group Member	Farming	Female
3	Sita Gauchan	Hotel Owner, Mothers Group Member	Hotel	Female
4	Shanti Sherchan	Hotel Owner, Mothers Group Member	Hotel	Female
5	Shanti Tulachan	Hotel Owner, Mothers Group Member	Hotel	Female
6	Subi Sherchan	Farmer, Mothers Group Member	Farming	Female
7	Sabitri Tulachan	Farmer, Mothers Group Member	Farming	Female
8	Sushila Gauchan	Farmer, Mothers Group Member	Farming	Female
9	Hasta Kumari Gauchan	Farmer, Mothers Group Member	Farming	Female
10	Sukul Sherchan	Businesswoman, Mothers Group Member	Trade	Female
11	Krishna Kumari Sherchan	Farmer, Mothers Group Member	Farming	Female
12	Rumila Tulachan	Businesswoman, Mothers Group Member	Trade	Female

Appendix 7: Insitutional adaptation partners in the study area



Institutions

Natural/Forest Resource

Annapurana Conservation Area Project (ACAP)
Conservation Area Management Committee (CAMC)

Drinking Water – District Water Office (DWMO)

Irrigation Water – Mukhiya, District Soil Conservation Office (DSCO), Irrigation Management Committee (IMC)

Development

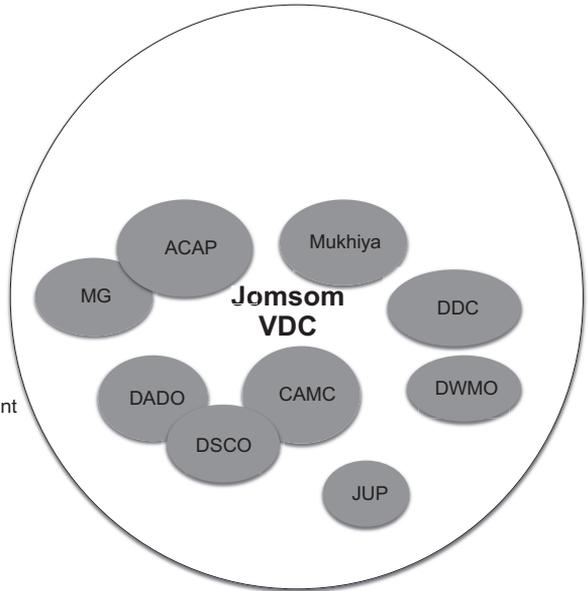
District Development Committee (DDC)
Village Development Committee (VDC)

Livelihood

Agriculture – District Agriculture Development Office (DADO)

Horticulture – Marpha Horticultural Centre (MHC) and DADO

Tourism – Mothers Group (MG)



Institutions

Natural Resource

Forests – Forest Management sub Committee (FMSC) and Mukhiya

Drinking Water – Baglung Drinking Water Divisional Office (BDWDO)

Irrigation Water – Mukhiya, District Development Committee (DDC), Village Development Committee (VDC)
Small Irrigation District Agriculture Development Office (SIDADO), District Soil Conservation Office (DSCO)

Development

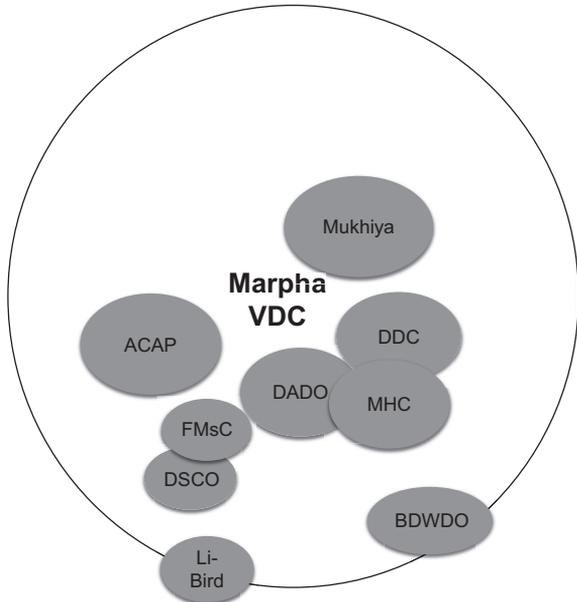
(DDC) and (VDC)

Livelihood

Agriculture – District Agriculture Development Office (DADO), Local Initiatives for Biodiversity, Research and Development (Li-Bird)

Horticulture – Marpha Horticultural Centre (MHC)

Tourism – Annapurna Conservation Area Project (ACAP), DDC and VDC



Institutions

Natural Resource

Forests – Conservation Area Management Committee (CAMC)
Mothers Group (MG), Farmers Solidarity Group (FSG), Youth Club and Schools

NTFPs – Village Reformation Committee (VRC)

Water –VRC, District Soil Conservation Office (DSCO), Jal Utpanna Prakop (JUP)

Energy – ACAP

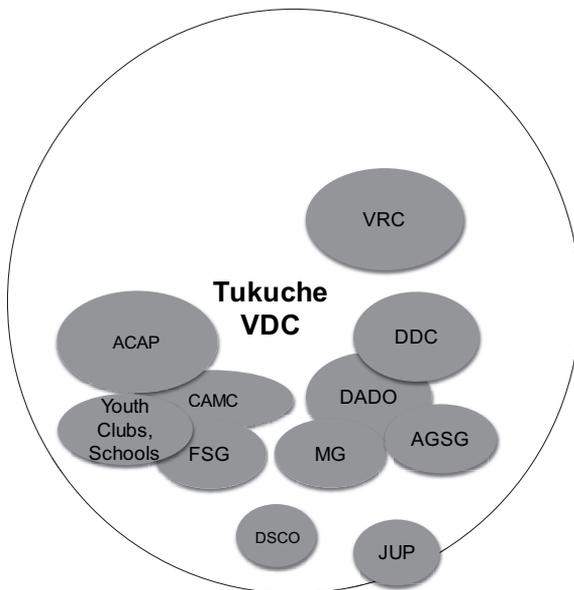
Development

District Development Committee (DDC)
VDC

Village Development Committee (VDC)

Livelihood

Agriculture – District Agriculture Development Office (DADO)
Agriculture Group and Spray Group (AGSG)



Institutions

Natural Resource

Forests – Forest Management sub Committee (FMC) and ist sub committees, Mothers Groups (MGs): Taramukhi Mothers Group and Janajagaran Mothers Group

NTFPs – Village Committee (VC)

Water – VC, District Soil Conservation Office (DSCO), Jal Utpanna Prakop (JUP)

Development

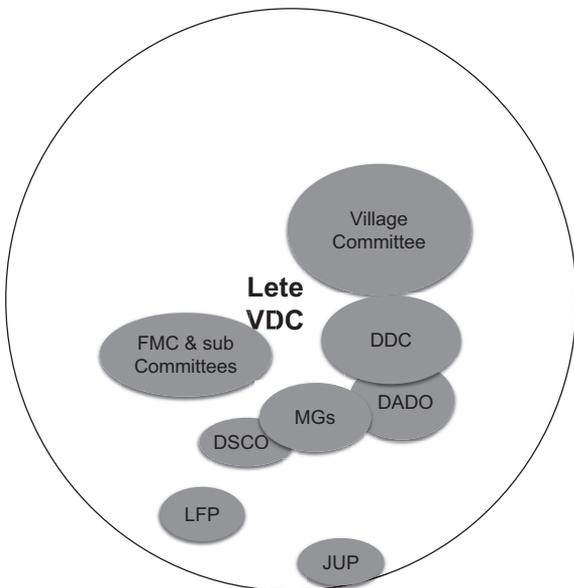
District Development Committee (DDC)
Village Development Committee (VDC)

Livelihood

Agriculture – District Agriculture Development Office (DADO)

Climate Change

Livelihood Forestry Programme (LFP)



This exploratory study examined the sociological process of Nature Based Tourism (NBT) institutions' adaptation to climate change, in 7 Village Development Committees of the Mustang district, a popular destination in the Annapurna Conservation Area (ACA), Nepal. In particular, the study investigated the social resilience and adaptive governance capacities of the institutions responsible in operating tourism services, business and managing tourism resources in the study area. The analytical and methodological approach used in the study included sphere (a dynamic social space concept), quality of governance, integrative institutional adaptation assessment frameworks and case study action research method.

Institutional social resilience capacities are found to be reliant on socio-political construction of adaptation knowledge and power, produced as a result of several influencing factors. Most important ones include: site and institutions specific political, economic and environmental dispositions, the associated processes of knowledge constructions and volition action, and the social relationships and interaction of the institutions operating within the study area. Adaptive governance capacities hinge on the institutional arrangements, the procedural aspects of adaptation governance and the governmentality. These are reflective of the diverse legal frameworks, the interiority perspective of the decision making and governance practices of the NBT institutions.