Identifying Operational Mechanisms for the Mainstreaming of Climate Change Adaptation in Nepal

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ABSTRACT

The main objective of this thesis is to identify the operational mechanisms for the mainstreaming of Community-Based Adaptation (CBA) to climate change into the development process in order to find out effective ways of supporting the most vulnerable households and communities. The thesis examines the effectiveness of current policies and programmes in: a) creating opportunities and ways to improve the "mainstreaming" of community-based adaptation into development planning; and b) providing benefit to vulnerable households and communities. The analysis examines the effectiveness of selected policies and programmes in Nepal using a case study methodology. This study used a mixed-methods approach incorporating field observations, interviews, and focus group discussions.

The findings show that most of the current policies and the policy-making processes in Nepal lack focus and priority on local participation. The analysis further reveal that although there are some decentralised policies of relevance, policies that favor decentralisation only, are not sufficient to mainstream CBA into the development process, because decision-making is still controlled and influenced from centre and mostly controlled by very few institutions and individuals at the local level. These findings show that in order to integrate CBA into the development process effectively, there is need to have an integrated and overarching policy which benefits poor and vulnerable households.

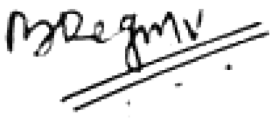
The case studies demonstrate that progress in the mainstreaming of community-based adaptation to climate change into the development process in Nepal has been very slow and fragmented. Although mainstreaming approaches have partly influenced the policies, implementation has been constrained by the use of approaches in isolation (top-down or bottom-up), and short-term project initiatives that are often disconnected and primarily donor- and project-driven. Implementation has also been constrained by the lack of adequate financial resources, low capacity among practitioners, inadequate knowledge about climate change, and a lack of collaboration among local and national institutions and actors. The findings suggest that an integrated, long-term, sustainable, and nationally-driven co-management approach to mainstreaming is necessary to overcome the current gaps in planning and implementation.

The analysis of the outcomes of mainstreaming at the local level found that adaptation interventions fail to address the real needs and interests of vulnerable households. This study does recognise that there are CBA approaches to the mainstreaming of local needs in the national plan and policies. However, the findings demonstrate that exclusion and inequality at the grassroots level deprives vulnerable households of the benefits arising from these adaptation initiatives. In addition, short-term community-based project initiatives for adaptation are not often sustained because of a lack of continuing technical support and financial resources. Mainstreaming of CBA can effectively empower local communities and vulnerable households, if: a) government and other public and private institutions are mobilised and made responsive; and b) grassroots institutions are more inclusive and accountable to the most vulnerable and poor households.

This thesis has also theorised a new framework. According to the framework, the operational mechanisms needed to effectively mainstream CBA into the development process include: citizen-centric policy processes; inclusive institutional and financial mechanisms; harmonised top-down and bottom-up approaches in planning and implementation; and multi-institutional coordination and collaboration. The framework proposed in this thesis can be used to redesign climate change and development policies and programmes in Nepal and other Least Developed Countries (LDCs), because it addresses inclusivity and governance issues in community-based adaptation to climate change.

DECLARATION OF ORIGINALITY

I, Bimal Raj Regmi, certify that this PhD thesis, entitled 'Identifying Operational Mechanisms for the Mainstreaming of Climate Change Adaptation In Nepal', does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief, it does not contain any material previously published or written by another person, except where due reference is made in the text. This thesis is less than 90,000 words in length, exclusive of footnotes, tables, bibliographies, and appendices.



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ABBREVIATIONS

ADB	Asian Development Bank
ADS	Agriculture Development Strategy
AMC	Activity Management Committee
ANOVA	Analysis of Variances
BNMT	British Nepal Medical Trust
CA	Constitution Assembly
CBA	Community Based Adaptation
CC	Climate Change
CCA	Climate Change Adaptation
CAP	Community Adaptation Plan
CBO	Community Based Organisations
CBS	Central Bureau of Statistics
CCP	Climate Change Policy (Nepal)
CDD	Community Driven Development
CDM	Clean Development Mechanism
CIF	Climate Investment Fund
CRS	Credutir Reporting System
CF	Community Forest/Forestry
CFUG	Community Forest User Group
CoP	Conference of the Parties
DC	Developing Countries
DDC	District Development Committee
DFID	Department for International Development/United Kingdom
DFO	District Forest Office
DFCC	District Forest Coordination Committee
DHM	Department of Hydrology and Meteorology
DMSBW	District Multi-Stakeholder Brainstorming Workshop
DoF	Department of Forest
FECOFUN	Federation of Community Forestry User, Nepal
FCPF	Forest Carbon Partnership Facility

FGD	Focus Group Discussion
FGDC	Focus Group Discussion with Communities
FGDPRN	Focus Group Discussion with Policy-Makers
FGDPRRN	Focus Group Discussion with Practitioners
GCCA	Global Climate Change Alliance
GCM	General Circulation Models
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GLOF	Glacial Lakes Outburst Floods
GoN	Government of Nepal
HDI	Human Development Index
HH	Household
HRN	Household Respondent Number
ICIMOD	International Centre for Integrated Mountain Development
IDS	Institute of Development Studies
IIED	International Institute for Environment and Development
IPCC	Intergovernmental Panel on Climate Change
ISET	Institute of Social and Economic Transition
KII	Key Informants Interview
KIIN	Key Informant Interview Number
LAPA	Local Adaptation Plan of Action
LDCs	Least Development Countries
LDCEG	Least Developed Countries Expert Group
LDCF	Least Developed Countries Fund
LFP	Livelihoods for Forestry Program
LGCDP	Local Governance and Community Development Program
LI-BIRD	Local Initiatives for Biodiversity, Research and Development
LOS	Length of Growing Season
LSG	Local Self-Governance
MASL	Mean Above Sea Level
MDG	Millennium Development Goals
MG	Mega Watt
MoAC	Ministry of Agriculture and Cooperative (Nepal)

MoE	Ministry of the Environment (Nepal)
MoF	Ministry of Finance (Nepal)
MoSTE	Ministry of Science, Environment and Technology (Nepal)
MoFALD	Ministry of Federal Affairs and Local Development (Denmark)
MoFSC	Ministry of Forests and Soil Conservation (Nepal)
MoHA	Ministry of Home Affairs (Nepal)
MCCICC	Multi-Stakeholder Climate Change Initiatives Coordination Committee
MSFP	Multi-Stakeholder Forestry Programme
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NCCKMC	Nepal Climate Change Knowledge Management Center
NCCSP	Nepal Climate Change Support Programme
NCVST	Nepal Country Vulnerability Study Team
NEWAH	Nepal Water and Health
NGO	Non-Governmental Organisation
NLSS	National Living Standard Survey
NPC	National Planning Commission
NRs	Nepalese Rupees
ODA	Overseas Development Assistance
OECD	Overseas Economic Cooperation and Development
PAR	Participatory Action Research
PEI	Poverty Environment Initiatives
PFA	Platform for Action
PPCR	Pilot Programme on Climate Resilience
PPM	Part Per Million
PRSP	Poverty Reduction Strategy Paper
PRA	Participatory Rural Appraisal
PRN	Policy Respondent Number
PRRN	Practitioners Respondent Number
RCM	Regional Climate Models
REDD	Reducing Emissions from Deforestation and Forest Degradation
RIMS	Resource Identification and Management Society
RSDC	Rural Self-Reliance and Development Centre
SAS	Social Analysis System

SDC	Swiss Development Cooperation
SES	Socio-Ecological system
SLA	Sustainable Livelihood Approach
SOS	Start of Growing Season
SPSS	Statistical Packages for Social Science
SREP	Scaling Up Renewable Energy Programme
SSI	Semi-Structured Interview
SWAP	Sector-Wide Approach
TYP	Three-Year Plan
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
USD	United States Dollar
VDC	Village Development Committee
VFCC	Village Forest Coordination Committee
WB	World Bank
WECS	Water and Energy Commission Secretariat
WMO	World Meteorological Organisation
WRI	World Resource Institute
WFP	World Food Programme
WWF	World Wildlife Fund for Nature

PUBLICATIONS ADAPTED FROM THIS THESIS

During the course of this study, the researcher has published several articles adapted from material in this thesis. Articles adapted from this thesis include**:**

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Bimal Raj Regmi and Cassandra Star. 2014. Exploring policy environment for mainstreaming community based adaptation in Nepal. *Journal of International adaptation and mitigation strategies* (Accepted 16th December, 2014).

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Bimal Raj Regmi. 2011. Revisiting Community-based Adaptation. *NGO Group Bulletin on Climate Change*. Vol 1. No 4. 10-17.

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1 CHAPTER ONE: INTRODUCTION

1.1. Background

Nepal is facing a number of development challenges due to slow socio-economic growth. The human development index for Nepal was 0.458 in 2011, which is the lowest among the South Asian countries (GoN and UNDP, 2014). The 2014 Human Development Report has further highlighted that inequality and poverty continue to persist in Nepal, and the prevalence of deep-rooted disparities among geographical regions and ethnic groups remains high. The Nepal Living Standards Survey (2011) further shows that the incidence of poverty in Nepal is 25.2% (GoN and UNDP, 2014). The socio-economic indicators therefore imply that the development challenges are enormous in Nepal.

Besides the issue of poverty, Nepal is also experiencing the negative impacts of environmental degradation and climate change. Nepal is one of the countries that is most vulnerable to climate change, due to its fragile landscape and poor socio-economic status (Alam and Regmi, 2004). Although the impacts of climate change can be felt across the entire globe, Nepal's geographical and ecological fragility makes it more vulnerable to climate change than most other countries. Climate change vulnerability is mostly associated with increasing temperature and variability in rainfall. Baidya et al (2007) argue that the rate of increase in temperatures (0.04°C/year) for Nepal is higher than the mean global rate. Nepal has also experienced high rates of variability in rainfall patterns over the last two decades, thus leading to an increasing rate of disasters and higher levels of impact (NCVST, 2009). The high rate of poverty and climate risk together makes Nepal one of the most vulnerable countries in the world to the impacts of climate change.

The Intergovernmental Panel on Climate Change (IPCC)[1] concluded that due to accelerated changes in the climatic system, the impacts on human and natural systems are already visible (IPCC, 2013). Since the scale and impact of climate change are on such a large scale, there is

[1] A scientific committee established in 1989 which carries out studies on climate change to inform policy decisions at the international level.

a need for both national and international policy responses to address the issue. Since 1993, most countries have formally engaged in a policy debate on climate change in a search for potential solutions. The United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP) are the two major international policies[2] on climate change that have been formulated since 1993. The major aim of these two policies is to enhance global cooperation to combat climate change by reducing greenhouse gas emissions and building the capacity of the human population to respond to the impacts of climate change.

At the international level, there is a challenge to stabilize greenhouse gas emissions, as well as to take the necessary actions to deal with the unavoidable impacts caused by accelerated change in the climatic system. The early debates and policy discussions on climate change were dominated by the mitigation agenda, which dealt specifically with measures to decrease the rate of greenhouse gas emissions. Mitigation of climate change involves reductions in anthropogenic emissions of greenhouse gases from the atmosphere (IPCC, 2007). The Kyoto Protocol, which is also focused on mitigation, has mandated industrialized and developed nations (listed in Annex 1 of the Kyoto Protocol document) to reduce their emission levels well below the 1990s country emission baselines.

However, the mitigation policy, under the Kyoto Protocol, was difficult to implement due to a lack of cooperation from major emitting countries, such as the United States of America (USA). The failure to make necessary progress on climate change mitigation at the international level in the later 1990s, amid the increasing environmental problems around the world, stimulated scientists and policy-makers to understand the importance of dealing with the impacts of climate change. This realization helped to instigate the concept of Climate Change Adaptation (CCA) into UNFCCC negotiations (Burton, 2009). Since 2002, adaptation has been considered to be an important component of climate change policy discussions. The Bali Action Plan and the Cancun Framework of Action, which agreed with the UNFCCC, have recognized adaptation as one of the major components of international climate change policy action (Ayers, 2011). Adaptation to climate change is also considered

[2] The UNFCCC was established in 1993 and the Kyoto Protocol was formulated in 1997.

to be an important policy position for many Least Developed Countries (LDCs)[3], such as Nepal.

According to Smith and Lenhart (1996), adaptation is a process, action, or outcome that includes all adjustments in behaviour or economic structure that reduce the vulnerability of households and communities to changes in the climate system. Adger et al (2005, p.78) argue that adaptation involves building adaptive capacity, deeper transformation and resilience thereby increasing the ability of individuals, groups, and orgranisations to adapt to changes, and implementing decisions, i.e. transforming the capacity into action. Climate change adaptation requires action at different levels that involve households, local communities, the nation, and the international community. However, given that climate change impacts, appropriate responses, and to some extent, adaptive capacity, are location-specific, adaptation at the household and community levels is critical (Adger 2003; Tompkins and Adger 2004). Therefore, policies and practices on climate change adaptation need to focus more on resilience of the households and communities that are vulnerable to the impacts of climate change.

As the impacts of climate change are visible and have a negative impact on the livelihoods of communities, primarily in poorer nations, the global focus on climate change adaptation has recently shifted towards looking at practical approaches to adaptation and ways to address it at the household and community levels. Climate change adaptation at the local level can be more effective if households and communities are at the centre of technological and financial support. This notion of focusing on communities assisted in introducing the concept of Community Based Adaptation (CBA) and its relevance in adapting to climate change.

Community-based adaptation to climate change emerged as an approach in developing countries, and mostly in LDCs, to address climate risks and the vulnerability of poor households and communities residing in developing countries (Huq and Reid, 2007). This is referred to as a bottom-up adaptation approach that encourages the poorest and most vulnerable people to have direct access to the majority of the finance and technological support required for climate change adaptation. CBA aims to build the resilience of

[3] Based on development indicators, the United Nations has categorized 49 developing countries as Least Developed Countries.

communities by enhancing their capacity to cope and better adapt to both climate variability and change (Ayers et al., 2010).

As part of the global commitment, many LDCs have devised policies and legal measures to support climate change responses at the national level. The Government of Nepal started to show its commitment to climate change adaptation by becoming a member of the United Nations Framework Convention on Climate Change in 1994. Nepal also ratified the Kyoto Protocol in 2005. The Nepali Ministry of the Environment (MoE)[4] was mandated as the Designated National Authority (DNA) to look at Clean Development Mechanism (CDM) projects, and the national entity for the management of the Adaptation Fund. The Ministry of Science, Technology and Environment (MoSTE) also established a Climate Change Division and a Multi-Stakeholder Climate Change Initiatives Coordination Committee (MCCICC) in 2009 to coordinate climate change activities. In addition, the Government of Nepal has established a Climate Change Council, under the chairmanship of the Prime Minister of Nepal, to act as the highest policy decision-making body on climate change in the country.

The Government of Nepal is also moving ahead with devising polices on climate change adaptation. The MoSTE prepared a Climate Change Policy (CCP) which was endorsed by the parliament in January 2011. The government also endorsed the National Adaptation Programme of Action (NAPA) in 2010 to implement urgent and immediate adaptation priorities in the climate-sensitive and vulnerable areas and sectors of Nepal. In addition, the Government of Nepal prepared a national framework on the Local Adaptation Plan of Action (LAPA) in 2011 which aimed to mainstream climate change adaptation into the development plans and policies of Nepal. Recently, the Ministry of Finance in Nepal developed a budgetary code for accounting for government expenditure on climate change, which is highly significant because it provides a mandate for the sectoral ministries to develop a plan and to implement climate change activities.

However, there is a huge task ahead for Nepal to effectively implement the policies and to harmonise the various levels of policy responses. There is a lack of clarity on suitable governance arrangements that can bridge the gap between policy and local level needs. As well, the country has to arrange appropriate institutional and financial mechanisms to channel

[4] The government has reformed the Ministry of Environment and as of 2014 it is Ministry of Science, Technology and Environment (MoSTE).

funding to, and to manage technical support for its most vulnerable populations. There is also the challenge of managing internal government funds, the Overseas Development Assistance (ODA) money that comes from international development agencies, as well as the climate finance from the UNFCCC, in a way that creates multiplier effects and reduces tradeoffs.

1.2. Statement of problem

Climate change and development issues are inter-linked in the context of Nepal. As explained earlier, the poor socio-economic condition of households and the community make them more vulnerable to climate change. This results in poverty and social disadvantage being factors that increase the vulnerability of households to climate change.

The linkage between poverty and vulnerability is also highlighted in the research literature. A review by the African Development Bank concluded that 'adaptation is necessary and there is a need to integrate responses to climate change and adaptation measures into strategies for poverty reduction to ensure sustainable development' (Sperling 2003, p.15). Huq and Reid (2009) argue that climate change adaptation and development policies and programmes share a common vision and a number of objectives that target poorer populations, and hence, should be integrated.

The poor and least developed countries, such as Nepal, have a major task to maintain an adequate pace of development and economic gain, while safeguarding the environment and dealing with climate change issues. A major concern of the government and the development agencies in Nepal is how to protect the development infrastructure and economic activities that might be in jeopardy due to the impacts of climate change. There is also the challenge of minimising the negative consequences which emerge from unsustainable development practices. This means that climate change adaptation has appeared as an additional priority for the government and people on top of their other development priorities.

Effective ways to link climate change adaptation and development are to adopt integrated policies and implementation strategies, and by mainstreaming climate change into development processes (Ayers et al., 2013). The concept of 'mainstreaming' is increasingly relevant in international climate policy and in country level climate change responses. The

adaptation text within the UNFCCC policy document, has articulated the need to enhance strategic coordination and to develop a synergy between adaptation priorities and national policy and planning (Ayers et al., 2013). The recent policy decisions on the National Adaptation Programme of Action (NAPA) and the National Adaptation Plan (NAP), within the UNFCCC, have urged developed countries to support LDC governments and developing countries to devise their policies and legal measures to mainstream climate change adaptation into development policies and plans.

Mainstreaming of climate change adaptation into the policy and development strategy means to incorporate climate change adaptation elements and issues into existing policies and efforts (Schipper 2004, p.71; Gupta and Grijp, 2010). There are a number of advantages of mainstreaming climate change adaptation into development processes. The literature suggests that incorporating community-based adaptation into mainstream development is a 'win-win' approach, and that capitalising on synergies in this way will lead to more efficient resource mobilisation at both the national and international levels (Huq et al., 2006; Ayers et al., 2013), and more sustainable, effective, and efficient use of resources (Huq et al., 2003, pp.35-36; Huq and Ayers, 2008a; Ayers and Huq, 2009).

In addition, the literature has outlined the advantages of mainstreaming climate change adaptation, which include avoidance of policy conflicts, reduction of risks and vulnerability, and the promotion of individual/organizational efficiency (Agrawala, 2004; Persson, 2008; Srinivasan and Uchida, 2008; Lebel et al., 2012). Specifically with regard to the mainstreaming of CBA into development process, Ayers et al (2013) argue that mainstreaming contributes to the spirit of advancement in community-based initiatives, as well as providing opportunities for effectively channeling adaptation financing and implementation. CBA is seen as an important strategy in developing countries because it also helps to mainstream local level adaptation innovations into development policy and practice (Reid and Schipper, 2014).

However, in the early phase of the climate change adaptation debate (2000-2010), mainstreaming was more focused on climate-proofing. Climate-proofing refers to an approach that donors or bilateral agencies adopt to protect their development financing by safeguarding their project or programme. This approach has encouraged more top-down support and policy responses to integrate climate change within development policies and

plans. The early mainstreaming agenda was focused on examining the implications of integrating climate change into development plans and policies at the national level, mostly within Overseas Development Assistance (ODA) programmes (Klein et al., 2003; Sietz et al., 2008; Gupta et al., 2010). As a result, the climate-proofing mainstreaming approach failed to build national ownership of climate change adaptation, and thus failed to address the issue of vulnerable households and communities.

The experience of mainstreaming also suggests that the integration of climate change adaptation into development processes is a significant challenge. The literature shows that although mainstreaming looks to be inspiring because of its potential to narrow the gap between climate change and development, it is theoretically vague on its form and, in a practical sense, is difficult to achieve and promote (Gupta et al., 2010). There is also inadequate knowledge among policymakers and practitioners in the LDCs on how mainstreaming can be applied at the national and sub-national level. There is also lack of evidences on how CBA mainstreaming can help in addressing climate risk and vulnerability of the communities (Ayers et al., 2014). . This lack of clarity is mostly related to both the concept of mainstreaming as well as to its practice (Gupta and Grijp, 2010).

These shortcomings of donor-led mainstreaming led to discussions on how to build in-country ownership of the mainstreaming agenda. The in-country approach to mainstreaming, which entered the discussion after 2010, intends to build responses to climate change into government policies and governance structures by recognising the existing capacities and entry points within policy and practice (IIED, 2013). However, local and national perspectives on the mainstreaming of climate change adaptation are still unclear. There is also a lack of clarity on how mainstreaming on community-based adaptation can be implemented into policy and practice, and primarily, within the national governance system and at the local and community levels. The gap identified in this research thus indicates that there is a need to generate more evidence to explore how national governments can move from donor-driven and project-driven approaches to more programmatic and nationally-owned approaches to mainstreaming which are acceptable for both the national government and the donors.

Policies and governance structures are important elements of national level mainstreaming. Mainstreaming of climate change adaptation has emerged as a policy approach for the up-

scaling of CBA (Ayers and Forsyth, 2009). One prerequisite for the mainstreaming of CBA into development processes is to have a favourable policy that recognises community-driven adaptation initiatives, and which enhances local ownership (Dodman and Mitlin, 2013; Forsyth, 2013). However, there is a lack of clarity on the type of provisions within climate change and development policies particularly on how local ownership and CBA recognition can be achieved. Since climate change adaptation is a multi-faceted and multi-sectoral issue, it is also necessary to tease out the significance of involving different stakeholders in the policy-making process.

Another important element of CBA mainstreaming is to put policy into practice, so that vulnerable households and communities can benefit from the financial and technological resources that are available at the national and international levels. Ayers and Huq (2008, pp 1-4) and Bapna and McGray (2008) highlight that there is much rhetoric and little practical know-how about integrating adaptation into development processes and in finding exactly what this means in practice. Several authors have pointed out the need to carry out further research to better understand how mainstreaming can happen in a practical sense in developing countries (Mertz and Kok, 2008; Klein et al., 2007; Lasco et al., 2009), and to look at the practical issues of how to promote the integration of climate change adaptation into development planning. Bapna and McGray (2008) and Chuku (2010) suggest that concrete models and approaches are needed to overcome the rhetoric about the integration of adaptation into development, and to establish exactly what this means in practice.

As CBA has only been locally tested in Nepal and other LDCs, there is a lack of evidence and discussion around how it can support the mainstreaming of climate change at a larger and more sustainable scale (Reid et al., 2009). There is also insufficient knowledge and little understanding about the relevance of CBA for facilitating the mainstreaming of climate change adaptation into the development process at the grassroots level (Ayers and Forsyth, 2009). Although there is evidence that CBA projects and interventions are community-focused (Huq and Reid 2009; Ayers et al., 2010), little is known about their success in terms of benefiting poor and vulnerable households on a wider scale (Huq and Reid, 2014). Forsyth (2013) raised questions about whether CBA can really connect with the felt priorities of vulnerable people, and if it has the capacity to link bottom-up priorities to policy-making. Ayers et al (2011) identified a number of further issues associated with CBA around the capacity of local institutions, enabling inclusion of the most vulnerable and marginalised

populations, the lack of cohesiveness within the community (contradictory and competing priorities), and around the politics of aggregation.

The problems discussed above imply that existing studies of CBA mainstreaming have not been able to provide a clear understanding about the operational perspective of linking local level community needs with national level policies. On this basis, this thesis fills a significant knowledge gap because it analyses what is being undertaken and achieved on the issue, and provides immediate input to the Government of Nepal and to Nepali stakeholders to identify an operational mechanism to mainstream CBA into development processes. It specifically analyses the three major aspects of mainstreaming, i.e. policy, practice, and the impact of CBA in Nepal.

1.3. Research Objectives and Questions

The thesis investigates the gaps between the theory and practice of mainstreaming community-based adaptation into development processes. The research specifically looks at the opportunities within, and the constraints of, the policy, practice, and implications of the mainstreaming of community-based adaptation into development processes. The research explores the following questions

a. *How can we achieve synergy between adaptation and development policy? (policy perspective)*
   - What are the synergies and trade-offs between climate change policies and development policies in Nepal?
   - How can we improve greater synergies between climate change adaptation plans and projects, and development policies and plans?

b. *How is community-based adaptation to climate change mainstreamed into development in practice? (operational perspective)*
   - What practical lessons can we learn in terms of the integration of community-based adaptation to climate change into development? (How has it been designed? Has it been useful and beneficial so far? and Have Local Adaptation Plan of Action (LAPA) piloting, community-based planning, and other initiatives been effective)?

- How can community-based adaptation to climate change be better integrated into development planning in Nepal?
- What are the mechanisms and frameworks which are needed to up-scale and institutionalise community-based adaptation?

c. *How can households and communities benefit from the mainstreaming of community-based adaptation? (outcome perspective)*
   - What are the implications of the integration of CBA (e.g. community-based adaptation planning) at the local level? This requires analysis whether or not communities have benefited from integration and mainstreaming, particularly from different interventions, and whether there are differences in terms of benefits among the different groups.
   - How can the local level planning process be improved so as to ensure that community- based adaptation initiatives are mainstreamed and greater benefit for poor and vulnerable households are generated?

1.4. Argument of the thesis

The thesis argues that if long-term climate change resilience is to be built within vulnerable households and communities, then Community Based Adaptation (CBA) needs to be supported with integrated policies and efficient governance mechanisms that integrate top-down and bottom-up approaches, and which address existing overlaps and issues in planning and delivery. The thesis also argues that in-country ownership of the mainstreaming agenda among stakeholders is needed in order to forge local and national action on climate change.

Policy responses and practices on climate change adaptation are gradually increasing in developing countries. This is because most practitioners have realised that climate change impacts are inevitable and that immediate action is needed to safeguard populations at risk from the impacts of climate change. This recognition clearly demonstrates that adaptation is considered to be an approach that can reduce the impacts of climate change and which can provide both immediate and long-term benefit to vulnerable households and communities (Ayers, 2011). There are, however, a number of issues and challenges around the scale of operation, scope, and sustainability of an adaptation approach. Since climate change is a

multifaceted problem, to up-scale and institutionalises climate change adaptation into development processes demands intervention at the local, sectoral, and national levels.

The mainstreaming of community-based adaptation to climate change into development processes is one way to ensure greater linkages between climate change and development, and to ensure the effective and efficient mobilisation of climate change resources (Klein et al., 2005). The literature also indicates that mainstreaming can be a means to up-scale and institutionalise CBA at the national level (Ayers 2011; Ayers et al., 2013). However, experiences in some countries, such as Bangladesh and Cambodia, show that mainstreaming within the current development context is inadequate for addressing the complex issues of climate change and development (IIED, 2013). There are challenges to address the multiple dimensions of governance related to the mainstreaming of climate change adaptation which include addressing political, socio-economic, and financial issues at the local, national, and international levels (Ayers et al., 2013).

The early lessons on mainstreaming in developing countries show that both policy and practice should be favorable in terms of providing benefits to vulnerable households and communities (Tearfund, 2006; Wiggins, 2011). Good policies often fail to produce desired outcomes because of the lack of appropriate institutional or financial mechanisms. The practice or implementation of mainstreaming is constrained by a lack of capacity, knowledge, and/or resources (Tearfund, 2006; Lebel et al., 2012; Ayers et al., 2013). In addition, approaches such as the top-down, centralised planning and delivery system, and the bottom-up, community-led initiatives implemented in isolation also face problems in effectively putting policy into practice (Adhikari and Taylor, 2012; Dodman and Mitlin, 2013). The literature therefore suggests that there is a need to promote both policy and practice which addresses the inconsistencies in the policies, as well as helping to overcome issues of implementation.

The discussion in the above paragraphs supports the argument that effective harmonisation and integration should happen at both the policy and practice levels, and at the point of implementation. Policy level harmonisation is needed to create a favourable environment to support bottom-up and community-based approaches. This research builds on the existing findings that policies that are more decentralised and devolved have greater potential to

mainstream community-based adaptation into development processes, because they place communities and relevant stakeholders at the centre of policy-making and implementation.

Another important aspect of CBA mainstreaming is found in the outcomes of policy and practice. One of the major objectives of the mainstreaming of adaptation is to ensure close linkages between policy and practice that can ultimately enhance collective action to reduce the vulnerability of communities (IDS, 2007). However, experiences with community-based adaptation suggest that not all vulnerable households receive benefits (Dodman and Mitlin 2013; Forsyth 2013). This is because of existing governance issues and prevailing socio-structural inequalities within the community (Dodman and Mitlin, 2013). Therefore, it is important to understand the perceptions of the community and the relevant actors upon which the intervention is targeted, to get a broader picture of the real outcomes of the mainstreaming process and any issues arising from its implementation.

This research was carried out in Nepal and was based on the researcher's interest in generating practical evidence and knowledge of CBA mainstreaming which are of significance and immediate use for the Nepali government and other stakeholders. This study draws on an analysis of national level policy and empirical findings from the field, by using a Participation Action Research (PAR) approach. PAR adds value by bringing both wisdom and action that can improve the effectiveness of CBA mainstreaming because it effectively engages the real stakeholders in the research process.

The study used a multi-tiered and integrated assessment to provide a complete picture of how mainstreaming is carried out in Nepal and what should happen as a result. The analysis of the three dimensions of mainstreaming, involving policy, practice, and impact, helps to investigate a coherent and practical framework and strategy to up-scale and institutionalise community based adaptation initiatives in Nepal.

The policy analysis in this thesis includes an in-depth exploration of the selected development and climate change policies of Nepal. Since the climate change adaptation agenda has grown in Nepal only since 2007, most of the past development policies were silent on climate change issues. This is the reason why most of the focus of policy analysis was on climate change and development policies (after 2007) that included climate change issues. However, some of the past development policies, such as those dealing with

agriculture and forestry, were reviewed in order to look at provisions that can support mainstreaming CBA into sectoral development policies.

The analysis of the operational perspective of mainstreaming involves the two mainstreaming initiatives on climate change in Nepal. The two major case studies are the Poverty Environment Initiatives (PEI) and the Local Adaptation Plan of Action (LAPA). This implies that the outcomes and conclusions generated from this study are relevant to Nepal and are specific to the design and delivery of community-based adaptation policies, programmes, and projects in the Nepalese context. However, the lessons learned in terms of the policy process and the implementation approaches provide a good theoretical base and practical learning relevant to the promotion of CBA mainstreaming in other LDCs.

The analysis of the effectiveness of CBA mainstreaming was carried out by studying a pilot project on the LAPA. At the time of the field study, the mainstreaming of climate change into development processes had only recently been initiated and was evident only in the Pyuthan and Nawalparasi districts of Nepal and, more specifically, in the Bangesaal and Dhungegadi Village Development Committees (VDCs) of Pyuthan district. The survey outcomes and the information generated from the focus group discussions are specific to the purposively sampled villages due to the nature of the study. Effectiveness at the local level focused more on the process and early contribution of mainstreaming interventions for providing benefit to vulnerable households and communities.

1.5. Significance of the study

The impacts of climate change are mostly felt by marginalised and resource-dependent communities that reside in the most fragile and least developed countries around the world (Huq et al., 2003; IPCC, 2013). The adaptation deficits currently observed, due to a lack of required timely adaptation actions to combat the impacts of climate change, indicate that there is an enormous task ahead to meet these deficits and to protect the well-being of households and communities[5] (Burton, 2006). On top of the climate change issues, there is also the primary task of eradicating poverty and hunger in poor countries (Schipper, 2009).

[5] This mostly refers to the shortage or deficiency of actions required to effectively respond to the impacts of climate change.

The complexities of addressing the multifaceted problems and issues in poor countries like Nepal indicate the urgency of enhancing greater coordination and synergy among various agencies, sectors, and policies.

As discussed earlier, one of the best ways to ensure effective coordination and synergy is through the mainstreaming approach. Experience suggests that effective mainstreaming of climate change adaptation needs to be planned and delivered across different levels of planning and implementation (Ayers et al., 2013). Most government in LDCs with support from larger multilateral and bilateral agencies, have shown interest to devise policies to mainstream climate change into development processes (Huq and Reid, 2014). As with other LDCs, the mainstreaming of CBA into climate change is a priority for Nepal. However, there is a dilemma at the national level in terms of how climate change and development policies can be better integrated. This study provides an analysis of current climate change and development policies in order to generate information on what kind of policy environment and provisions are most suitable for the mainstreaming of CBA in development process.

Apart from policies and strategies, the Government of Nepal and a number of international development agencies have initiated joint projects to provide support to the Government of Nepal to operationalise CBA mainstreaming in policy and planning. As countries like Nepal prepare to implement adaptation initiatives on a larger scale, there is an urgent need to sort out the implementation mechanisms at the local and national levels. The early lessons and evidence on the effectiveness of mainstreaming initiatives and other practices currently being piloted and implemented in Nepal, are of relevance for sustaining CBA mainstreaming in the country and in other LDCs. This study documents the early lessons of mainstreaming, particularly analysing what did and did not work, and how and why they worked in order to help the Government of Nepal to develop an operational mechanism for the mainstreaming of CBA.

The government, donor agencies, and civil society organisations, are also involved in implementing location-specific pilot adaptation projects at the local level. These projects are aimed at reducing the vulnerability of households and communities, and empowering them to deal with the impacts of climate change. As CBA has only been tested at the local level, there is a lack of evidence and discussion of how CBA can be up-scaled at the national level and sustained beyond the limits of a supported project. This research fills this gap by analysing

the effectiveness of mainstreaming initiatives in terms of how they provide benefit to vulnerable households and communities, and for their long-term sustainability.

The knowledge generated from this thesis will assist the Nepali government and other stakeholders to design effective policies and programmes through which climate change adaptation can be effectively mainstreamed into development policies and plans to ultimately benefit vulnerable households. Overall, this research provides a framework for the mainstreaming of CBA in Nepal, and contributes to this by expanding the theoretical and practical underpinnings of community based adaptation to climate change, mostly in the context of the mainstreaming of climate change into development. The experiences of mainstreaming in Nepal are valuable for other LDCs which are seeking to mainstream CBA into national policies and programmes. The specific contributions of the thesis are three fold:

The policy contribution: A mainstreaming framework, as discussed in the thesis, provides an opportunity to bring together climate change and development in a way that effectively reduces the vulnerability of poor communities. This policy contribution is strategic in countries like Nepal for assisting stakeholders to design effective operational modalities for facilitating community based adaptation at the local level, and for linking top-down policies with community needs.

The theoretical contribution: The findings of the research shed light on an understanding of the relevance of community-based adaptation and mainstreaming approaches from a theoretical perspective. This understanding is a crucial contribution to shaping the theoretical base in order to broaden the community-based adaptation perspective. It also contributes to the public policy literature, especially in relation to the design and implementation of CBA. In addition, this thesis addresses the gaps in the literature in terms of enriching the theoretical underpinning of community-based adaptation to climate change, mostly in the context of the mainstreaming of climate change into development processes.

Contribution to practice: The findings of the thesis contribute to an enriched understanding of how the mainstreaming of CBA should work in practice. It provides an analysis of the opportunities and constraints of implementing mainstreaming initiatives. The findings also generate evidence on the enabling conditions required to effectively mainstream CBA into development processes.

1.6. Organisation of the thesis

This thesis is organised into eight chapters, as follows:

Chapter One provided an overview of the thesis, including the context, justification, and significance of the research. Specifically, this chapter included an introduction, an outline of the research objectives and the research question, and a discussion of the framework for, and the significance of, the study. Finally, Chapter One also provided the rationale for the research, looking at the operational perspective of the mainstreaming of CBA into development processes.

Chapter Two presents the literature review. It sets out a broad context for the argument on the significance of the mainstreaming of CBA into development processes, as well as identifying a number of weaknesses. The chapter specifically presents the debate on climate change adaptation at the national and international levels. This chapter introduces the latest paradigm and thinking on community-based adaptation, the mainstreaming of adaptation into development processes, and the key knowledge gaps.

Chapter Three provides the background to the research and generates a number of discussion points for the findings chapters. This chapter assesses the socio-economic and development context of Nepal, and argues that current development planning and service delivery is top-down, centralised, and donor-driven. It further argues that this centralised approach in development has negative consequences as it acts as a barrier to providing benefits and services to poor and vulnerable households.

Chapter Four provides the details of the research methodology. This chapter provides information on how the data were collected and analysed in order to answer the research questions. It outlines the research context, research analysis framework, key research approaches used for the study, the research methods, the tools used for data collection, the research site, and the techniques used in the data analysis process. Overall, this chapter provides an overview of, and a rationale for, the research design, arguing that a participatory action research approach offers more practical insights into the investigation of multi-sectoral issues such as climate change adaptation.

Chapters Five, Six, and Seven provide the empirical evidence of the thesis. These chapters support the argument that the mainstreaming of CBA must be supported with integrated policies and efficient governance mechanisms that are accountable and responsive to vulnerable households and communities.

Chapter Five analyses the major climate and development policy content and processes to identify the enabling policy conditions that support the mainstreaming of CBA in Nepal. The policy analysis chapter argues that the successful mainstreaming of CBA depends upon an integrated and overarching national policy that values local needs, and an inclusive public engagement process for policy-making and implementation.

Chapter Six analyses climate change from an operational perspective and uses two case studies to present the field evidence. The chapter argues that the successful mainstreaming of community-based adaptation into local development processes depends on a number of enabling governance conditions, including integrated and locally-accountable governance mechanisms and a multi-stakeholder approach to decision-making and resource mobilisation.

Chapter Seven provides the field level implications and impacts of the mainstreaming of CBA. The chapter provides information and evidence from the mapping of community perceptions, in relation to the benefits accrued from the implementation of adaptation interventions at the community level. This chapter argues that climate change adaptation, for the most vulnerable, requires a locally-inclusive approach and mechanism to adaptation that recognises the fault lines of social exclusion at the local level and empowers vulnerable households and communities.

Chapter Eight presents the analysis and the conclusion. This chapter aligns the findings according to each of the three research questions and objectives of the study. This is followed by a summary of the key findings of the chapters 1-7. The conclusion provides the key outcomes and implications of the research and includes a number of implications related to policy, practice, and theory. Finally, the chapter provides scope for future research in the area.

1.7. Conclusion

This chapter has presented the context, significance, and contribution of the research. This chapter has highlighted that community based adaptation (CBA) to climate change is an important strategy for linking local level adaptation innovations into development policy and practice. However, the discussion presented above indicates that there is little evidence on how to ensure that the mainstreaming of CBA works effectively. Debates about mainstreaming are dominated by issues related to policy and planning agendas, whilst in many countries, the main challenge is to translate policy into action.

In reporting on the research conducted for this study, this thesis investigates the types of policies which favour the mainstreaming of CBA, and the types of approaches or practices that are required to operationalise the mainstreaming of CBA in the case of Nepal. The range of perspectives on the implementation of the mainstreaming of CBA is the focus of this research. The introduction chapter provides an outline of the thesis and argument. The thesis argues that mainstreaming is a feasible and viable option for the up-scaling of CBA initiatives so that they constitute more than just the sum of small, localised activities. However, the mainstreaming of CBA must be supported with integrated policies and efficient governance mechanisms that are accountable and responsive to vulnerable households and communities.

The next chapter provides the rationale for, and the theoretical foundations of, the research questions investigated in the thesis. It conceptualises the central idea of climate change adaptation and CBA in detail, and examines various interpretations of adaptation in both the climate change and the development discourses. The chapter then highlights the relevance of the mainstreaming of CBA into development processes, as well as a number of cutting-edge research issues in the field.

2 CHAPTER TWO: DEBATES ON CLIMATE CHANGE ADAPTATION

Building on Chapter One, this chapter provides a more in-depth discussion on the problems to be investigated in this thesis and the issues within climate change adaptation. The main aim of this chapter is to position the thesis relative to the current research and theoretical debates on climate change adaptation. This chapter also identifies the research and the knowledge gap in the mainstreaming of Community Based Adaptation (CBA) into development processes at the national level, and thus provides a rationale for the argument of this thesis discussed in Chapter One.

The chapter is divided into three major sections. The first section discusses the theoretical underpinnings of climate change adaptation and its relevance to this research. The second section outlines the key debates and discussions on the different approaches to adaptation currently being tested and promoted in developing countries. The third section provides a diagnosis of CBA and CBA mainstreaming, and outlines the key knowledge gaps in this area.

2.1. Climate Change Adaptation: concept and origin

What is Climate Change Adaptation?

Policy-makers and practitioners now recognise Climate Change Adaptation (CCA) as one of the important elements of current climate negotiations. The Marrakesh Accord and the associated 8th meeting of the Conference of Parties (COP) in Delhi, under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC), have identified adaptation as a major component of climate change policy responses (Schipper, 2004). The Bali Action Plan reinforced this position at the 13th session of the COP and in the documents emerging from subsequent COP sessions in, Nairobi, Copenhagen, and Cancun (Ayers 2011; Pelling 2011, p.9). The Least Developed Expert Group (LEG), which is comprised of the world's poorest and most vulnerable countries that are mostly in the Asia-Pacific and African regions, is now institutionalised within the UNFCCC. The LEG is taking a lead role in

negotiations as well as supporting research on, and the policies and practices of, adaptation in Least Developed Countries (LDCs).

The shift from mitigation to adaptation as discussed above is associated with a shift in focus from advanced industrialised to developing countries. This process has encouraged developing countries to raise their voices in international climate change negotiations on the importance of global cooperation in dealing with the impacts of climate change. This recognition of the adaptation agenda at the international level is also significant in dealing with climate change adaptation in developing countries, as it has now opened new opportunities for both technology transfer and access to financial resources that can be used in implementing policies and plans in the LDCs. The entry of climate change adaptation into debates within the UNFCCC has also provided opportunities for governments in developing countries to implement policies and plans to reduce the impacts of climate change at the household and community levels.

There are diverse views on, and interpretations of, climate change adaptation, including the ecological and ecosystem perspective of adaptation, the risk and impact perspective, and the social adjustment perspective. Adaptation in the face of ecological and environmental change is not new (Pelling 2011, p.6). Adaptation has emerged as a recent strategy in the climate change debate, originating from the natural sciences and Darwin's theory of adjusting to natural change. Adaptation has its roots in population biology and evolutionary ecology, and is used as a concept which refers to the genetic characteristics of particular species that allow for species viability (Smithers and Smit 2009, p.19).

In the late 1990s, adaptation, among the UNFCCC negotiators and policy makers of the developed countries, was understood as the only means to address climate risk through a top-down blueprint model of technology transfer (Burton, 2009b). At this time, the concept referred to measures that would provide technological choices to communities to respond to major climate-induced disasters. The UNFCCC definition of adaptation, for example in article 4.1(b) of the Convention, also mentions the implementation of adaptation measures through formulating and implementing national and, where appropriate, regional programmes containing measures to facilitate adequate adaptation to climate change. This technology-driven definition and scope also gave rise to techno-fix solutions to climate change (Ayers, 2011).

In the early 2000s, scientists and academic writers were encouraged to explore the social dimensions of climate change adaptation. Pelling (2011, p.6) argues that climate change is not an external threat, but is entirely rooted in our system and how it delivers development decisions and outcomes. Climate change adaptation requires an appreciation of social relations and practices, and suggests that it is not sufficient to control climate change through technological solutions. Smit and Wandel (2006, p.282) defines the social dimensions of adaptation as 'a process, action or outcome in a system (household, community, group, sector, region, country) in order for the system to better cope with, manage or adjust to some changing condition, stress, hazard, risk or opportunity'. According to Smith and Lenhart (1996), adaptation includes 'all adjustments in behaviour or economic structure that reduce the vulnerability of society to changes in the climate system'.

As argued earlier, social science has played different roles on adaptation. According to Adger et al (2004, p. 77), adaptation is a set of actions taken by various actors and agencies. According to the author, the individual adaptation actions are not autonomous: they are constrained by institutional processes such as social norms, values, policies and resource governance. The human and social centered analyses have significant contributions on the understanding of community-based adaptation as it outlines the human and social characteristics that determine the capacity of communities to face shock or stress (Adger et al 2005a; Pelling, 2011 p. 15).

Adaptation provides a robust theoretical framework for facilitating, supporting and even fulfilling the goals of sustainable development (Schipper 2004, p. 111). Recently, adaptation has been analysed from Socio-Ecological System (SES) perspective recognising the inter relationship between social and ecological dimensions of climate change adaptation. Smit and Wandel (2006) further argue that adaptation is usually used explicitly and implicitly in social sciences in order to understand more specifically the nature of adaptation to both human and ecological system. This theoretical combination in underpinning adaptation is particularly useful in understanding the household and communities responses over time.

Anyhow, Burton (2009a, p.11) is critical of the use of adaptation in the social sciences and believes that 'the intellectual borrowing of adaptation use in evolutionary biology to the social sciences has hitherto undermined its values'. The author also points out the danger of over-exploiting the term and under-achieving its spirit. This implies that there is a relative

lack of clear understanding about the scale and magnitude of adaptation and how it actually applies to the social system in terms of adjusting to the impacts of climate change. On opposition, there are other scholars who argue that the sociological perspective on adaptation has further enriched its scope and importance (Adger et al., 2005; Pelling, 2011). Pelling (2011) argues that an appreciation of social relations and practices is useful in dealing with complex issues such as climate change in the community level.

The discussion above implies that there is still unambiguous meaning to adaptation that needs more unpacking and substantiation from practical experiences in the field. According to Burton (2009, p. 164), adaptation should be complemented by changes in policy, practices, and innovations in monitoring and research. The discussion in the literature clearly points out that the need for flexibility and robustness in design of intervention and public action is important to facilitate community-based adaptation. The following section will clarify some of the principles and theories behind climate change adaptation.

What to adapt to?

The potential climate change impact is observed on human and ecological system. The impact of climate change varies in the timescales, as described by Smit (1993) involves magnitude of impact, area extent (spatial scale over which climatic events or changes are experienced), temporal properties of climate events such as frequency, duration and suddenness. Smit et al (2000, p. 231) state that the climatic conditions to which adaptation have been considered (either directly or indirectly) generally refer to: global climate change, as reflected in long-term trends, or scenarios pertaining to, mean temperature; variability about norms over period ranging from a few years to several decades; and isolated extreme events or weather condition such as drought, flood or storms.

Climate change phenomena is interlinked and cannot be separated. According to Smit et al (2000, p.229), 'adaptation to climate does not occur in isolation but it is considered in the context of various manifestation of climate stimuli-doses, stresses, disturbance, events, hazards and perturbations[6]'. Adaptation also involves a historical context amid a complex set

[6] Refers to a deviation of a system due to external influence.

of socio-economic and institutional interactions (Smithers and Smit 2009, p.17). Smit and Wandel (2006) suggest that adaptations vary not only with respect to their climatic stimuli, but also with respect to other, non-climate conditions, sometimes called intervening conditions, which serve to influence the sensitivity of systems and the nature of their adjustments.

In reality, the types of climatic stimuli are not separate or independent (Smit et al., 2009, p.69). Both short-term uncertainty in climate variability and extremities, and long-term trends, need to be considered in the design of adaptation responses (Pelling 2011, p.14). Extreme events are part of variability which, in turn, are inherent features of the climate, including climate change (Fussel 2007, p.267). This discussion implies that climate change adaptation is associated with responses that deal with both variability and change.

The responses on climate change at different scales are different but inter-connected. Many literatures discuss on short-term responses, which are often referred to as short-term coping and long-term adaptation responses. The IPCC defines a 'coping range' as the 'variation in climate stimuli that a system can absorb without producing significant impacts' (IPCC WG Report II cited in McCarthy 2001). According to Adger (2000, p.357), coping involves short term adjustment to the impacts of climate change. Coping mechanisms are flexible and respond to various changes and pressures (Davies et al., 2009). According to Smit and Wandel (2006), when extreme events and extreme variability go beyond the coping range, the adaptive capacity is surpassed and the system is threatened. This discussion implies that climate change adaptation encompasses both short-term and long-term responses in order to build the capacity of households and communities.

In addition to the physical parameters, the non-climatic conditions, such as the socio-economic context, may exacerbate a climate stimulus (Smit et al., 1999, p.206). At the local level, due to the scale of climate change impact, any meaningful measurement of adaptation needs to accept that climate change is embedded within the context of other risks (social, economic, and political, as well as environmental) that shape and limit human well-being and the functioning of the socio-ecological system (Pelling and Wisner 2009, pp.167-168). Hence, Pielke (1998) perceives that adaptation is not a response, but a portfolio of responses and a shared responsibility. The author stresses the importance of considering the

vulnerability of society, where climate refers to the entire range of society/climate interactions (e.g. variability, extreme events, etc.), not only climate change. This social vulnerability approach, which focuses on a diverse range of issues within society, is useful for understanding community-based adaptation dynamics and responses in LDCs such as Nepal.

As discussed earlier, both society and nature need to adjust to both the short-term and long-term impacts and implications of climate change, including dealing with both the variability and accumulation of climate change. However, due to limitations in knowledge and technology in developing countries, the capacity of communities and the natural system to respond to climate change is now limited and over-stretched (Mertz et al., 2009). The impacts of climate change are also pushing humans beyond the limits of their existing coping strategies. This implies that, beyond the coping range, the state and external agencies need to intervene to support vulnerable households. In addition, we need to devise measures to strengthen the expansion of the coping range and capacity to better respond and adapt to climate change through a combination of planned and autonomous adaptation strategies (Burton, 2009). In conclusion, the discussion outlines the importance of linking community and state level interventions on climate change adaptation.

Who or what adapts?

There are divergent views on who or what actually adapts. The history of adaptation shows that both natural and social systems adapt to the environment and to ecological stresses. The ecological view holds that the ecological system is sensitive to climate change, and that ecosystem resilience is important, as humans rely on the ecosystem for their subsistence and survival. In contrast, a socio-centric analysis argues that social characteristics determine the capacity of communities to face a shock or stress (Adger et al., 2005; Pelling, 2011).

However, the ecological and social systems of adaptation are not mutually exclusive. Nelson et al (2007, p.399) state ‘the type and magnitude of change is not always predictable, but change will occur. As a result, systems need to be managed for flexibility rather than for maintaining stability’. A Socio-Ecological System (SES) approach is introduced to understand climate change adaptation. Gallopin (2006, p.294) defined SES as ‘a system that

includes societal (human) and ecological (biophysical) subsystems together. Those scholars who argue in terms of the Socio-Ecological System (SES) perceive that social (human) and ecological (biophysical) subsystems are always in mutual interaction (Gallopin 2006, p.294). This is due to the local-to-national level scale of integration between humankind and the ecosphere in which adaptation is interlinked.

The different types of systems have been identified in ecology and system theories, explaining the ability of the environment, or an ecological system, to sustain shocks or stresses. Smit (1993) proposes the characteristics of a system as being stable, vulnerable, and flexible. Stability refers to 'the system's ability to remain fixed and unchanged in the face of disturbances. Vulnerability refers to the susceptibility of a social or economic system to disruption, and flexibility refers to the degree of maneuverability which exists within systems or activities' (Smithers and Smit 2009, p.24). Smithers and Smit (2009) refer to the issue of system scale in understanding human adaptation to environmental change. This social understanding of climate change is significant for further understanding how individuals and the community adapt to the changing climate and deal with the impacts.

However, discipline-based views of adaptation, as discussed above, are not helpful in understanding and addressing adaptation needs in developing countries. It is clear from the analysis that the system, whether it be social or natural, needs to adapt to the changing climate and its negative consequences. This close relationship between, and interdependence of, the natural and social systems indicates that adaptation should be strategically designed to allow humans and the ecosystem to better respond and adapt. The nature-society interrelationship is very strong in the context of developing countries. Most people in the developing world rely on climate-sensitive sectors, such as forests, agriculture, water, and rainfall, for their livelihood. The ecosystem supports the subsistence-based livelihood systems of communities in the developing world. It is therefore necessary to take a holistic approach to community-based adaptation to climate change.

Based on the above discussion, adaptation entails the systemic interaction and adjustment of both the social and the natural system to the changing climate. This further requires that academic discussion should encompass a systemic view that incorporates both the social and the ecological perspective on adaptation. It is necessary to understand how both humans and the natural system have been coping with the extremes and stresses. Such an understanding

would provide greater insight into the design of an effective community-based adaptation to climate change, both at the local and national levels.

How does adaptation occur?

There is a rich literature that examines the process of adaptation. Scientists and researchers have identified a number of common typologies for adaptive action. Responses can be minimising adverse effect or capitalising on opportunities, or it can be a response to current, actual, or projected conditions (Smit et al., 1999, p.203). According to Smithers and Smit (2009), adaptive responses can be explained through intent, the role of government, scale, timing, duration, form, and effect. Smit et al (2009, p.77) also explains adaptation types in terms of intent or purpose, the timing of action, and the temporal and spatial scope.

Adaptive action is defined by autonomous (passive, automatic, and spontaneous) and planned (active, structured, and strategic) action. Smit et al (2000, p.240) state, 'based on intent or purposefulness with respect to a climate stimulus, autonomous or spontaneous adaptations can be distinguished from consciously planned or deliberate international adaptive response to a stimulus (actual or anticipated). Adaptations in unmanaged natural systems are considered to be autonomous. Those initiated by public agencies are usually conscious but those by private individuals or communities may be autonomous or planned, or combustion of the two especially when adaptations are considered at different spatial or temporal scale'.

Adaptive responses are also characterised in terms of time as they can be either short-term or long-term in nature. Adaptive actions can take different forms, ranging from the technological, behavioural, and financial, through to the institutional, and informational. Smit et al (1999), Smit and Wandel (2006), Burton et al (2007), and Pelling (2011) state that adaptation happens at the individual household, the community, and at the regional, national, and international levels, and in diverse systems ranging from the social to the natural. This discussion signifies the importance of considering both autonomous and planned adaptation responses in the design of CCA-related policies and plans.

Adaptation can also involve a wide range of institutions and actors. Adger et al (2005, p.79) argue that adaptation to climate change involves various decisions across a landscape made by actors ranging from individuals, firms, and civil society, through to public bodies, and

international agencies. In addition, Burton et al (2007) points out that, for an action to be a purposeful adaptation, the action should reduce sensitivity and exposure to climate change, and increase the resilience of a system. Mertz et al (2009, p.750) add that the uncertainty of climate change demands robust, innovative, flexible, and institutional policies and approaches, good governance, and inclusive structures that can help the poor and vulnerable in the developing world to better adapt.

The above discussion reveals that since climate change adaptation involves different responses at different levels, the adaptation process looks simple on the outside, but complex on the inside. Adaptation happens within different systems (natural, social, political, and economic) and varies greatly within the social system (the individual, the community, and the household, and at the local and national levels). This variation makes adaptation actions difficult and challenging because they are highly variable and involve a wide range of different actors, which complicates the coordination of responses difficult. In terms of responses, there are common but differentiated responsibilities across scale and across a variety of actors. The respective responsibilities of individual households and the state are crucial in responding more effectively to the impacts of climate change.

The current trend in the literature of treating adaptation responses in isolation, and overly focusing on international policy responses and financial mechanisms, will ultimately lead to fragmentation of the adaptation responses and interventions. The discussion above provides an important learning for community-based adaptation as the literature stress that adaptation needs to be designed and supported at a range of different scales and levels, from individual actions to collective efforts. In order to make adaptation effective in the community level, there is a need to coordinate the actions of different stakeholders and to establish a closer synergy between the state and vulnerable communities.

2.2. Different perspectives on climate change adaptation

There is a wide-ranging body of literature that conceptualises adaptation to climate change and reflects on this in relation to impact, vulnerability, and adaptive management perspectives. These categorisations of adaptation have also been reflected upon in the context of policy and programme design and implementation in developing countries. This section

describes different perspectives on climate change adaptation and its relevance for developing countries.

Risk- and impact-based perspectives

The risk and impact-based perspective on climate change has emerged out of the notion that adaptation is required to reduce climatic risk and impact in order to prevent human catastrophes, such as loss of life and disruption to people's livelihoods. Climatic risk is the centre of focus of a number of studies and initiatives in this area. Risk is defined as the probability of harmful consequences or expected losses resulting from the interaction between natural- or human-induced hazards and vulnerabilities (ISDR 2003b cited in Schipper 2004, p.87). According to Funfgeld and McEvoy (2011), risk management approaches have strong operational roots in management theory and practice, where risk management is considered as a key mechanism in dealing with various kinds of uncertainties, but mainly to minimise negative consequences.

According to Brooks (2003), a hazard and impact approach views the vulnerability of social systems as being determined by the nature of physical hazards to which they are exposed, and the frequency of the occurrence of the hazard. It is also based on human exposure to hazards and sensitivity to their impacts. This approach is not particularly useful in areas where there are blank spots or a lack of data. Impacts at the local level are complex and difficult to measure through modelling. The issues of climate change in developing countries are quite localised, and hence, the use of a hazard approach undermines the urgency of dealing with the issue of climate change.

Climate change adaptation has also been considered from a risk and impact perspective. According to Ayers (2011, p.63), the global definition, as per the UNFCCC, considers adaptation as a response to the additional impacts of climate change. The risk approach is driven by the assumptions that the impacts of climate change are biophysical in nature, rather than being factors that make people vulnerable. Burton et al (2002) refers to this approach as the 'impacts-based' approach to adaptation. Burton (2009, p.89) reveals that the risk- and impact-based approach or view was dominant in the minds of those who drafted the UNFCCC documents. Scholars holding this view see adaptation as the altering of activities

related to greenhouse gases (GHGs) (Smit et al., 2000, p.225). The purpose of adaptation, as perceived in the early years of climate change negotiations, was to respond to the uncertain risk in order to bring the system back to its original state.

The impact-based approach to adaptation assumes a linear and top-down response to the impacts involving technological adaptation measures often used by national governments (Klein 2008, p.2). Ayers (2011) suggests that adaptation, which emerged as an approach to dealing with the impacts of non-mitigated GHG emissions, gave rise to scientific and technological approaches and measures to identify adaptation responses. However, Klein (2008) points out that the technological- and impact-based perspective was challenged due to the uncertainties of climate change impacts, the limitations of technological adaptation measures to address the root cause of vulnerability, and local context-specific solutions and linkages of adaptation to development. Ayers (2011) adds that an impact-based approach to risk assessment tends to overlook the complex and disaggregated nature of vulnerability on the ground.

Although an impact-based approach is useful for dealing with the larger scale of climate change impacts at the national level, it is problematic in the context of developing countries because it ignores vulnerabilities within the human population. There are several authors who argue that an impact-based approach to adaptation, as promoted under the UNFCCC and the IPCC guidelines, has failed to address the drivers of climate change vulnerability at the local level, which include the socio-economic and development contexts (Burton et al., 2002; Schipper and Pelling, 2006; Ayers et al., 2010). This approach is also criticised by Tschakert and Dietrich (2010) who points out that this kind of approach favours linear and largely self-limiting adaptation actions, often presented in the form of lists, which undermine the social resilience aspects of adaptation.

A risk and impact-based approach can be used in contexts where there is good quality science and technology, and also in dealing with larger-scale climate change impact (Ayers et al., 2010). But, the impact-based approach has been criticised for only focusing on the physical attributes of the climate change impacts while ignoring the vulnerability of communities or social groups (Schipper 2004, p.101). Ayers and Dodman (2010) argue that a 'purely' impacts-based approach to adaptation would give rise to standalone adaptation activities or projects that fail to address the long-term impacts of climate change. Such approaches also

have implications for CBA projects and initiatives in LDCs. Dodman and Mitlin (2013) state that we should also be cautious about the risk of CBA due to its focus being on only a single aspect of the multiple dimensions of vulnerability, and hence ignoring the socio-economic complexities at the local level.

The main point derived from the above discussion leads to the conclusion that an impact-based approach overlooks the vulnerability context. Klein (2008) states that the risk and impact based perspective is challenged due to uncertainty in climate change impact, limitation of technological adaptation measures to address the root cause of vulnerability and specific solutions in local context. The complexity of socio-economic systems and the lack of local data in the local development committees, make such an approach impossible in many developing countries (Ayers and Dodman, 2010). As argued above, the impacts of climate change on various livelihood sectors in developing countries are related to the dependence of the population on the resources for the livelihood. Isolating this relationship and using physical parameters of assessment will not address the core issues because this will undermine the real impacts of climate change on the human population. This is because this approach may exacerbate the vulnerability of those groups whose condition it seeks to improve. The literature in this section implies that we need to look beyond the risk and impact-based approach to community-based adaptation to climate change in order to address the issues of vulnerable populations in developing countries.

Vulnerability and Resilience perspectives

The concept of vulnerability to climate change originated in the risk, hazards, and disaster field. An understanding of the issues in risk and impact approaches gave rise to the idea of vulnerability and the adaptive capacity perspective. This approach has gained wide attention in global environmental studies, and recently in studies of climate change, because vulnerability assumes that there are other social, political, and economic factors that determine how hazards affect people (Schipper 2004, p.97).

Different scholars have used vulnerability in different ways. To date, there is no consensus on the actual meaning of vulnerability (Mertz et al., 2009). The IPCC defines vulnerability as ‘the extent to which climate change may damage or harm a system; it depends not only on a system’s sensitivity but also on its ability to adapt to new climatic conditions’ (IPCC 2007,

p.72). Blaikie (1994, p.9) defines vulnerability as 'the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impacts of natural hazard'. The common element in all definitions is that vulnerability has a socio-centric perspective (Schoon, 2005). Vulnerability reduction is also an attempt to link coping with the capacity of a system to handle stress or perturbations.

There are both biophysical as well as social dimensions to vulnerability. Wilby and Dessai (2010, p.181) argue that climate vulnerability is determined by a host of factors including wealth, social equality, access, and technology. Watson et al (1997), as cited by Ayers (2011), define vulnerability as a function of the extent to which a system is exposed to a hazard. Brooks (2003) explains that social vulnerability is determined by factors such as poverty, access to insurance, marginalisation, and housing quality. Kelly and Adger (2000, p.347) define social vulnerability as the capacity of individuals and social groupings to respond to, cope with, recover from, or adapt to any external stress placed on their use of resources. According to these authors, the extent to which individuals, groups, or communities are capable of making use of resources determines the ability of that particular population to cope with, or adapt to, stress.

Many authors conclude that poverty is a salient indicator of climate-related vulnerability (Huq et al., 2003; Ayers, 2011). According to Mertz et al (2009, p.747), the ability of people to control the variables that determine vulnerability might be translated into their capacity to adapt. This implies that if people have more livelihood options and resources, their adaptive capacity will be higher because they can easily respond to the impacts of climate change. Ayers (2011) believes that the greater the adaptive capacity, the less vulnerable people will be to climate change risk, and the easier they will be able to respond. Smit and Wandal (2006) argue that vulnerability reduction appears to be most effective if undertaken in combination with other development strategies and plans at various levels. For example, a combination of vulnerability reduction and poverty reduction will address both climate change and development (Oxfam 2010, p.14). This discussion implies that a vulnerability reduction perspective brings climate change and development issues together because both look on the issues of poor and marginalised communities, and argues that the mainstreaming of CCA into development practice is important.

However, the concept of vulnerability has also been criticised due to a number of inherent limitations. Adger (2006), Smit and Wandal (2006), and Fussel (2007) indicate that there are challenges for social dimension research relating to the measurement of vulnerability. An overemphasis on the vulnerability context overestimates the severity and impact of the risks and hazards, because it overlooks the importance of technology in the reduction of risk. There are also implementation issues in how to target vulnerability. Forsyth (2013) and Dodman and Mitlin (2013) points out that vulnerable people do not always conform to popular ideas of vulnerability, such as women or people of low caste because there is often issue in the local level where less vulnerable households or local elites benefit more compared to the most vulnerable households.

The complexity of determining the vulnerability context of communities often makes intervention and prioritisation very difficult (Adger, 2006). The needs and priorities of the least developed countries are numerous, and identifying which ones are urgent and related to climate change adaptation, along with the search for resources, leads to conflict, delays in implementation, and a lack of strategic focus. There is also the danger of the fragmentation and diversion of climate change resources for general development-oriented activities due to a lack of clarity.

Despite a number of challenges, Cannon and Mahn (2010, p.623) argue that 'vulnerability is a more valid concept than risk and impact based approach since its social construction is valid under existing and new conditions, and is rooted in economic and political processes that can be analysed alongside those of climate and ecosystem'. This could be impressive if combined with other approaches and strategies, such as resilience approach. Smit and Wandal (2006) also suggest that vulnerability reduction appears to be most effective when undertaken in combination with other strategies and plans at various levels.

Recently, the concept of resilience is becoming popular in the climate change adaptation arena in developing countries. Resilience theory in relation to social-ecological systems (SES) has primarily come from the natural sciences and, in particular, ecology (Folke 2006; Gallopin 2006). Human societies and the economic system rely on ecosystem services and support and interference of the societies plays a major role in influencing the ecosystem dynamics (Folke, 2006, p. 253). Dodman et al (2009, p. 156) also argue that human livelihoods rely on ecosystem services. So it is important to consider the social resilience-

ecological resilience-development nexus in understanding the dynamics of human and natural dependency and interaction.

Resilience is defined as the capacity of a system to absorb disturbances and to reorganise while undergoing change, so as to still retain essentially the same function, structure, identity, and feedback (Walker et al., 2004). Although the resilience terminology originated from ecology, it is now widely used to inform a social resilience perspective. Adger (2000, p.347) defines resilience as 'the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change'. This is significant because it assists with an understanding of response measures required at different levels in order to address the impacts of climate change and support community-based adaptation.

From the discussion, it is evident that resilience and vulnerability represent two related yet different approaches to understand the response of systems and actors to change; to shocks and surprises, as well as slow creeping changes. Their respective origins in ecological and social theory greatly explain the continuing differences in approach to social-ecological dimensions of change (Miller et al., 2010). Since different intellectual traditions use different terms, sometimes incompatible ways, they emerge as strongly related but are unclear in the precise nature of their relationships (Gallopin, 2006).

In spite of this, both vulnerability and resilience narratives contain valid elements, but taken separately and out of context can mislead research, policy and practice (Maru et al., 2014). Vulnerability and resilience are considered linked to each other via response capacity, in the community level, which is an integral part of addressing vulnerability (Gallopin, 200). These approaches help to directly reach vulnerable households and communities, as they offer opportunities for looking at climate change adaptation issues at the household and local levels, and building the adaptive capacity and resilience of communities and households. These perspectives are also relevant in the mainstreaming of CBA as they help to bring local and community issues into policy-making at the local and national levels.

Adaptive capacity Perspective

The capacity to adapt is a critical element in the process of adaptation. In case of uncertainty, adaptive capacity is a critical system property, for it describes the ability to mobilise scarce

resources to anticipate or respond to perceived or current stresses (Engle, 2011, p 646). Building adaptive capacity is considered an important component of community-based adaptation because it has a strong local dimension with practical innovations that improve societal adaptive capacity to respond to the impacts of climate change (McEvoy et al., 2010, p.781).

There are various academic definitions on adaptive capacity. The IPCC defines adaptive capacity as an 'ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages to take advantage of opportunities, or to cope with the consequences' (IPCC 2001, p.72). Vincent (2007, p. 13) defines it as a vector of resources and assets that represents the asset base from which adaptation actions and investments can be made. In spite of this, there is a common element within the definitions of the adaptive capacity in literature, which focuses on the ability of the building system to adapt to climate change. By definition, any action that intends to build the ability of the system to adapt to climate change will contribute to enhance adaptive capacity.

A growing body of literature focuses on identifying specific social and economic conditions which influence the capacity of an individual or community to adapt. Adger and Vincent (2005, p. 400) argue that the capacity of societies to adapt to climate risk is based on their level of socio-economic development. It is also dependent on their experience and knowledge. Lemos et al (2007, p. 24) mention that there is consensus among many scholars that adaptive capacity can be created by investing on information and knowledge, encouraging appropriate institutions that permits evolutionary change, and increasing level or resources such as income and education. The literature reveals that a critical element of building adaptive capacity should focus on empowering with vulnerable households and communities by increasing access to information, knowledge and technology.

The effectiveness of adaptive capacity, however, is governed by the successes of interventions and process targeted to improve the capacity of the system. Vincent (2007, p. 13) further argues that the challenge for emerging insights into adaptation lies on how to identify generic determinants of adaptive capacity at various scales. Grasso (2010, p. 22) explains that adaptive capacity is determined by social and political dimensions of a society or culture. Smit and Wandal (2006) further explain that the ability to build adaptive capacity at local level is influenced by factors such as access to resources, technology, information,

infrastructure and institutional environment. There are some challenges in terms of practice. Pelling and High (2005) suggest that tendency or centralized and top down planning and decision making are in danger with restricting incentives for experimentation, reducing flexibility and capacity to adapt under uncertainty of climate change. The challenges highlighted here outline the need to find out innovation and learning by doing approach for driving community-based adaptation forward.

Social Learning and Adaptive co-management perspective

Climate change issues in developing countries are complex and therefore require innovative approaches. The discussion of climate change adaptation demands difficult questions and a radical shift in the mindset of policy-makers and practitioners. Armitage and Plummer (2010, p.287) state that in a system where the ecological, social, and economic conditions are untenable, there will be limits to adaptation and a need for more fundamental shifts in strategy that require new ideas and practices. Adaptation to climate change presents a complex methodological challenge due to challenges in adaptation (Claycomb, 2009), such as uncertainty, complexity, irreversibility, and urgency. This makes adaptation a complex problem which requires the use of innovative approaches and analytical perspectives (Brown 2011, p.19).

Social learning perspective emerged to shed light on the importance of the social element of adaptation (Adger, 2003; O'Brien et al., 2009; Mearns and Norton, 2010). The social elements like the role of social actors, network dynamics, and the livelihood assets of communities are important to community-based adaptation as they focus on promoting learning among social institutions and actors. Pelling (2011) defines social learning as a property of social collectives which describes the capacity and processes through which new values, ideas and practices are disseminated and popularised and become dominant in society or a sub-set such as an organisation or local community.

Adger (2003) describes social learning as the property of social collectives. According to Collins and Ison (2009, p. 364), social learning focuses on the change of behaviour and action as a result of understanding something through action ('knowing') and leading to concerted action. The authors argue that social learning is important to understand the dynamics of adaptation across societies. The social learning perspective is important to promote CBA in

developing countries because such forms of collaboration among people and communities have become increasingly necessary in tackling climate change issues at different levels.

In addition to the social learning perspective, the concept of adaptive co-management has recently been discussed as part of climate change adaptation in order to address the inherent uncertainties and complexities. In the context of complex social-ecological systems[7], management requires knowledge in order to monitor resource availability, make decisions about allocation, and respond to feedback from the system at multiple levels (Berkes et al., 2003; Olsson et al., 2004). Because of the complexity of these systems, no single organisation or group is likely to have the full range of knowledge required; instead, this requires the development of partnerships and cooperation among these groups (Berkes, 2009).

As discussed above, the nature of climate change adaptation demands multi-agency roles and contributions. The emergence of new types of agencies and actors necessitates a multi-level approach which is consistent with the emergence of new mechanisms and institutions of environmental governance (Biermann and Pattberg, 2008). Adaptive co-management is a 'learning by doing' approach where a wide range of actors, including government, scientists, and the public, collaborate with each other in defining issues, and in the planning and monitoring of outcomes (Armitage et al., 2007).

The benefits of multi-institutional collaboration are also highlighted in the literature. Stringer et al (2006) and Carpenter and Gunderson (2001) highlight the importance of different stakeholders coming together and taking collective steps towards the management of environment problems. Plummer (2012) suggests that adaptive management has the potential to make environmental management more democratic through the involvement of different stakeholders. Evans (1997) also emphasises the relationship between the state and society, and argues that the idea of state-society synergies stresses that an active government and mobilised communities can enhance each other's developmental efforts.

The literature on adaptation is advancing rapidly in terms of the articulation of social learning and adaptive co-management perspectives and views of defining and interpreting adaptation and its attributes. These perspectives are useful in developing countries in order to enrich

[7] Socio-Ecological System (SES) is defined as a system which includes societal (human) and ecological (biophysical) subsystems in mutual interaction (Gallopin, 2006, p 294).

local learning and interaction among a wide range of actors in order to generate local and context-specific responses to the impacts of climate change. As is already evident from the previous discussion, climate change responses require multiple institutions and actors, and the adaptive co-management approach is relevant in dealing with the complexities of climate change by bringing these different actors together.

The co-management approach is relevant in scaling up and mainstreaming community-based adaptation because mainstreaming requires both private and public collaboration and support. Plummer (2013) concludes that adaptive co-management contribute to climate change adaptation by building adaptive capacity and providing with a novel institutional arrangement to generate adaptive responses. As adaptive co-management is a governance-based approach aimed at dealing with complexity and uncertainty in planning and decision making, it can be an effective mechanism for linking the local CBA priorities with national policies.

2.3. Community-Based Adaptation (CBA)

As argued earlier, climate change adaptation needs a greater focus on the household and community levels. The globalisation perspective towards climate change adaptation has recently shifted focus to look at practical views of, and approaches to, adaptation. These views and approaches have combined development and technological views, advocating for the identification of practical measures and approaches to solve adaptation deficits. Given that the impacts of climate change, appropriate responses, and to some extent, community-based adaptation are location-specific, adaptation at the community level is critical (Adger 2003; Tompkins and Adger 2004).

The theory of community-based development was the greatest influence in the genesis of Community-Based Adaptation (Hickey and Mohan 2004; Dodman and Mitlin 2013), as well as in research on participatory disaster risk management (Mercet et al., 2008; Van Aalst et al., 2008). The broad hypothesis is that while the problem is global, action has to be local (Rashid and Khan 2012, p.244). This idea shares common ground with the development community (Mitchell and Tanner, 2006). Community-based adaptation has embraced the concept of no-regret strategies; in other words, activities that meet climate adaptation goals though broader

development measures that will be beneficial even if climate change predictions are inaccurate (Dodman and Mitlin, 2013).

Community-based adaptation evolved alongside the UNFCCC negotiations and has developed a distinctive terminology and community of practice. The community-based adaptation to climate change approach, which has developed considerable currency with civil society organisations, is designed to help the poorest and most vulnerable people and communities to adapt to climate change (Huq and Reid, 2007). Community-based adaptation, defined as ‘‘a community-led process, based on the priorities of the communities , needs knowledge and capacities which should empower people to plan for and cope with impacts of climate change’’ (Reid et al., 2010), It is referred to as a bottom-up adaptation approach, which recognises that the majority of the finance for climate change adaptation is currently channeled through national governments, with no assurance that these resources will reach the poorest and most vulnerable people.

Community-based adaptation aspires to build the resilience of communities by enhancing their capacity to cope and better adapt to both variability and change (Ayers et al., 2010). Community-based adaptation is a promising way to manage the risks of climate change, as it can empower communities and offer synergies with broader poverty and sustainable development objectives (Heltberg et al., 2009). The supporters of community-based adaptation argue that it is advancing well and is contributing to build the adaptive capacity of communities in many least developed countries by mobilising the local communities to take leadership on implementing risk and resilience building activities (Huq and Ayers, 2008a; Ayers and Forsyth, 2009; Ayers et al., 2013). Donor agencies have also shown great interest to invest on community-based adaptation recognising that it is a valid approach in building the adaptive capacity of vulnerable communities as it empowers the vulnerable households and supports them in strengthening their livelihood resources (Ayers and Forsyth 2009; Huq and Reid 2014).

Community-based adaptation goes hand-in-hand, with community-based development[8], which has existed for some time now. The issues of climate and development at the local

[8] Community based development is defined as the development approach where communities use their social capital to organize themselves and participate in development processes (Mansuri and Rao, 2004),

level overlap here. Community-based adaptation takes the approach of 'adaptation as development'. Ayers and Forsyth (2009) suggest that in responding to the concept that adaptation is local and place-based, community-based adaptation addresses the locally-specified nature of risk and vulnerability and thus also contributes to local development. A more development-oriented perspective to adaptation considers development and adaptation risks as being strongly complementary. Ayers (2009, p, 63) further explain that adaptation and development risks are complementary as they acknowledge the interaction between the local and context specific drivers of vulnerability including other factors such as social, economic, cultural and institutional. Under this approach, adaptation is not only focused on the anticipation of enhanced physical risk, but it also addresses the developmental needs of poorer, more vulnerable people (Ayers and Dodman, 2010).

There is a convergence between CBA and development. Community-based adaptation borrows the approaches and experiences of participatory and community-driven development. CBA rests, in principle, on local participation and ownership in the design and implementation of adaptation planning and responses. It considers that adaptation strategies must be generated through participatory processes involving local people and communities as stakeholders in development. CBA initiatives have been popular in least developed countries due to specific local successes and positive impacts (Ayers, 2011). The CBA approach, for example in Bangladesh, has achieved some success as it has involved huge community-based organisations and vulnerable households directly in the design and implementation of adaptation interventions (Ayers and Forsyth, 2009).

Despite rapid progress in the development and sharing of knowledge about CBA, many challenges remain. Whilst the number of CBA case studies in LDCs has proliferated, it will be important in future to find practical ways to 'up-scale' initiatives and to find better ways to draw out and communicate lessons from CBA more widely (Reid et al., 2010). Up scaling of the CBA refers to replication and sharing of generic lessons to wider communities and geographic areas (Reid et al., 2014). The issue of up-scaling is also highlighted by Ayers (2011, p.840), who argues that despite the potential of community-based adaptation in operationalising local inclusivity, the up-scaling of climate policy initiatives is problematic because little attention is paid to the wider policy-making context of adaptation. Ensor and Berger (2009) have highlighted the challenges around CBA due to the lack of a conducive policy environment and support from the government to up-scale adaptation successes.

There are also a number of scholarly articles that criticise the CBA approach and the theory behind it. According to Dodman and Mitlin (2013), CBA has been attached to many different kinds of interventions with a lack of clarity about the definition of the term. The lack of strategic focus is another issue around community-based adaptation. Dodman and Mitlin (2013) are critical about the approaches used in CBA and points out that the first generation of CBA projects has not taken a particularly sophisticated view based on disaggregating communities into different groupings of poverty and vulnerability, and in the majority of cases, have not helped communities to tailor adaptation measures to these different groupings. Ayers (2011) also supports this view arguing that clarity is needed in CBA in terms of the participatory process and community engagement. According to these authors (Ayers 2011; Dodman and Mitlin, 2013), simply organising participatory exercises at the level of 'the community' does not necessarily empower vulnerable households and groups; this is a similar problem in participatory projects, as explained earlier.

Power relations, access to resources, favoritism, and geographical location have been identified as key equity dimensions of CBA (IIED and BCAS, 2013). Adger et al (2006) argues that given the exclusion of certain groups from the decision-making process, CBA strategies may end up benefiting the "less vulnerable" in the community. According to Cannon (2013), there is no such concept as a unified community, and communities should not be thought of as 'warm and cuddly'. Anything that is 'community-based' relies on forms of participation. This further emphasises the need to devise strategies to deal with governance issues within community groups like issues of gender disparity, exclusion, and power sharing, so that households remain the focus of the interventions.

The challenge of community-based adaptation is to move away from the confined, projectised, and NGO brand and boundaries, and to include more communities at the national level (Huq and Reid, 2014). In relation to CBA, some critics have pointed out that when CBA is defined as an approach to adaptation alongside wider-scale adaptation planning, the result is a 'one-project, one-community' approach that actually encourages an 'aggregated community' discourse (Dodman and Mitlin, 2013). Project-driven and small-scale interventions in CBA are also a challenge for wider scaling and mainstreaming. These are often operated by Non-Government Organizations (NGOs) or through community organization initiatives, and often lack support from government. The main issue of such project initiatives is in their sustainability after completion of the project, and the

incorporation of the CBA practices into local development policies and government plans (Shaw, 2006).

There are also issues around the governance of adaptation and the limitations of the community-based adaptation approach. As noted by Dodman and Mitlin (2013), while there has been much work on the development of participatory tools and methods for enabling community-based development at the project level, relatively little attention has been paid to building up the links with political structures above the level of the community. Ayers (2011) has shown that the governance of adaptation presents a paradox, based on the dual requirements of being part of a 'global' climate change problem, and being managed and financed through international administrative frameworks; and yet needing to respond to disaggregated local vulnerability contexts. This means that adaptation has to be managed coherently across a range of scales. This further demonstrates the need for CBA practitioners to consider cross-governance structures and to broaden the CBA strategy.

The CBA literature shows that the foremost challenges ahead are to mainstream CBA within development practice, and to up-scale the approach to the national level. In order to maximize CBA's influence, practical ways of consolidating lessons, sharing knowledge, and up-scaling the approach are needed, so that it becomes relevant to larger-scale adaptation policymaking, yet does not compromise the participatory and community-driven nature of the approach. It is also necessary to find practical ways of making CBA replicable in a variety of settings so that it can be up-scaled with the least possible detriment to its participatory nature (Reid et al., 2010).

The literature highlights the need for CBA to engage with multiple stakeholders in order to widen its scope of implementation and to rid itself of the small-scale project approach. Huq and Reid (2014) suggest that stronger engagement with a wider group of stakeholders provides opportunities to move away from isolated pilot projects and to integrate CBA into the policy and planning levels. The success of community-based responses depends on wider enabling conditions which are facilitated by external institutions and policies (Schipper, 2013). According to Agrawal (2008), new incentives are needed to promote the involvement of private organisations and institutions in facilitating adaptation. Waylen et al (2013) recommends taking a political approach to the deconstruction of the concept of community, in order to consider the roles of multiple interests and actors, and local processes and

institutions. As argued in the earlier section, the adaptive co-management approach which seeks to focus on learning-by-doing through collaborative and inclusive decision making can be the basis for effective implementation of CBA in the local level.

In addition, there is also a significant lack of mid-range proposals which focus on bridging the gap between local level initiatives with sub-national and national level policy and programmes, on adaptation planning and delivery that can support the mainstreaming of CBA (Reid et al., 2010). There is a need to combine top-down and bottom-up approaches to planning and delivery. In theory, this can be achieved through decentralised institutional designs that are responsive to local level vulnerability contexts, but which also accommodate wider adaptation planning scales and practices (Dodman and Mitlin, 2013).

As argued earlier, there is only limited knowledge about what kind of approaches and mechanisms are suitable for the mainstreaming of CBA into development practice. The framework of the Local Adaptation Plan of Action (LAPA), endorsed by the Government of Nepal, is a positive step ahead which seeks to fill this gap, as it aims to link top-down and bottom-up planning processes (Ayers, 2011). Huq and Reid (2014) also point out that the Government of Nepal has initiated best practical examples of mainstreaming CBA into nation's broader planning processes.

Overall, there remains a lack of understanding about the effectiveness of LAPA in terms of linking local adaptation needs with national policies and plans (Helvitas, 2011; Tiwari et al., 2014). The literature therefore stresses the need to carry out country-specific studies to look at the relevance of different approaches and methods used in the mainstreaming of CBA into development in Nepal and other LDCs. This thesis looks at how CBA is mainstreamed into development process in Nepal, and thus helps to address the issue identified in the literature.

2.4. Mainstreaming of Climate Change Adaptation

Within the research community, there is growing interest in exploring the linkages between climate change and sustainable development (Munasinghe and Swart, 2005). The root causes of climate change are related to industrial and economic development. Climate change is recognised as a development problem, and also as a result of poor development (Huq and

Reid 2006; Ayers and Dodman 2010; Gupta and Grijp 2010). The World Development Report (2010) indicates that climate is already compromising efforts to improve standards of living and to achieve the millennium development goals. Salih (2009) mentions that climate change and its consequences are metaphors for development failure coupled with the slow pace of implementation of the sustainable development agenda over the last 30 years. This view is also supported by Huq and Reid (2006), and Parry (2009), who suggests that unsustainable development practices that rely heavily on fossil fuels are a major cause of the increase in greenhouse gases in the atmosphere.

Both adaptation and development play a role in responding to climate change risks. Schipper (2007) argues that vulnerability reduction and sustainable development are fundamental elements of adaptation to climate change. There is a view in the literature that climate policies for reducing vulnerability and adapting to climate change can contribute to meeting the objectives of sustainable development (Swart et al., 2003). Grist (2008) suggests that the management of climate change comes under the umbrella of sustainable development, given its long-term implications and potential for affecting socio-economic and environmental systems. Pouliotte et al (2009) also adds that if adaptation processes are in line with development initiatives, then this will bring immediate benefits and strengthen people's adaptive capacities.

The above discussion implies that the mainstreaming of climate change adaptation into development practice is a win-win approach which can bring greater synergies and assist with the efficient mobilisation of resources (Huq et al., 2006; Huq and Ayers, 2008a). The literature further demonstrates that climate change adaptation and development should be integrated in order to effectively channel resources and other forms of support to poor and vulnerable households that have been disadvantaged both by climate change and under-development. The mainstreaming of CCA into development practice becomes far more relevant in the context of developing countries, where there is a greater urgency to deal with both poverty reduction and to address climate change vulnerability.

In practice, the term 'mainstreaming' originated in the 1960s when it was coined to designate an approach to assimilating children with disabilities into regular classroom settings (Elsey et al., 2005). Mainstreaming in the climate change literature is associated with the rise of the climate change adaptation agenda within the UNFCCC. The three stages of policy evolution

in climate change mainstreaming i.e. the early 1990s, the end of the 1990s, and the current period, as proposed by Gupta and Grijp (2010), highlights the fact that mainstreaming came into existence due to a realisation that although reducing greenhouse gases is the most urgent issue, it is almost impossible to eliminate the impacts of climate change, and hence, societies and systems need to adapt.

While there is no universally-accepted definition of mainstreaming, it has been defined and described in a number of ways. According to Agrawal and Aalst (2005, pp.15-21), mainstreaming is defined as 'the integration of climate change vulnerabilities or adaptation into some aspect of related government policy such as water management, disaster preparedness and emergency planning or land-use planning'. Huq et al (2003, pp.35-36) defines mainstreaming as the integration of information, policies, and measures to address climate change into ongoing development planning and decision-making. The definitions proposed above by academic scholars and researchers on mainstreaming include the idea of the integration of climate change issues into sustainable development policy and planning by international agencies and state governments.

Integration and mainstreaming are used as interchangeable synonyms (Gupta and Grijp, 2010; Oates et al., 2011). Mainstreaming is commonly regarded as the process of integrating climate change concerns into development planning. Although this sounds good, it makes the scope and goals of mainstreaming very limited. There are past experiences of failure to actually implement policies or plans, particularly in the gender and environment space, and of simply treating mainstreaming as integration into policies or plans. Mainstreaming has also been labeled as being a mostly top-down and donor-influenced approach with low ownership at the national level, which is a problem because it undermines national capacity to address these issues. Based on the above discussion, the mainstreaming of CCA should entail both policy responses as well as the practice of integrating climate change issues into regular development policy and planning at all levels.

Mainstreaming, in the context of climate change, appears inspiring and achievable for enhancing greater coordination and synergy among various policies and sectors. According to Klein (2005, p.5), from an operational perspective, mainstreaming is simply common-sense: it is a 'no regrets' approach to making development investment more climate-resilient and ensuring that adaptive capacity is enhanced. Agrawala and Aalst (2008) suggest that

mainstreaming is an opportunity for development to enhance cost-effective adaptation options and to avoid mal-adaptation in future. Mainstreaming is seen as a more sustainable, effective, and efficient use of resources than designing and managing separate climate policies (Huq and Ayers, 2008a). Huq and Reid (2014, p. 291) also argue that the mainstreaming of CBA into development practice provides opportunities to move away from isolated pilot projects and to integrate local level adaptation priorities into the policy and planning levels to an extent that non-government organisations cannot achieve.

However, the literature also outlines the challenges ahead in terms of how to get mainstreaming to work. Gupta et al (2010, p.319) believes that politically, mainstreaming undermines the promise, under the climate change regime, to provide new and additional resources to developing countries because it treats climate change adaptation as a regular development activity. This implies that the mainstreaming of climate change adaptation is donor-driven, involving mostly donors in its design and implementation. It also raises the question of the control, conditionality, and accountability of financial resources for climate change adaptation if they are treated in the same way as overseas development assistance. In this way, mainstreaming may trigger aid dependency. One major and often cited point in the literature is that poor countries perceive the mainstreaming of climate change into development practice as a diversion from their own priorities, which are resource-intensive, time-consuming, and complicated (Tearfund, 2006; Gigli and Agrawala, 2007; Swart, 2007; Agrawala and Aalst, 2008; Huq and Ayers, 2008a; Rahman, 2008; Sietz et al., 2008; Ayers and Huq, 2009; Lasco, 2009; Persson, 2009; Chevallier, 2010; Chuku, 2010).

Current understandings of the mainstreaming of climate change adaptation into development practice are only focused on the perspectives of Overseas Development Assistance (ODA) and donor-supported projects and initiatives. Primarily, the framework on mainstreaming thus looks more at how climate change can be reflected within national policies and top-down development planning processes. For example, the early literaure on mainstreaming by Agrawala and Aalst (2008), Huq et al (2006), Persson and Klein (2009), Klein (2010), and Gupta and Grijp (2010) looked at it from an ODA perspective. Mainstreaming approaches are also proposed for assessing socioeconomic and environmental measures and as a climate risk information tool for analysing adaptation and developing planning (Klein, 2008). The OECD work on policy guidelines has developed and suggested a set of practical tools known as ‘the climate lens’ which looks into issues associated with vulnerability, climate risk, climate

proofing, and mal-adaptation (OECD, 2009). The UNDP has also proposed an adaptation policy framework to guide the step-wise integration of adaptation into development planning processes (Lim et al., 2005).

Klein et al (2007) discusses the screening tools for mainstreaming development used by the UK Department for International Development e.g. such as ORCHID and the Strategic Programme Review (Tanner et al., 2007). Portfolio screening is used as a tool for looking at mainstreaming opportunities within donor portfolios (Eriksen et al., 2005). The European Union (EU) has established the Global Climate Change Alliance (GCCA) to support the integration agenda into sectoral and national plans and policies (Yamin et al., 2005; Persson, 2009). These frameworks for mainstreaming proposed by development agencies, as discussed earlier, are all technologically-focused and are largely dependent on the process of integration into the policy and planning stage. The long-term perspective on the operationalisation of the mainstreaming agenda at the local and national levels is thus lacking.

As argued earlier, there is only a very limited literature that reflects upon local and national approaches and perspectives on the mainstreaming of climate change adaptation into development practice. The framework for such mainstreaming, proposed by Huq and Ayers (2008a), describes a linear sequence for mainstreaming into national policies and plans (Lebel et al., 2012). The paper concludes that one way of mainstreaming is through the screening of development portfolios through a climate change lens. According to the paper, the four critical steps in this process include: increasing collaboration between agencies; increasing awareness of, and knowledge about, climate change at the local level; improving the knowledge base for informed decision-making; and integrating climate change adaptation into development planning.

However, the framework of Huq and Ayers (2008a) also considers mainstreaming from a top-down, centralised policy response perspective and does not provide answers for how local and community adaptation needs are integrated within national level responses. Although this framework seems relevant for looking at country level mainstreaming, the steps proposed appear to be more relevant for project-based mainstreaming as they emphasise on measuring the outcome of project interventions on general categories like awareness raising, capacity building and policy influence. The complex governance issues in developing countries

require flexible and process-led approaches and strategies rather than 'business as usual' approaches.

Huq and Reid (2014) suggest that developing countries are finding their own ways of developing strategies to address the impacts of climate change on national development. Recently, a number of developing countries have proposed the concept of mainstreaming from a national point of view. African government officials at a workshop in Tanzania coined the term 'main streamlining' in 2012 to describe the process of integrating climate change into development planning practice (IIED, 2013). This framework identifies three components of climate change mainstreaming: an enabling environment; good policy and planning; and active projects and programmes. This approach advocates in-country ownership and leadership of mainstreaming by local and national stakeholders as a more practical way to ensure good coordination and integration between climate change and development, rather than a tick-box approach driven externally and led by a single agency.

However, one of the key constraints of this framework is that it still regards climate change as a process for integrating climate change into policies and planning, and thus ignores the necessity of an integrated and pragmatic approach to CCA mainstreaming that can link the local, sub-national, and national levels. The above discussion points to the fact that there is no single framework that provides an analysis of how climate change adaptation can be effectively mainstreamed at the local, sub-national, and national levels. This knowledge gap is a challenge for CBA mainstreaming as currently there is a lack of clarity as to how smaller CBA projects, implemented at the local level, can be mainstreamed into national policies and planning. There is also a gap in how mainstreaming functions across various tiers of governance, particularly at the local grassroots level.

Several authors have pointed out the need to carry out further research to better understand how mainstreaming can happen in a practical sense in developing countries (Metz and Kok, 2008; Klein, 2007; Lasco et al., 2009), and also how to promote the integration of climate change adaptation into development planning. Bapna and McGray (2008) and Chuku (2010) suggest that concrete models and approaches are needed to overcome the rhetoric about integration adaptation and finding exactly what this means in practice. Klein et al (2005) identifies the need to establish the conditions under which the process of mainstreaming can be most effective. Huq and Ayers (2008a, pp.1-4) and Bapna and McGray (2008) explain that

there is much rhetoric and a lack of clarity about the integration of adaptation into development practice, and around establishing exactly what this means in practice.

The gap in the literature thus implies that there is a need to investigate suitable local and national mechanisms that can link local adaptation needs with national policies and priorities. This research builds on the frameworks provided by Huq and Ayers (2008a) and IIED (2013), as discussed earlier, and further adds value to these framework by bringing an integrated approach to the analysis of mainstreaming by looking into the policy and implementation perspectives. This thesis therefore fills the knowledge gap in the mainstreaming of CBA into development process, because it analyses what is being done and what lessons can be learnt in order to design a national mainstreaming framework which links local adaptation needs with national level policies and plans.

2.5. Conclusion

This initial part of chapter, section 2.1-2.3 has highlighted on the intellectual foundation of thesis and has provided rationale in assessing the research questions through debate and discussion which is established in the current literature. The chapter has also helped to locate the thesis in reference to the current thinking on climate change adaptation particularly community-based adaptation and thus identifying the contribution of the thesis with a broader field of literature on mainstreaming CBA.

The section, 2.3- 2.4, identifies the key research gaps in terms of understanding how community-based adaptation can be mainstreamed. The first issue raised in the discussion is related to issues around clarity in the concept of mainstreaming, with the literature arguing that mainstreaming is more than just policy integration. The second issue raised in this chapter is related to ambiguity in terms of understanding how mainstreaming works and what kind of governance structure is needed to address the issues and challenges related to finance, technology, and capacity. The third issue raised is about how to address the current challenges of CBA to make it far more reaching and sustainable. The issues and the research gaps identified in this chapter have provided the rationale for the design of this research.

This thesis addresses the current research gaps on the mainstreaming of climate change adaptation into development practice. It seeks to provide an understanding of what kind of policies support climate change mainstreaming and how mainstreaming could happen, in a practical sense, in Nepal. It also seeks to overcome the limitations highlighted within the current literature. A practical and workable policy, strategy, and framework, both at the local and national levels, is of significance to the devising of policy and various mechanisms to address the urgent and immediate adaptation needs of the poorest and most vulnerable communities in Nepal and other LDCs.

The following chapter provides the context of climate change and development in Nepal. It also provides the socio-ecological and vulnerability context of developing countries. This next chapter highlights the issues around aid dependency and experiences of community-based development approaches. It also adds value to the literature review chapter because it provides a more detailed description and analysis of the risk and vulnerability context of Nepal and the importance of bridging the gap between local adaptation needs and national policies and plans in relation to climate change adaptation and development.

3 CHAPTER THREE: OVERVIEW OF THE CLIMATE CHANGE ADAPTATION AND DEVELOPMENT CONTEXT IN NEPAL

The earlier chapters have outlined the key challenges and research gaps in promoting community-based adaptation in developing countries. The literature review chapter outlined the lack of clarity on how the mainstreaming of Community-Based Adaptation (CBA) into the development process should happen, and thus, argued for a need to generate early lessons on its effectiveness. This chapter discusses the significance of carrying out the study in Nepal. The objective of this chapter is to introduce climate change and adaptation issues, and to contextualise these in relation to Nepal's development scenario. It sets the context for the following chapters by providing a justification as to why Nepal has been selected for the case study.

Nepal's social, economic, development, and biophysical characteristics make it vulnerable to the adverse impacts of climate change. Nepal's history of development and its political processes have been major factors that have shaped the progress and outcomes of development in Nepal. The outcomes of development have also been shaped by the types of approaches of government, political change, governance structures, and the role and influence of development agencies. There are new and emerging players in development, as climate change has become a priority development issue for the country. The development of policies and initiatives has thus become apparent as having a major influence on how climate change adaptation is mainstreamed into the development process in Nepal.

This chapter provides evidence to support the argument that besides physical risk, a range of socio-economic, political, and development factors influence attempts to mainstream climate change adaptation into the development process. An understanding of this socio-political context provides greater insight into the prospects for the mainstreaming of CBA in Nepal. This chapter is divided into three major sections, including; a) the socio-economic context of Nepal; b) climate change risk and the vulnerability context; b) and the policy and programme context.

3.1. Socio-Economic, Political and Development Context of Nepal

3.1.1. Socio-economic context of Nepal

Nepal is located along the southern slopes of the Himalayas between the Tibetan region of China in the north and the Gangetic plains of India in the south (see figure below). The country has an area of 147,181 Square Km and lies between longitude 80 4' to 88 1/2' east and latitude 26 22' to 30 27' north (Figure 1). Nepal is currently divided into 5 major development regions, 14 development zones, and 75 districts[9]. The lowest administrative development structure is the Village Development Committee (VDC). Nepal has a total of 3,915 VDCs and 72 municipalities.

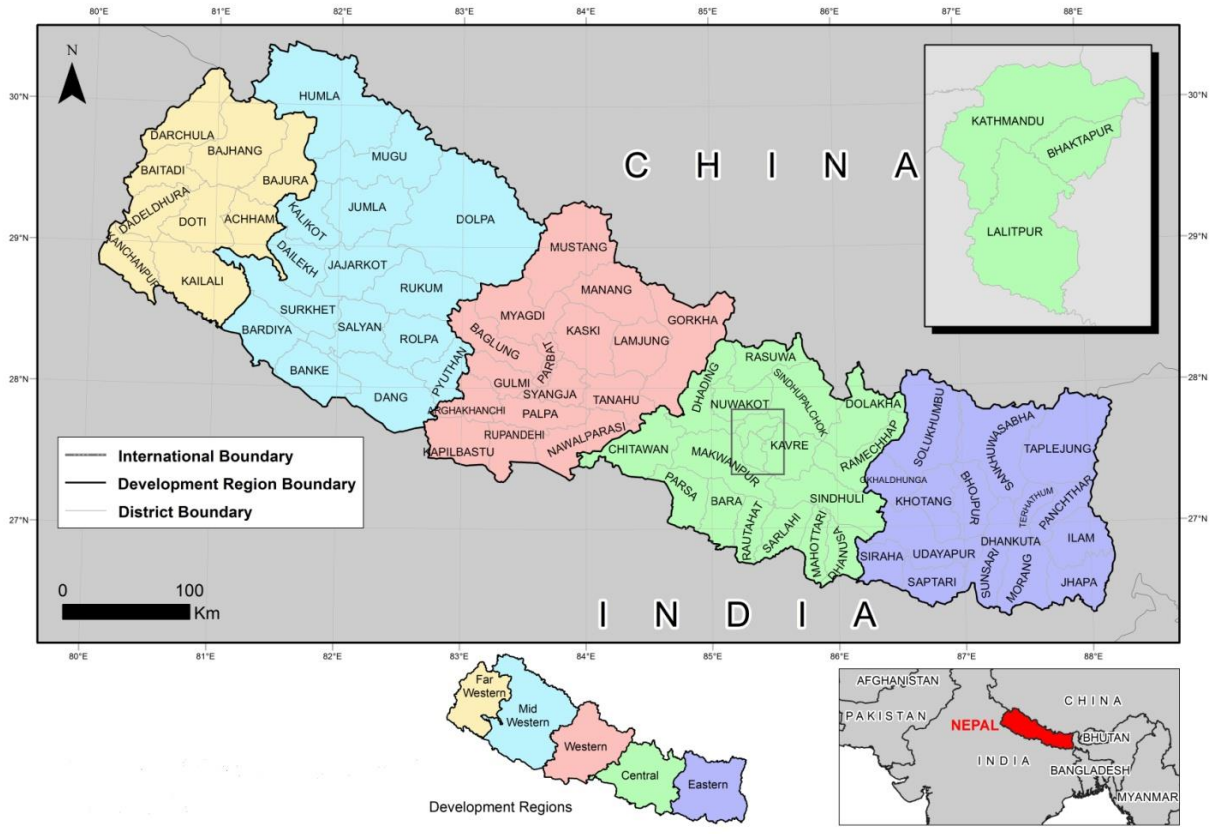


Figure 1. Showing Political map of Nepal (Source: CBS, 2014)

The latest census data shows that Nepal's population is increasing by 1.4% per annum. The population reached 26,620,809 in 2011 (CBS, 2011). In contrast, the economy of Nepal is

[9] The development of the district is administered locally by the District Development Committee (DDC) formed by the government with representation from major district line agencies and political parties.

shrinking and is mainly dependent on a small number of limited sectors, such as agriculture and the services sector. Agriculture provides a livelihood for three quarters of the population and accounts for approximately one-third of Gross Domestic Product (GDP). The agricultural sector contributes 34.9% of GDP, while industry and the services sector contribute 15% and 50.1% respectively. GDP growth was 4.5% in 2011, which is lower than most other South Asian countries, due to poor industrial performance and a decline in revenue generation (MoF, 2012). The political instability of the last two decades has also affected economic prosperity and growth in Nepal (Panday, 2012).

The livelihood of the majority of the Nepalese population is dependent on natural resources. Rural households in Nepal still depend on forests and natural resources to fulfill their basic needs such as firewood, timber, medicinal plants, and other forestry products. In addition, subsistence agriculture farming has been the main source of living for many Nepali farmers for centuries. Nepal has potential natural resources that can support the socio-economic development of the country. Shrestha and Shakya (2012) argue that Nepal has considerable scope to exploit its potential in hydropower, with an estimated 42,000 MegaWatts (MW) of feasible capacity.

However, natural resources have contributed less to GDP because, economically, the country has failed to fully utilise its natural resources, including other sectors such as medicinal and herbal plants, clean energy resources, and tourism. The failure to utilise the economic potential of the country in the past has been partly due to political instability and a lack of investment in the economic sector. Despite the socio-economic problems in Nepal, the remittance sector has provided some relief to the economy over the last decade. The remittance sector has generated billions of dollars and contributed greatly to the urban and rural economies (WorldBank, 2011).

Human migration, both internal and international, is a common phenomenon in modern-day Nepal. There are both positive and negative implications of migration. One positive implication for Nepal is that the flow of remittances has increased in recent years and has supported the rural economy and the livelihoods of many families. A recent report indicates that the inflow of international remittances to developing countries (DCs) has increased dramatically since the 1990s, rising from US$30 billion in 1990 to US$325 billion in 2010, and has emerged as a very important source of private capital flows for dozens of these

countries (Acharya and Gonzalez, 2012). The World Bank report, 'Migration and Remittance Fact Bok 2011', rates Nepal as being among the top five countries for remittances amounting to 23% of GDP (WorldBank, 2011). However, Nepal is gradually losing its skilled human resources due to migration. This loss of human resources has impacted negatively on the agricultural and service sectors, which is evident from the gradual decline in GDP from these sectors (MoF, 2012).

The socio-economic and demographic challenges, and slow economic growth, make Nepal among the world's poorest nations. The country has to deal with major development challenges, particularly in providing access to goods and services, and employment, for the needy population. The 2012 human development index showed that the HDI score for Nepal in 2011 was the lowest ranking among the South Asian countries, except for Afghanistan (Table 1). Although the population below the poverty line is decreasing, Nepal has a comparatively higher poverty level compared to its South Asian neighbor Sri Lanka, which has only seven percent.

Nepal needs to increase its efforts to meet its international commitments and targets on Poverty Reduction and the Millennium Development Goals (MDGs). In addition to the already existing problems of poverty, inequality, and lack of access to better services, climate change has emerged as an additional burden adding more complexities and challenges for households and communities residing in both the rural and urban areas of Nepal. This implies that Nepal now has to deal with the additional issue of climate change in addition to continuing to safeguard its development gains.

Table 1. Development Indicators for Nepal

Year	Human Development Index - HDI Value	Below income poverty line (%)
2012	0.46	24.8
2005	0.51	25.4
2000	0.47	31

Source: Human Development Report-Nepal, 2013

3.1.2. The Development and Political Context

The history of Nepal's development demonstrates a number of ups and downs in terms of socio-economic achievement. The development process in Nepal started after the demise of the Rana regime and its replacement by a democratic government in 1951 (Bista, 1991). The new era began with an agenda for economic development and modernisation of the country set out in a number of five-year plans. The first Five-Year Plan (1956-61) articulated the government's commitment to extending its networking and collaboration opportunities with the outside world (Khadka, 2012). The plan primarily adopted a community development approach influenced by modernisation theory that was disseminated by donor agencies (Bhattachan, 1997). The plan aimed to raise literacy levels, improve agricultural productivity, and curb population growth (Kunwar, 2006).

Nepal experienced political instability between 1960 and 1970. King Mahendra introduced the non-party political system known as the Panchyat system, in 1961 by overthrowing the democratic government. The new system followed a mixed economic philosophy; the state controlled all the resources and was also involved in production and distribution. The Panchyat system lasted for about 30 years (1961-1990), and so can be held responsible for many of the nation's development failures (Devkota, 2007).

Socioeconomic development from 1961 to 1990 was very sluggish, regionally-biased, and unproductive, which led to mass poverty (Devkota 2007, p.285). There was much skepticism over the development approach taken during the 1970s. Many scholars felt that community development based on the Integrated Rural Development (IRD) approach, implemented during the Panchyat system and supported by international development institutions, was a failure. These development programmes were criticised for failing to improve the economic and social well-being of rural people. It also failed to reform the power structure, which directly benefited the local elites (Korten 1980; Bista 1991; Bhattachan 1997). Community development through an integrated approach is quite positive, in principle; however, the failure in Nepal was due to the centralised and controlled system of power-sharing which, in practice, ignored marginalised communities (Kunwar 2006, p.358).

Prior to the 1990s, development contributed to increased levels of inequality among the classes and various ethnic groups. The inequality was caused by a number of different

factors. Firstly, it was caused by the rapid accumulation of resources by advantaged caste groups, due to their easy access to the country's wealth and resources. The advantaged caste and ethnic groups had higher levels of access in terms of education, professional skills, and employment. Compared to the disadvantaged groups, they also had higher levels of accessibility to public service delivery (Devkota, 2007). Secondly, available figures show that there was a wide disparity between urban and rural regions, different ecological zones and development regions, and gender groups. On average, the hills populations enjoyed the highest Human Development Index (HDI) scores, while the mountains had the lowest. Among the development regions, the Mid-Western Region had the lowest level of development, while the Central Development Region had the most advanced (UNDP, 2009).

Decentralisation in Nepal came as a response to address the failure of the centralised state delivery system (Devkota, 2007). Decentralisation is a way to reduce the role of the state in general, by fragmenting central authority and introducing more inter-governmental competition and collaboration. It is viewed as a way to make government more responsive and efficient (Pradhan, 2002). In Nepal, with the promulgation of the *Decentralisation Act of 1982*, and the *Self-Governance Act of 1998*, together with the adoption of various regulations in 1984, local participation was recognised and local government and communities were identified as major agents of local development.

In the spirit of the *Decentralisation Act*, a new development paradigm of people-centered development was introduced in Nepal, emphasising greater local control, and self-help, self-reliance, accountability, institutional and social capacity strengthening, and people-centered development. With the restoration of democracy in Nepal in 1990, the concept of people-centered development was formally embedded into national policy. The Eighth and Ninth Five-Year Plans (1992-2002) emphasised the objective of poverty alleviation, including the building of rural infrastructure through public-private partnerships. The policies in local governance, and in the forestry (the Master Plan 1986 and the Forest Policy 2000), irrigation, and natural resource management sectors all emphasised the principles of local- and community-driven development. These ideas of decentralisation and community development were introduced in projects supported by development agencies in Nepal.

The decentralisation policies were successful only to a minor extent. One of the few successes was in terms of granting access to communities to manage forest resources. For

example, the Community Forestry Program in Nepal encompassed a set of policy and institutional innovations that empowered local communities to manage forests for their livelihoods, while also enhancing the conservation benefits (Ojha et al., 2009). In terms of policy processes, legal rights for communities to participate in forest management were specified in Nepal's *Forest Act of 1993*, and were further articulated in the state's Forest Regulations of 1995 (Acharya 2002; Kanel and Kandel 2004). These community-focused forest policies have in fact helped to protect the forest resources and to mobilise large numbers of households and communities to participate in forestry management (DoF, 2011).

Despite the supportive people-centered development policies, the implementation process largely failed. Post-1990s development was also more centralised, and the decentralised resources that did exist were limited to only a few areas. It is evident that, in terms of development expenditures, a disproportionately large portion of total investment over the last two decades has been concentrated towards Kathmandu (the capital city) and the surrounding areas, and to a lesser extent, to the eastern region of Nepal (*terai)* (Luitel, 2009). These regional biases, coupled with a lack of transparency and corruption, has fueled these development failures. Similarly, Acharya (2008, p.186) argues that most parts of the integrated rural development programme in Nepal have faced problems because of inadequate programing to the target groups, and the lack of a proper evaluation and monitoring system.

Opportunities to progress development in the neoliberal era after 1990 were overshadowed by the weakness of the politico-economic character of the ruling classes. The biased urban development efforts of past regimes led to massive inequalities among the different regions and social classes (Devkota, 2007). Panday (2012) called the Nepali development regime in the past a form of 'failed development'. The author mentions that development failures in Nepal are deeply engrained in the history of the country's dominant political culture which often resisted changes in policies and behaviours relevant to development. The reasons for such dominance, as described by Panday, were due to the exclusionary nature of the Nepali state, with its largely patriarchal character and a weak accountability system which were unhelpful to development (Panday 2012, pp.82-84). Apart from the government, the development agencies were also responsible for the failure of development in Nepal. Guthman (1997) argues that Nepal followed the policies recommended by international donors which also failed to keep development on track. This implies that development

primarily benefited the limited urban population, mostly the elites, and largely failed to address rural issues and benefit the poor.

There is additional evidence that points to the development failures of the past. According to Shrestha (2008), the Nepali state has failed to deliver on the promise of development in terms of generating employment, curtailing socio-economic inequality, and alleviating poverty, especially among the rural poor. The author argues that development in Nepal, both in the post-democracy era (from 1990), and in the earlier phase of the democratic era, has been disruptive, uneven, and inherently biased in favor of those who are already well-off or who possess resources (Shrestha, 2008). Although popular development programmes such as 'lets construct our own villages' were introduced, Donini and Sharma (2008, pp 20-21) suggest that, 'the emphasis on infrastructure did not really change the lives of ordinary people and conflict emerged (1996-2006) as a response to poverty and exclusion - issues that were not at the forefront of the concerns of the development enterprise in Nepal'.

During the early democratic phase in Nepal (1990-2005), local government remained weak and government agencies remained strongly centralised in practice (Panday 2012; Seddon and Hussein, 2002). The poor governance and the inadequacies of the development policies of successive governments provided more fertile ground for Maoists to launch the People's War (Seddon and Hussein 2002, p.4). Furthermore, the emergence of the Maoists in 1996 created a politico-economic crisis and halted further opportunities for socio-economic development. Both the state and the Maoists were responsible for creating a political vacuum at the local level and stopping development activities (Panday, 2012).

However, international organisations and donor agencies used the alternative practice of using non-government actors to keep development moving forward during the conflict period. The number of foreign aid donors and NGOs grew rapidly during the period of conflict with the Maoists. There are reports which show that even during the decade of conflict, in which much of the local infrastructure and capacity was dismantled, community development approaches, such as community forestry, promoted through the *Decentralisation Act*, actually delivered on the ground (Karna et al., 2010).

Such development proceeded with the aim of improving the livelihoods of the Nepali people, and in so doing, promoting a path towards modernity (Shornstein, 2010). The presence of

NGOs helped to promote concepts such as 'self-empowerment' and 'participation' that are now being advocated, as a result of the 'shift' in the dominant discourse of development (Rehman, 2006). Similarly, Khadka (2012) points out that this discourse has also changed the mode of community development. This development philosophy advocates a needs-based approach, a sustainable livelihoods approach (SLA), the Rights-Based Approach (RBA), and/or Participatory Rural Appraisal (PRA) as being successful in reducing poverty and promoting social development in a number of developing countries (Khadka et al., 2012).

Despite the use of a community-centric development approach by donors and NGOs, there are key challenges in ensuring inclusive participation in the development process. There are a number of research articles and reports which have outlined issues of exclusion and inequality in the development process in Nepal. For example, an OECD (2011) report argues that the key challenges remain to improve the quality of participation, especially at the local level and for disadvantaged groups, and also to ensure that the participatory process truly captures the voices of the beneficiaries and is not hijacked by a select number of groups with higher capacity.

It is also evident that despite some success achieved by NGOs and the donors during the period of conflict, their work also made the government system weaker and more limited, because the donors redirected large amounts of financial resources outside of the government system (Panday, 2012). The practice of using intermediary organisations in delivery has also created a parallel institutional structure that utilises a major portion of the available aid money for staff salaries and institutional overheads. It also has a negative impact on development due to duplication in development interventions, often created by a lack of coordination and communication among NGOs and the government.

Nepal is one of the major recipients of foreign aid in the development sector. About 25% of total government income stems from foreign grants and loans (Table 2). Although there were some positive development aid projects in Nepal to make the government accountable towards its citizens, the influence of development agencies and donors in Nepal's development has also created problems in terms of national ownership of the development process. What matters in reaching development goals is not just the amount, but also the quality of aid (Deutscher and Fyson, 2008). A proliferation of donors and projects has made the governance of aid increasingly problematic. In Nepal, it has been observed that there are

more asymmetries in the aid relationship, whereby donors respond to their own constituencies rather than to the needs of the citizens.

Table 2. Public Expenditure and Financing Sources (Nepali Rupees in Billions and % of annual total)

Categories	Fiscal year			
	2000/2001	2004/2005	2008/2009	2011/2012
Total Government Public Expenditure	79.84	102.56	219.66	285.11
Total Foreign Aid contribution	18.80 (24%)	23.66 (23%)	36.35 (17%)	99.78 (25.9%)
Loans	12.04 (15%)	9.27 (9%)	9.97 (5%)	29.65 (7.7%)
Grants	6.75 (8%)	14.39 (14%)	26.38 (12%)	70.13 (18.2%)

Source: Economic Survey 2009/10, MoF 2012, and Bird 2011

There is evidence to show that the fragmentation of aid persisted after the Paris Declaration on Aid Effectiveness. The OECD (2011) report for Nepal also shows that there is weak harmonisation between donors and the government because Programme-Based Approaches (PBAs) tend to be limited. The Busan Conference appears to have marked a pivotal point in global aid governance and the construction of foreign aid because of its redefinition of the donor-recipient relationship (Nunnenkamp et al., 2013). It remains to be seen in practice how aid effectiveness can result in donor harmonisation in the future.

The history of development in Nepal suggests that the centralised and fragmented approach to development was a failure. Instead, development needs to be based on integrated, nationally-owned and publicly-accountable mechanisms. Decentralisation, by itself, is not a panacea for strengthening democracy and does not provide a guarantee of increased citizen participation (Hiskey and Seligson 2003; Bardan, 2002). In the Nepali context, decentralisation has to be supported by inclusive devolution provisions. Devolution entails the empowerment of lower level authorities, independent of government, with decision-making responsibilities and resources (Manor 1999, p.13). Nepal is now in the process of developing a new constitution which will shape its future federal structure[10]. This is an opportunity for the stakeholders in Nepal, including the political parties, to address the issues of exclusion and disparity by agreeing on a more devolved model of federal states, which can

[10] The Constitutional Assembly has a deadline for the formulation of a new constitution for Nepal by January 2015.

provide greater autonomy and power for state and local governments which will, in turn, ensure the rights and greater engagement of local communities.

In summary, Nepal's development history shows that there is a disjuncture between bottom-up and top-down approaches in planning. It shows that development in Nepal is dependent on approaches and finance from ODA. Despite this dependency, there have been limited successes in addressing rural poverty, and presumably, environmental degradation. However, this dependency has also undermined the role of the state in effectively delivering goods and services to households and communities. This supports the argument that top-down, centralised, and donor-driven development approaches act as barriers to improving poverty, and the development situation in Nepal, and thus may pose challenges for the mainstreaming of CBA into the development process.

3.2. Climate change issues, impact and vulnerability context

The previous section examined the socio-economic and development context of Nepal, outlining the opportunities and constraints. This section will look at the physical science and nature of the impacts of climate change, and the vulnerability context of Nepal in order to support the argument that the impacts of, and vulnerability towards, climate change are context-specific and vary by household and community. This differentiated vulnerability is due to the different levels of socio-economic capability, the intensity of the impacts, and the existing policies and support services of the government and other agencies. This understanding of climate change impact and vulnerability is important to the design of effective mainstreaming initiatives at the local and national levels.

3.2.1. Physical Risk

Nepal is among the lowest greenhouse gas emitters in the world, with less than 0.03% of global contribution, but is considered a hotspot of global warming because of the direct impact on local resources (Shrestha et al., 2000). The annual compound growth rate of CO_2 equivalent emissions for Nepal is 2% per annum, which is lower than that of many other developing countries (MoE, 2011a). Despite the lower emissions, Nepal has experienced consistent and continuous warming during the period 1977-1994 (Shrestha et al., 2000) and

again between 1996 and 2005 (Baidya, 2007). A recent study shows that the rate of increase in temperatures (0.04°C/year) is higher than the mean global rate (Baidya et al., 2007).

Nepal has also experienced considerable variability in the rainfall pattern over the last two decades. The analysis of daily precipitation data for the 46 years from 1961 to 2006 carried out by the Department of Meteorology shows an increasing trend in precipitation extremes. The data shows that approximately 73% of stations (out of 26 total stations selected for the study) exhibited an increase in the annual number of days when precipitation was greater or equal to 50 millimeters (mm) (Baidya et al., 2008). Winter precipitation is also increasing except in the northern part of mid-western, western, and eastern Nepal. Heavy rainfall events (100 mm/day) are also observed to be increasing. This implies that the occurrence of disasters, such as floods and landslides, will become increasingly common in future.

3.2.2. Climate change impacts and vulnerability

The evidence shows that climate change has had a negative impact on Nepal in a number of ways, including an increase in Glacier Lake Outburst Flood (GLOF) disasters, the destruction of hydropower and irrigation infrastructure, biodiversity loss, and limited access to domestic water usage. One study demonstrated that agriculture in Nepal faces many challenges over coming decades due to climate-related variability (Malla, 2009). In the water resources sector, erratic rainfall during the monsoon season poses the threat of increased flooding, landslides, and erosion, and reduced groundwater reserves due to excessive surface runoff (Bartlett et al., 2010). In the health sector, vector and water-borne diseases are increasing in the country, along with a strong identified relationship between these diseases and temperature and precipitation (MoE, 2010). In addition, Joshi et al (2012) show that, in terms of the increases in temperature, an upward movement of forest species and forest types from lower altitudes was observed. This has led to the decline of a number of useful medicinal plants and forest species from the higher altitudes.

The impacts of climate change are felt across all segments of society (Huq et al., 2006). Climate change has an impact on both the rural and the urban population of Nepal. Of the 28.6 million people in the country, 83% reside in rural areas and are directly reliant on climate-sensitive ecosystem services for all, or part, of their livelihood (World Bank, 2010). In the urban areas, the low socio-economic status of the population, coupled with the fragile

system of governance, has resulted in poor quality infrastructure and a high level of unplanned settlement. Extreme weather events have also had a significant impact on both urban and rural communications, services, and settlement infrastructure.

Vulnerability to climate change is context-specific and differs for each segment of society. Gender, caste, and ethnicity also play a role in shaping and defining climate vulnerability. In a study by Jones and Boyd (2011), the authors suggest that in the Far Western region of Nepal, the cultural hegemony of the upper castes limits the access of Dalit castes to credit and the distribution of aid (from both the government and NGOs). This implies that besides physical risk, socio-cultural circumstances govern climate change vulnerability among households and communities. Therefore, climate change interventions should take into account the differences among households and communities in terms of the design of adaptation needs.

3.3. Major Climate Change Initiatives in Nepal

Climate change initiatives in Nepal are shaped by international negotiations and policies. The establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 1993 and the Kyoto Protocol in 1997 encouraged the Government of Nepal to become a party to the convention and the treaty. The Government of Nepal became a signatory to the UNFCCC in 1994 and ratified the Kyoto Protocol in 2005 (MoE, 2011a). The establishment of an adaptation-related fund and the initiation of the National Adaptation Programme of Action (NAPA) by the UNFCCC assisted countries such as Nepal to take greater interest in the adaptation agenda.

The following section discusses the key major climate change policies and institutional initiatives in relation to the mainstreaming of climate change into the development process. The initiatives and policy instruments described below are the only policies and programmes, as of 2012, used by the government and the development agencies to mainstream climate change into the development process. An understanding of the context of the origin of the policies and their general background is relevant to analysing why these policies and initiatives succeeded or failed to mainstream CBA into the development process.

3.3.1. Policy Responses to Climate Change

Climate Change Policy (CCP) of Nepal: The need for a climate change policy in Nepal was recognised after the 14th meeting of the Conference of Parties of the UNFCCC in 2007. The Nepali Government commissioned the preparation of a National Climate Change Policy with support from the Nepali branch of the World Wildlife Fund for Nature (WWF). The preparation of the policy started in 2007 and underwent consultation with government stakeholders until 2010 (MoE, 2011b). The policy was endorsed by the cabinet in January 2011 and constitutes one of the first legal documents recognising the reality of climate change in Nepal. However, the design of the climate change policy was very top-down and centralised without consulting civil society and the public.

The Climate Change Policy sets clear goals and targets to address climate change risk and vulnerability. The main goal of the policy is to improve livelihoods by mitigating and adapting to the adverse impacts of climate change, adopting a low-carbon emissions socio-economic development path, and supporting and collaborating in the spirit of the country's commitments to national and international agreements relating to climate change (MoE, 2011b). The climate change policy aims to strengthen institutional and financial systems to make climate change responses more effective. For example, the policy envisions the decentralisation of financial resources for climate change, and the allocation of at least 80% of the total budget directly to programme implementation at the community level (MoE, 2011b).

National Adaptation Programme of Action (NAPA): The Government of Nepal facilitated the preparation of the National Adaptation Programme of Action (NAPA). The agreement between the Nepali Government and the United Nations Development Programme (UNDP), on the preparation of the NAPA, was signed in November 2008. Initial support for the NAPA was complemented by the idea of the NAPA+ (NAPA Plus). The NAPA Plus provided more financial resources and technical support to strengthen the NAPA. Support from the Embassy of Denmark, and the UK Government's Department for International Development (DFID), enabled the Government of Nepal to undertake an extensive nationwide consultation process, and to use the NAPA process as a strategic platform and mechanism to establish climate change knowledge centres and a national level multi-stakeholder forum (MoE, 2010).

The Ministry of the Environment facilitated the establishment of a number of Thematic Working Groups (TWGs) to carry out the tasks required for the development of the NAPA. According to the government, this is a multi-stakeholder approach to policy-making. The thematic groups were sectoral in nature and focused on agriculture, forestry, water, infrastructure, health, gender, and governance, and comprised of representatives from different sectors, including NGOs, INGOs, business associations, and development agencies. A total of 80 organisations were directly involved in the preparation of the NAPA document as members of the TWG (MoE, 2010). The NAPA document was finally endorsed by parliament and submitted to the UNFCCC in 2010. The process of the design of the NAPA appeared to be consultative and participatory, and thus offered the opportunity to bring different stakeholders together during its implementation.

The NAPA process identified nine urgent adaptation priority programmes related to agriculture, biodiversity, water resources, health, infrastructure, and disaster. The total cost of these nine programmes was estimated at USD$350 million over 3 years. The programme has committed 80% of expenditure to be spent at the village/municipal level, channeled through designated implementing line ministries based on the nature of adaptation support. The document has also recognised the role of local government and stakeholders to implement adaptation actions on the ground, while recognising the key role of the central government to provide technical support (Bird, 2011).

Local Adaptation Plan of Action (LAPA) framework: The Local Adaptation Plan of Action (LAPA) emerged as the mechanism to link community and national adaptation planning and responses. It is a framework developed to provide basis on implementing climate change adaptation priorities identified in the National Adaptation Programme of Action (NAPA). The LAPA is a framework that emphasises bottom-up approaches which enable local communities to understand changing and uncertain future climatic conditions and to engage effectively in the process of developing adaptation priorities. It implements climate resilience plans that are flexible enough to respond to changing climatic and vulnerability conditions; and informs sectoral programmes and catalyses integrated approaches between sectors (MoE, 2011c). Fenton et al (2014, p.392) also argues that the LAPA framework provides an example of a combination of bottom-up and top-down adaptation approaches, and outlines how sufficient financial flows can be channeled accordingly to reach the local level.

The Government of Nepal, with support from the UK Department for International Development, worked in collaboration to develop the LAPA framework. The LAPA programme was designed and piloted in 10 districts of Nepal in 2010 and 2011. The pilot programme and the lessons learned served as a basis for the development of the LAPA framework. The cabinet endorsed the framework on the 22nd of November 2011.

The LAPA Framework has the goal of integrating climate adaptation and resilience into local and national planning, incorporating the four guiding principles of being bottom-up, inclusive, responsive, and flexible. The aim of the LAPA is to integrate climate adaptation activities into local and national development planning processes, and to make development more climate-resilient (MoE, 2011c). This integration happens by incorporating the adaptation needs of the communities within the regular annual national development planning process. The LAPA framework guides local bodies such as the VDC, and the Municipality and District Development Committees (DDC), in developing their own LAPAs. This framework is highly relevant for CBA mainstreaming because it provides practical guidelines for how climate change adaptation at the local level can be integrated and supported by national level planning and policies.

The Three year Interim Plan (TYP) 2010-2013: The national plans guide the development sector of Nepal. After the country completed its 10th five-year plan (2002-2007), the government has since relied on interim plans. This was deemed to be a more appropriate way to support development activities during a period of political transition. In the second Three-Year Plan (2010-2013), the government prioritised the integration of climate change adaptation for the first time in national development planning. The broad objectives of the plan included, among other issues, the promotion of green development, making development activities climate-friendly, mitigating the adverse impacts of climate change, and promoting climate change adaptation (NPC, 2010).

The plan recognises the potential threats posed by climate change to the sustainability of development activities, and emphasises the need to make all proposed development plans climate-resilient. The plan specifically stresses the need to address the impacts of climate change in sectoral strategies for natural resources, water, poverty alleviation, food security, infrastructure, and disaster-risk reduction (NPC, 2010). This interim plan takes a sectoral approach to address the issue of climate change. The emphasis of the plan is more on using

the existing government system to mainstream climate change into the development planning process. This is similar to the NAPA approach described earlier. However, the policy ignores the role of civil society and communities in climate change adaptation. The opportunities and constraints of the mainstreaming of CBA in the three-year interim plan are discussed further in Chapter Five.

Poverty Environment Initiative (PEI): The United Nations and the Nepali Government initiated the Poverty Environment Initiatives (PEI) in 2010 with the aim of integrating environmental issues and climate change into regular development planning, such as the three-year interim plan. The PEI is part of the Local Governance and Community Development Programme (LGCDP), and was implemented by the Ministry of Local Development. The PEI initiative helped the Ministry of Local Government and the National Planning Commission to devise policy and legal instruments to support the mainstreaming of environmental and climate change issues into development policies and plans. The focus of the PEI was on addressing the issues of poverty and climate change in an integrated manner.

The National Planning Commission (NPC) of Nepal developed the climate-resilience framework to guide the implementation of development plans with assistance from the Asian Development Bank (ADB). The climate-resilience framework document recommends methods, tools, and approaches for guiding climate-resilient development planning (GON and NPC, 2011). The framework envisions the building of a society and economy that is resilient to the changing climate. To achieve this, the framework considers the most vulnerable aspects of various key sectors that are most likely to be affected by climate change and identifies the linkages between and among these sectors.

However, the climate-resilience framework developed by the NPC has less synergy with the existing climate change policies, the NAPA and the LAPA. This is due to the nature of donor-funded projects which operate in isolation and in project-mode. Sometimes there is lack of coordination and communication among donor funded projects. After 2009, as shown in Table 4, there were various donor-funded initiatives to support the Government of Nepal to strengthen the policies. Since most of the donor-funded projects were implemented in parallel, and worked with different government agencies, there was a lack of regular interaction among the different donor-funded projects.

3.3.2. Institutional responses to climate change

The Nepali Government has established a number of institutional mechanisms to drive the climate change agenda forward. The donors and development partners have signed a donor compact expressing the will to support government initiatives on climate change. Fourteen major development partners and donors working in Nepal signed the donor compact in 2009 in order to express solidarity and commitment towards the Nepalese government's efforts to tackle climate change. The donors agreed to support the Government of Nepal to implement the policies and plans on climate change. In addition, the government has established a high level climate change council to provide policy support to the government to develop the climate change agenda. In order to facilitate coordination, the Ministry of Science, Technology, and Environment (MoSTE) established the Climate Change Management Division (Table 3).

Table 3. Institutional responses of Nepalese government on climate change

Institutional responses	Objective of the institutional responses	Year initiated (yr)	Institution(s) involved	Major activities carried out
Donor Compact	To set the scene for donor harmonisation around nationally-prioritised climate change initiatives	2009	14 key development partners working in Nepal	DFID, EU, ADB, WB, and DANIDA have invested in climate change
Climate Change Council	To provide coordination, guidance, and direction for the formulation and implementation of climate change-related policies	2009	31 member committee chaired by Prime Minister of Nepal and involvement of key line ministries and civil society representation	Endorsement of key policies and programmes on climate change
Multi-stakeholder Climate Change Initiatives Coordination Committee (MCCICC)	Key national platform for ensuring regular dialogue and consultations on climate change-related policies, plans, finance, and activities among key actors	2010	18 member committee chaired by the Secretary of the Ministry of the Environment, Science, and Technology	Coordination of national projects and programmes on climate change

Source: Review of institutional mechanisms till 2012

Table 4. Major donor-funded climate change projects in Nepal as of 2012

Donors Involved	Project/Programme	Financial Resources Made Available for Nepal (USD)	Focus of the Project/Programme
DFID and EU	Nepal Climate Change Support Programme (NCCSP)	18.9m	The ultimate objective is to enable the government to implement the Climate Change Policy and implement necessary strategies
Climate Investment Fund (CIF)- WB and ADB	Strategic Program for Climate-Resilience (SPCR)	86m (36 million loan and 50 million grant)	Initiate transformation in approaches to development planning, budgeting, and investments
Climate Investment Fund (CIF)	Scaling Up Renewable Energy Initiatives (SREP)	40 m	To support investments in renewable energy and access to sustainable energy
World Bank Trust Fund	REDD Forestry and Climate Change	3.4 m	To help Nepal prepare for future climate change financing
UNDP/GEF	Second National Communication Report Preparation	0.45 m	To prepare baseline national data on climate change
Least Developed Countries Fund – LDCF-UNDP	Community-based flood and glacial lake outburst (GLOF) risk reduction	6.3-7.0 m	To reduce the risk of flood and GLOF
UNDP, UNEP, IUCN	Ecosystem-Based Adaptation	3.3 m	To strengthen ecosystems in order to gain climate change adaptation benefits
Climate and Development Knowledge Network-CDKN	Support to the Government of Nepal	0.52 m	To implement climate change policies and programmes (policy formulation and capacity building)

Source: Review of donor portfolios in Nepal (2010-2012)

There are both multilateral and bilateral donors who support the government to take effective actions on climate change in Nepal. Initial support from donors and development partners has focused on providing technical assistance to the government to strengthen its capacity to

understand/assess/monitor the climate change activities. In the current context, most of the support is focused on implementing the Climate Change Policy, the NAPA, Reducing Emissions from Deforestation and Degradation (REDD) strategy, and the LAPA. There was a distinct lack of government-funded adaptation activities until 2012. This happened because the government believed that, under the UNFCCC, it was the responsibility of the developed nations to provide funds for the implementation of the adaptation priorities identified in the NAPA and other policy documents.

At present, financial supports are offered by bilateral and multi-lateral donors to implement a number of climate change priorities identified in the national policy and strategies (Table 4). Out of seven major programmes outlined in Table 4, five are currently implemented, while the other two are in the pipeline. Since development agencies provide the financial resources to implement the adaptation priorities, there is a danger that the donors may dictate on how and where the money must be spent. The donor-government accountability in these projects is weak as most of the donors appoint intermediary organization and use separate financing mechanism. There is also an issue of sufficient funding for the implementation of adaptation activities. As a result, there remains a huge financial deficit and inadequate support in terms of meeting local and national demand and priorities on climate change adaptation.

3.4. Conclusion

This chapter shows that climate change is a multi-faceted issue because it has social, political, and ecological implications. The information on the socio-economic, development, and climate change contexts of Nepal in this chapter indicate the urgency to tackle climate change issues while safeguarding socio-economic gains so far made. However, it has been argued in this chapter that the complex governance structure and development scenario of Nepal is a challenge to the mainstreaming of CBA. The findings provide the context of a top-down, and centralised influence in the shaping of development policies and programmes in Nepal. This analysis of the development and political context of Nepal provides the context for Chapters 6 and 7 in which some of the governance challenges to the mainstreaming of CBA into the development process are explored.

The background information on the policy instrument to be analysed in later chapters has also been explored here. The policy instruments discussed in this chapter are crucial for the

mainstreaming of CBA into the development process. The analysis of these policies further provides an understanding of the opportunities that exist within these policies and how they can contribute to effectively tackling the impacts of climate change at the local level.

Finally, this chapter has set the context of the research and the issues to be investigated later in the thesis. More specifically, this chapter provides the rationale for the methodology chapter, indicating why Nepal was selected for the study, and why the mainstreaming of climate change adaptation into the development process is necessary at the local and national levels. Based on the context outlined in this chapter, the following methodology chapter provides detail on how the problem is investigated and analysed in this thesis.

4 CHAPTER FOUR: METHODOLOGY AND RESEARCH DESIGN

The previous chapters have argued that although Community-Based Adaptation (CBA) is seen as an important strategy because it helps to mainstream local level adaptation innovations into development policy and practice, there is little evidence about how to get the mainstreaming of CBA to work effectively to benefit poor and vulnerable households and communities. Debates about the mainstreaming of CBA are dominated by issues related to the policy and planning agenda, while in many countries the main challenge is to translate policy into action. There is also a lack of clarity on how to link community level needs with local and national level policies.

This thesis examines how Community-Based Adaptation is mainstreamed into the development process. It specifically investigates the different approaches and mechanisms used to mainstream climate change adaptation by analysing the selected policies and practices operating in Nepal. One of the indirect contributions of this thesis is to test the approaches and methods of analysing different case studies on CBA mainstreaming in Nepal. Therefore, this methodological chapter provides a strategic road map to guide the research process from data collection through to analysis.

This chapter outlines the research approaches, methods, and tools to answer the research questions and to fill the identified knowledge gaps. Specifically, the chapter explores the key methodological approach for the study; the design principles (the research strategy); the methods of data collection; and the process of data analysis. The detailed approach and methodology are described in the following sections.

4.1. Research focus and sites

As described in Chapters One and Two, Nepal was selected for this study because: 1) Nepal is one of the most vulnerable countries to the impacts of climate change (MoE, 2011a); 2) Nepal is one of few countries to develop policies and programmes on climate change

intended to support vulnerable communities; and 3) adaptation interventions are urgently needed to respond to the impacts of climate change and to safeguard the well-being of poor and marginalised households and communities (MoE, 2010).

The complexity of climate change issues in Nepal highlights the need to design a methodological approach that provides a complete picture to allow an analysis of what is being achieved in terms of the mainstreaming of CBA, and how this works in Nepal. This research, therefore, uses a three level design approach of looking at policy, practice, and implications of mainstreaming CBA into the development process in Nepal.

Analysis of Policies: The thesis analyses the synergies and tradeoffs between the climate change adaptation and development policies in order to establish the right policy context and environment to mainstream climate change adaptation. Based on the ideas presented in Chapter Two, the aim of this policy assessment is to investigate and outline the type of policy process and content required to mainstream Community-Based Adaptation (CBA) into the development planning process. The national level policy analysis in this research includes a review of policy content and process of selected climate change and development policies. The Three-Year Interim Plan (2010-2013), the Climate Change Policy (2011), the National Adaptation Programme of Action (NAPA), and the National Framework on the Local Adaptation Plan of Action (LAPA), are among the policies reviewed in detail. As argued in Chapter Three, these policies are the most relevant policies on climate change and development. Other development policies (interim plans, and the forestry and agriculture policies) that do not mention climate change were also briefly analysed in order to examine the potential of these policies to promote CBA.

Analysis of the practice of mainstreaming: The thesis investigates how climate change adaptation has been mainstreamed into the development planning process at the local level, in order to fill the research gap identified in Chapter Two. There have been limited attempts in Nepal to mainstream climate change into the development process. During the field study period in early 2012, only two donor-funded projects had piloted and implemented activities to support the government and Nepali stakeholders to mainstream climate change into the development process. Therefore, only two initiatives, i.e. the Poverty Environment Initiatives (PEI) and the piloting of the Local Adaptation Plan of Action (LAPA), were used as case

studies to understand the different approaches to, and mechanisms of, mainstreaming implemented in Nepal.

The Poverty and Environment Initiatives (PEI) programme is one of the case studies used in this research. It was a joint programme of the Government of Nepal, the UNDP-UNEP Poverty-Environment Initiative, and UNDP Nepal. It was launched in 2010, and the initial phase was designed to last for two years with the intention that the Government would have a fully-fledged programme after 2012. The programme was designed to provide targeted support for ongoing programmes, in particular, support for institutional strengthening of the National Planning Commission (NPC) and the Local Government Community Development Programme (LGCDP) of the Ministry of Local Development (MLD) in Nepal. The main objective of the PEI in Nepal was to support poverty reduction and inclusive development by integrating climatic and environmental concerns and opportunities for the poor into development planning and economic decision-making (PEI, 2010).

The PEI Initiatives included the pilot activities that were intended to increase the capacity of local government to integrate climate change and environmental concerns into the annual development plan (PEI, 2010). The Ministry of Local Development in the Dhading and Kapilvastu districts of Nepal piloted the PEI initiative. However, due to delays in project implementation, the initial piloting of the PEI was primarily focused in Dhading district (Figure 2). There were only very limited activities implemented in Kapilvastu district. The piloting in Dhading district included all the major activities that the project envisioned in terms of the integration of climate change into annual development planning through the mobilisation of local government. For this reason, Dhading district was used as the main case study site for the PEI to generate information and evidence for the purpose of this thesis.

The second case study used in this thesis is the pilot project for a nation-wide Local Adaptation Plan of Action (LAPA) supported by the UK Government Department for International Development (DFID). This pilot project involved eight national NGOs (Local Initiatives for Biodiversity Research and Development - LI-BIRD, the Institute of Social and Economic Transition - ISET, Rupantaran, the Resource Identification and Management Society - RIMS, Nepal Water for Health - NEWAH, the Rural Self-Reliance Development Centre – RSDC, and the British Nepal Medical Trust - BNMT), in 10 districts namely: Ilam,

Udaypur, Nawalparasi, Kapilvastu, Kaski, Dadeldhura, Pyuthan, Rukum, Achham, and Kalikot, in 2010.

Most of the initial design work by the piloting NGOs involved in the LAPA was focused on studies and climate change assessment work in the districts. The studies were useful for providing a framework for the integration of climate change adaptation into the development process at the local level. During the piloting phase, there were also activities related to local- and community level adaptation planning and integration into local development planning processes. Rupantaran Nepal was one of the NGOs which carried out the pilot LAPA project in Nawalparasi and Pyuthan districts of Nepal (Figure 2). Its activities were focused on testing approaches and the process of the mainstreaming of community level adaptation priorities into the government planning system, and providing financial support to the communities to implement the priorities they had identified.

Figure 2: Map showing the study districts in Nepal (Source: CBS, 2014).

Analysis of the effectiveness of mainstreaming: As described earlier, the actual planning and implementation of climate change adaptation mainstreaming within the LAPA piloting project was carried out in Sukrauli VDC of Nawalparasi district, and the Dhungegadi and Bangesaal VDCs of Pyuthan district. The lessons from the piloting work helped to design the national level framework for the LAPA (MoE, 2011c). The piloting district produced sufficient information and lessons that were of relevance for answering the research questions. Therefore, three VDCs in the Nawalparasi and Pyuthan districts were selected for the LAPA case study. See the map below for the details of the research districts (Figure 3).

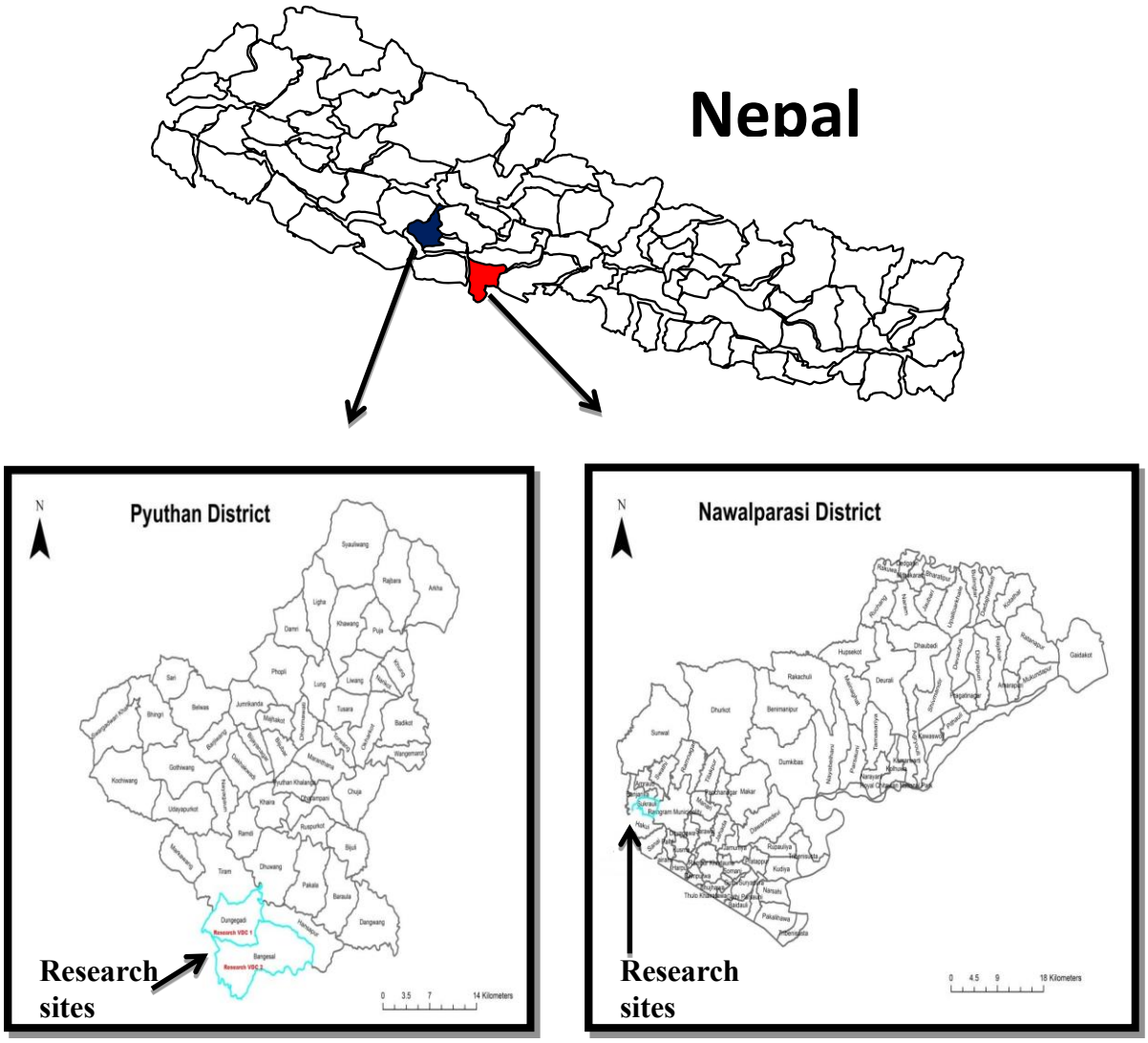


Figure 3: Map Showing the Study Village Development Committee (Source: CBS, 2011)

The literature review chapter revealed that Community-Based Adaptation is more concerned with reducing the climate related risk and vulnerability of households and communities at the local level. Therefore, it is important to analyse CBA mainstreaming initiatives based on their

effectiveness. Climate change adaptation planning was introduced and implemented in Nepal only after 2009. It was piloted in specific locations and villages by development agencies, the government, and civil society. Although there were more than 15 districts where community-based adaptation planning was started, Pyuthan district was selected because it was the pioneer district where climate change adaptation planning and mainstreaming work were carried out both at the local (Village Development Committee level) and the community level. The implementation of adaptation activities in Pyuthan district was started in 2009 by the DFID-supported Livelihoods and Forestry Programme (LFP), and then continued further through the Interim Forestry Project (IFP)[11].

Two VDCs in Pyuthan district, namely Bangesaal VDC and Dhungegadi VDC, were purposely selected for this research for several reasons. One is that the LAPA project invested more resources and time for climate change adaptation activities in selected VDCs compared to others; secondly, the selected VDCs demonstrate more clearly the lessons of the impact of mainstreaming compared to others where the interventions had only recently started; thirdly the analysis of two different contexts would provide broader understanding on climate change adaptation and mainstreaming effectiveness. Finally, these two VDCs lend themselves to comparative analysis because they are adjoining and share similar socio-economic and climatic conditions. Hence, analysing the adaptation initiatives in the two VDCs contributes to a greater understanding of the effectiveness of these initiatives.

4.2. Research methodology

As mentioned in Chapter 3, the local level contexts of climate change adaptation in Nepal differ greatly in terms of the socio-economic, development, political, and ecological contexts. The impacts of climate change are felt mostly by households and communities and vary based on geographical location, socio-economic condition, and degree of climate change impact. The adaptive responses thus involve a wide range of actors, including the community, local level actors, civil society, and government institutions. Any decisions about technology and finance related to climate change adaptation need to recognise the importance of key actors and the involvement of stakeholders (Huq and Khan, 2006).

[11] IFP is the initial phase of the Multi-Stakeholder Forestry Programme (MSFP) jointly implemented by DFID, Swiss Embassy, Finland Embassy and Ministry of Forest and Soil Conservation Nepal.

The multi-sectoral nature of climate change adaptation thus demands flexible, innovative, and participatory approaches to research and policy analysis. As previously mentioned, any changes in policy and practice at the local and national levels require the active engagement of policy-makers, practitioners, and communities, and thus, this becomes important in this research process. The research therefore needs to be collaborative and participatory in nature to allow relevant actors to reflect on the existing policies and practices in order to come up with ideas for appropriate mechanisms to sustain CBA.

The research approach used in this thesis is based on Participatory Action Research (PAR) and its epistemological setting. This thesis is inclined towards the epistemological perspective of knowledge generation. Epistemology is a theory of knowledge which provides a philosophical background for a researcher to decide what kinds of knowledge are legitimate and adequate to explain a situation, behaviours, or actions (Gray 2004; Walter 2009). This epistemological perspective also claims that truth and meaning (reality) do not exist 'out there'; rather, these are perceived and created by the subject's interactions with the world - 'meaning is not discovered but constructed' (Crotty 2010, p.42).

Participatory Action Research (PAR) was selected as an appropriate philosophy for this study because it assists with a better understanding of how the mainstreaming of a community-based adaptation programme can be carried out in Nepal through interaction with relevant actors and agencies. There is a strong academic rationale for selecting the PAR for this thesis. As a methodology, PAR prescribes methods for collecting and interpreting data. As an ideology, it is rooted in the democratic philosophy of promoting individual welfare in a humanistic way (Myers and Avison 1997; Bargal 2008). Participatory Action Research insists upon the importance of democratising social inquiry by actively engaging the subject in the design and conduct of the research (Krimerman, 2001).

The PAR approach is consistent with an intervention-based approach where the focus is on action to improve a situation, while the research is the conscious effort, as part of the process, to formulate public knowledge that adds to theories of action that promote or inhibit learning in behavioural systems (Krimerman, 2001). Participatory Action Research narrows the gap between researchers and beneficiaries by promoting joint collaboration in the research process in order to solve a problem (Turnbull et al., 1998). The PAR actually allows the actual beneficiaries, the communities in the research area in the case of this study, to examine

their realities and to suggest ways to improve their conditions (McTaggart, 1991). Kindon et al (2008) argue that PAR aims to democratise knowledge production and to foster opportunities for the empowerment of the parties involved in the research.

The PAR approach affirms that experiential knowledge that is created by the engagement between researchers and participants, can lead to a legitimate form of knowledge exchange that influences existing practices (Baum et al., 2006). This approach treats the subjects as active participants in the research process. As argued by Dover and Lawrence (2010), the individuals, who in other traditions might be viewed as a sample, are understood from the PAR perspective as active, engaged, and equal participants in the research process. The concept of active participants, in fact, encourages the involved actors to feel a sense of ownership of the research process and contributes to the effectiveness of knowledge gathering.

PAR goes beyond the need to understand, and strives for action to bring about change (Khan et al., 2013). This approach is relevant in order to create change to both policy and practice at the local and national levels for the up-scaling of CBA. One of the key characteristics of this approach is a deeply-engaged research process, which enables interaction among policy-makers, practitioners, and communities, and assists with understanding both the opportunities and challenges of promoting climate change adaptation in Nepal. A PAR approach ensures that success and effectiveness can be explored for all members of Nepali society, especially given the importance of the social divisions based on caste, class, gender, and socio-economic status in modern Nepal. However, there are challenges for conducting PAR in the rural context of the nation, because not all people in the community would feel comfortable enough to participate in the research. Cornwall and Jewkes (1995) also argued that working with the local community is far from easy.

For the purposes of this thesis, the researcher believes that ‘knowledge for action’ has greater significance due to the development and climate change context in poor and developing countries such as Nepal. This is because the climate change context requires more urgent and immediate action to help poor and vulnerable households to deal with the impacts of climate change. This research is guided by the assumption that the attention we give to the many pathways and possible innovations in the process of knowing is based on the notion that learning embodies the ways in which we interact with each other and shape the world about

us (Chevalier and Buckles, 2008). This can only be pursued if we value the knowledge and experiences of the people and organisations that are directly involved in a specific issue. In this context, the knowledge of research participants and the researcher becomes important to analyse the research questions set out in this thesis.

The research undertakes PAR methods that involve interview and Focus Group Discussion (FGD) with relevant stakeholders who were actively engaged and equally participated in both identifying the issues of CBA design and implementation and providing practical recommendations to improve it. The semi-structured interview and open agenda during the workshop provided opportunities on shared learning between the researcher and participants. For example, the local level focus group discussion and district level workshop created platforms for the research participants to discuss openly on the opportunities and challenges of CBA mainstreaming. This participatory process, to some extent, allowed them to learn, grow and act on the basis of the research process.

The methodological approach described earlier in this section arose from both the experiences as well as the interests of the researcher. The researcher has more than 13 years of experience of practicing the Participatory Action Research approach in the development and natural resource management field in Nepal. The researcher has also worked with the communities, government, development partners, and non-government organisations on work related to the linking of the policies and practices. He has worked as an academic, practitioner, and policy-maker, and therefore, is interested in addressing the gaps in policy and practice in Nepal. The experience of the researcher suggests that the participation of different actors in the research process can bring valuable input to the examination of a problem and for suggesting practical solutions that can be readily accepted by the involved stakeholders.

The researcher has the advantage of using his existing networks and connections in Nepal to provide valuable feedback based on the findings of this research, in particular, in relation to the lessons learned from the experiences of the mainstreaming of CBA in Nepal. As the researcher intends to return to the home country and work as a practitioner in the field of climate change adaptation after completing this thesis, there is an excellent opportunity to apply the knowledge and the research approach to improve the policies and governance of climate change adaptation in Nepal.

4.3. Research design approach

The mixed-methods approach of PAR (both quantitative and qualitative) is used in this study. This approach is relevant for gaining a different perspective on various aspects of social life (Johnson and Onwuegbuzie 2004; Bryman 2006). According to Bryman (2006), the mixed-methods approach provides a combined perspective for understanding the behavioural aspects of social life at the micro level (e.g. the family or household level), as well as an investigation of social perspectives at the macro level (e.g. the community, district, or national level).

This study uses multiple research methods to examine three different levels of mainstreaming, i.e. policy process and outcomes (Figure 4). The mixed-methods approach is also useful for triangulating measures, theory, and methodology (Creswell, 2007). The approach is relevant for this study because it helps to narrow the equity gaps between different social realities, mostly concerning the policies and practices of climate change mainstreaming in Nepal. The following section describes the various approaches used in the data collection process.

Case study approach

As indicated in Chapter 3, there are specific policies and initiatives that are of relevance for this study to understand policy and practice, and the impacts of the mainstreaming of climate change adaptation in Nepal. The policy case study includes the development policies (the Three-Year Interim Plan 2010-2013 and the sectoral policies), and the climate change policies and programmes (the Climate Change Policy, the NAPA, and the LAPA framework). The analysis of the practices is based on two case studies, namely the Poverty Environment Initiatives (PEI) and the Local Adaptation Plan of Action (LAPA). The LAPA and the community adaptation planning initiatives were analysed using specific area-based case studies to examine the effectiveness of the mainstreaming of climate change programmes at the local level. The case studies are embedded in a documentary analysis approach which is described in detail below.

Firstly, though, a justification of the case study approach is required. As Yin (2003, p.13) explains, in broad terms, case study as an empirical form of inquiry allows the researcher to

investigate a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident. A "case", in this context, refers to 'a phenomenon of scientific interest, such as the types of government regimes that the investigator chooses to study with the aim of developing theory (or "generic knowledge") regarding the causes or similarities or differences among instances (cases) of that class of events' (George and Bennett, 2005, p.73). In this thesis, the phenomena of interest are policy mainstreaming, the practice of mainstreaming, and the impacts of mainstreaming, and thus the undertaking of multiple case studies provides a deeper understanding of how mainstreaming actually takes place in Nepal.

Case studies also help to develop an in-depth description and analysis of mainstreaming contexts that are relevant for this study. This involves the collection of contextual information so that a context can be established within which to understand the linkages between the cases (Sjoberg et al., 1991). This also involves the study of an issue explored through one or more cases within a bounded system i.e., a setting and a context (Creswell, 2007). Case studies can also be described as single and multiple (Yin, 1994). Yin (2003) suggests that the multiple case study design is useful for capturing different contexts and issues. Multiple case studies (collective) were preferred for this study generally to demonstrate different perspectives on the mainstreaming of CBA.

Document and archival approach

A document analysis approach is used in this research, particularly in the policy analysis chapter, to examine climate change through development policies and other relevant documents. There are various benefits of using a document analysis approach for the policy reviews. The approach is useful for investigating all three elements of the policy process i.e. content, process, and actors, as proposed by Walt and Gilson (1994). It is particularly useful for exploring the synergies and trade-offs between climate change and development policies in Nepal. Document analysis is also used to gather and analyse the government database of the meteorological record of climatic parameters, such as the temperature and rainfall records of the study areas.

Document analysis is an appropriate method through which to adequately research policy and project documents (Burnham et al., 2008). Document analysis is a social research method and

an important research tool in its own right which covers a wide variety of sources, including official statistics and data (Ritchie and Spencer 2002; Babbie 2007). Specifically, for this thesis, this includes a systematic analysis of published and unpublished materials, including a government database (on meteorological data), project documents, baseline reports, monitoring and evaluation reports, review documents, Internet newspaper sources and books (Fairclough 2003; O'Leary 2004).

4.4. Research process, methods and tools

The research process includes a series of steps and milestones needed to achieve the research objectives. A wide range of methods and associated tools were used to capture insights from the different types of participants. A detailed description of the research process and method is outlined below.

4.4.1. Field Research Process

This section includes the events that capture the entire journey of data gathering, including piloting and the field level data collection. The fieldwork was carried out over a four-month period (from December 2011 to March 2012). Table 5 below presents a detailed outline of the research process.

The fieldwork started with initial rapport-building with key government actors, donors, and Non-Governmental Organisations (NGOs) involved in climate change at the national level. The rapport building was intended to gain support for the field research. This was then followed by three days of the pre-testing exercise. The pre-testing included piloting of the research questionnaire and checklist in Jiwanpur and Jogimara VDCs in the Dhading district. The field-testing was completed successfully, and based on the findings, the questionnaire and research materials were finalised and printed. There were, however, some minor adjustments made to the wording of the interview materials.

The field study was carried out from the end of December 2011 till February 2012. The fieldwork included visits to the case study sites i.e. Dhading, Nawalparasi, and Pyuthan districts. The fieldwork in Puythan district involved structured interviews with selected

households; focus group discussions with communities; key informant interviews; and focus group discussions. The semi-structured interviews, focus group discussions, and field observations were also carried out in Nawalparasi and Dhading districts.

Table 5. Outline of research process conducted during PhD

Major activities	Research area	Timeline
Piloting of research questionnaire	Jiwanpur VDC of Dhading District	December, 2011
Interviews and focus group discussions with communities and practitioners	Jogimara VDC of Dhading district	Deember 2011 - February 2012
Semi-structured interviews with policy-makers	Kathmandu	December 2011 - March 2012
Semi-structured interviews with practitioners	Kathmandu, Nawalparasi, Dhading, and Pyuthan districts	December 2011 - March 2012
Structured interviews with communities	Dhungegadi and Bangesaal VDC of Pyuthan district	December 2011 - January 2012
Focus group discussions and key informant interviews at the community level	Dhungegadi and Bangesaal VDC of Pyuthan district	December 2011 - January 2012
Focus group discussions with communities and practitioners	Sukrauli VDC, Nawalparasi district	December 2011
District level multi-stakeholder focus group discussions	Pyuthan district	13th January 2012
Focus group multi-stakeholder discussions with policy-makers	Kathmandu	6th March 2012

Semi-structured interviews were conducted with practitioners involved in the mainstreaming of climate change. These interviews involved a wide range of practitioners from government and civil society. A district level multi-stakeholder focus group was carried out in Pyuthan district involving local and district level stakeholders. The semi-structured interviews with policy-makers were conducted during the fieldwork at all three sites. Towards the end of the fieldwork process, national level multi-stakeholder focus group discussions were conducted in Kathmandu involving policy-makers, practitioners, and development agencies.

The research involved a range of different participatory tools and methods for gathering the data. The group discussions were organised in a way to encourage each individual

participant, from various ethnic groups and both genders, to participate in the discussion and clearly express their concerns. Smaller interest- and gender-based groups were formed during the discussions in order to facilitate interaction on the specific issues of climate change and livelihoods. In addition, the participants were encouraged to present and share their individual stories during the interviews, focus groups, and multi-stakeholder group discussions. The participant's responses were recorded in the form of questionnaires, notes, audio recordings, presented materials, flip charts, and meta-cards.

The interviews with households at the community level took 30 minutes on average to complete, and were carried out according to each individual's appointment schedule. The participant's homes, or mutually agreed venues such as community buildings or shops were used for the interviews. The key informant interviews were carried out in agreed locations. The focus group discussions took two hours and were conducted in a community hall. With regards to the local and national multi-stakeholder focus group discussions, these took half a day (approximately 4 hours) and were organised in public places (in the meeting halls of government line agencies and hotels).

4.4.2. Sources of data

The primary data involved responses to the interviews, focus groups, and group discussions with households, community members, key informants, practitioners, and policy-makers in Nepal. The participants at the policy and practice level were selected based on their expertise and experience on climate change initiatives. The database of individuals and agencies involved in preparing climate change policy, the National Adaptation Programme, and the LAPA framework, was used to identify the experts and experienced individuals in the area. At the local level, those people who benefited from the mainstreaming of climate change (beneficiaries' households) were selected randomly. The database of the agencies (Rupantaran, and the Local Governance and Community Development Programme), which the researcher was granted access to, was used to select the respondents.

The secondary sources of data for this research include literature reviews and data compiled by government and non-government agencies. The secondary sources include two major sets of data. One was related to policy information and a database published officially by the government containing national policy and legal documents. The other type was on climate

change data. The data on climate variables (temperature and rainfall) of the study locations is published by the Department of Hydrology and Meteorology annually in raw form. The 30 years of published data on climate variables of the nearest station within the research sites was used to map out temperature and rainfall variations in order to understand climate change trends. This information was also used to understand the impacts of climate change on the livelihoods of communities in the research sites.

4.4.3. Research methods and tools

Structured Interviews: Structured interviews were used in this research to gather information from local households at the community level. The interviews were useful to map the perceptions of the communities to assess the effectiveness of mainstreaming approaches and to identify future pathways for the up-scaling of community-based adaptation at the local level**.** They covered the socio-economic status of households; the vulnerability context of households (how much they are affected, what response they are taking); and the implications of the integration of community-based adaptation, in terms of raising awareness, knowledge, skills, and access to technology and finance. The structured interviews were guided by a set questionnaire which was also pilot-tested.

The questionnaires included both open-ended and closed-ended questions. Closed-ended questions on perceptions used ordinal measurements on a Likert Scale. Likert Scales use fixed-choice response formats and are designed to measure attitudes or opinions, assuming that attitudes can be measured (Burns and Grove 1993; Bowling 1997). In this research, the responses of the households were measured on a scale of 0-3, where 0 represents zero and 3 is very high. The scale was used in order to differentiate the different levels of perception among the respondents.

Structured interviews involve mixed-format interviews in which all the questions are prepared beforehand and are put forward in the same order to each interviewee (Rubin and Rubin, 2011). This type of research method is useful to compare and contrast the differences between respondents. It also helps to identify the different climate change impacts of the respondents. The objective of the structured interviews with households was to understand the different perceptions of the members of various social groups (and by gender), and to collect enough data to be able to recognise patterns based on various social indicators (Bauer

et al., 2000, pp.7-25). The collection of household level disaggregated social data was relevant for the research, particularly for understanding the differences between the categories of respondents and how they perceive the impacts of climate change on their livelihoods. In its simplest form, a structured interview involves one person asking another person a list of predetermined questions about a carefully selected topic (Bryman and Teevan, 2004).

Semi-Structured Interviews: Semi-structured interviews were used in this research to interact with stakeholders at the policy and practitioner levels involved in climate change adaptation and development, in order to understand the policy-making process. The interviews were also used to investigate the ways in which the integration and mainstreaming of climate change into the development process in Nepal affected policy. These semi-structured interviews were useful for gaining expert input and suggestions about the design process of climate change policy and programmes, initiatives on mainstreaming, and the overall benefits of mainstreaming for households and communities. Semi-structured interviews were also used to obtain the respondents' suggestions on the actions required to improve the links between climate change adaptation and development policies and strategies for Nepal.

A semi-structured interview is a research method which is flexible and allows new questions to be raised during an interview as a result of what the interviewee says (DiCicco and Crabtree, 2006). Semi-structured interviews involve four key stages, including developing the topic, selecting participants, carrying out the interview, and interpretation of the data (Gaskell, 2000). These are the four stages followed in this study for undertaking the semi-structured interviews with policy-makers and practitioners.

Key Informant Interviews: Key Informant Interviews were used in this research to seek qualitative information about, and the views of, key people in the selected villages involved in climate change adaptation. The key informants were identified based on their experiences and engagement in climate change and development work at the local level. The interviews with key informants were useful for validating information arising from the structured interviews. In addition, these interviews assisted with generating information to answer the research questions related to the effectiveness of mainstreaming approaches at the local level, and to suggest the way forward on these issues.

Key Informant Interviews allow the collection of large amounts of rich information from a relatively small number of interviewees, which is of great benefit when time and resources are short (Payne and Payne, 2004). Key Informant Interviews is a method used in gathering information from targeted individual or community beneficiaries. The term "key informant" refers to any person who can provide detailed information and opinions based on his or her knowledge of a particular issue (Bauer et al., 2000). According to Payne and Payne (2004, p.134), 'key informants are those whose social positions in a research setting give them specialist knowledge about other people, processes, or happenings that is more extensive, detailed, or privileged than ordinary people'.

These interviews with key knowledgeable individuals specifically involved information related to the historical context of the climate change issues, implementation processes, and effectiveness of mainstreaming initiatives at the local level. They also involved the gathering of expert opinion on the necessary adjustments needed for the improvement of community-based adaptation initiatives at the local level. The selection process of key informants is discussed later in this chapter.

Focus Group Discussions (FGDs): Focus-group discussions are a type of in-depth interview with a group of people, and so have similar advantages and constraints as the semi-structured interview (Bauer et al., 2000). Focus groups ideally involve from 6 to 12 people and are a carefully-planned series of discussions designed to obtain the perceptions of a community or group on a defined area of interest which has been jointly identified in the research and by the participants (Burnham et al., 2008). During a focus group discussion, the interviewer takes more of a moderator's role, allowing participants to speak, and react, to one another, and to compare experiences, giving rise to perceptions and ideas that may not become apparent through semi-structured interviews (Kitzinger, 1995).

In this study, the focus group discussions captured issues that were not evident from the interviews because they allowed the community members who did not participate in the structured interviews to express their views on different aspects of the research discussion. They also provided a face-to-face opportunity for the participants to discuss and clarify issues related to the discussion topic and to reach some measure of consensus. Although focus

group discussions have certain topics to be covered, they create the possibility for a more open discussion, so that the participants can express issues that are out of the research frame. The open discussions found in the FGD add value to the research investigation by allowing a range of different perspectives and issues to emerge from the local level that might not have otherwise been captured by the researcher.

The focus group discussions were carried out as part of the field research process to generate the collective responses of the communities towards climate change interventions. Three focus group discussions were carried out in each of the two villages selected for the study. They each involved approximately 6 to 12 people representing different categories of households based on gender and ethnicity. It was relevant for this study to map the perceptions of different categories of households and community members (based on ethnicity and gender) in relation to the significance of community-based adaptation. The focus groups were also useful for analysing institutional structures at the local level. Two focus group discussions were carried out involving the project implementation agencies and both government and civil society staff in each of the research districts in order to map their perceptions of the effectiveness of the LAPA.

In addition, two half-day multi-stakeholder focus group discussions were organised at the district and national levels to bring relevant stakeholders together to have a collective discussion on how to up-scale and mainstream community-based adaptation in Nepal. The main objective of these discussions was to examine opportunities and challenges in mainstreaming. The discussions were also part of validating the information received from the interviews and the general focus group discussions. The stakeholders' perspectives on the issues that were of greatest importance, and what they perceived that needed to be done in response, were crucial for mapping common recommendations in relation to the mechanisms and approaches needed for the mainstreaming of community-based adaptation in Nepal. A general aim of all the focus group discussions was to see how the perspectives on these themes differed from one level to another.

4.5. Sampling procedure

4.5.1. Type of research participants

A wide range of participants were selected for this research because of their relevant expertise and experience in climate change adaptation. These people were the primary sources of information because of their involvement in climate change adaptation issues and the wealth of knowledge they hold in the field. Participants at the policy and practitioner levels were selected based on their expertise and experience in either designing or implementing climate change policies and programmes. In addition, the household level participants at the local level were recruited because they were the primary beneficiaries of climate change adaptation interventions. Detailed information about the research participants is described in Table 6 below.

Table 6. Types of research participants

Categories of Respondents	Types of Participants	Rationale for their selection
Policy-makers	Experts involved in the policy-making process, including: constituent assembly members, government officials from the National Planning Commission, the Ministry of the Environment, and sectoral ministries Development agencies; and international organisations, including national non-government organizations	These participants were consulted as experts and experienced individuals in the field of climate change adaptation but not as representatives of their organisations
Practitioners (involved in implementation)	Experts who had experience working with district and national level agencies (ministries), local level government agencies Representatives of civil society organisations involved in implementing the programmes and representatives of local institutions	These participants were consulted as experts and experienced individuals in the field of climate change adaptation
Local Stakeholders	Community members comprised of households that included both males and females and different ethnic and socio-economic categories Community-based organisations and their networks working in climate change adaptation	These participants were consulted because they were the real beneficiaries of CBA initiatives

4.5.2. Sample Size and Sampling Procedures

There were a total of 412 respondents involved as primary sources of data for this research. This total included households, practitioners, and policy-makers. The participants were

involved in various types of research processes that ranged from structured interviews, focus group discussions, and multi-stakeholder brainstorming discussions. The detailed sample sizes of the populations under consideration are outlined in Table 7 below.

Table 7. Number of respondents consulted in the research process

Types of respondents	Types of consultation process	Number consulted
Policy-Makers	Semi-structured interviews	17
	Focus group discussion	10
	Multi-stakeholder focus group discussion	40
Practitioners	Semi-structured interviews	28
	Focus group discussions (3)	30
	Multi-stakeholder focus groups at the district level	30
Communities	Structured interviews	128
	Focus group discussions (12)	120
	Key informant interviews	9

Community and household level interviews: Two Village Development Committees from the Pyuthan district were selected for these interviews in order to map the differences in the perceptions of communities on the benefits and effectiveness of adaptation planning. This represented one each from those community groups who were engaged in adaptation planning either early or late in the process. As described in the table above, the structured interviews involved a total of 128 households. The sample size was estimated using G-Power. Based on the following estimation: for Type 1 level 0.05, Power=0.8, hypothesised effect size d=0.5, the sample size was 64 for each village development committee making it 128 in total (Faul et al., 2007). This is an important calculation because it helped in identifying a suitable number of respondents for the semi-structured interviews.

This initial estimation was adjusted upwards to allow for possible non-responses (Faul et al., 2007; Kinner and Gray, 2009). The total number of households approached in each Village Development Committee (VDC) was 80, making a total of 160 across the two VDCs. Stratified random sampling was used to select the respondents in each of the VDCs to best represent all the households within the community groups. The majority of households in the project areas were affiliated with either a community forestry group or a farmers group. First, the households were stratified based on these groups (e.g. community forestry user groups or farmers group), and once the group was selected out of the total number of affiliated

members, simple random sampling was used to select the households. However, those households who were not affiliated with any of the groups were involved in the focus group discussions and the key informant interviews.

Semi-structured interviews with practitioners (involved in implementing a project or programme): Purposive sampling was used to select the government and non-government agencies and community groups involved in implementing the local adaptation plan, the community-based adaptation plan, and the Poverty Environment Initiative in the selected districts. In the case of the practitioner interviews, in addition to Pyuthan district, Dhading and Nawalparasi districts were also selected (Figure 3). The rationale for selecting three districts was to capture additional information and evidence on climate change practices.

The inclusion of several research sites within the case study also provided insights into the effectiveness of mainstreaming interventions at the local level. Non-probability sampling is generally used if practicalities preclude the use of probability sampling (Miller and Salkind, 2002). In this study, it was necessary to select the respondents purposively, because of the fact that there were few individuals and agencies involved in the planning and implementation of climate change adaptation at the district and local levels. It was useful to understand the perceptions of those practitioners who were directly involved in mainstreaming initiatives, because they could share information about the opportunities and constraints of these initiatives.

As described in the table above, a total of 28 respondents were selected purposively at the practitioner level. The number of respondents selected purposively at this level represented more than 40% of the agencies involved in implementing community-based adaptation initiatives at the district level during 2011. This number was the maximum that could be targeted due to practical issues, but was also based on the available practitioners engaged in the mainstreaming of climate change adaptation. Table 8 above provides the details of the sampled practitioners for the research.

Table 8. Showing the types of practitioners and their size selected for the study

Types of Representation of practitioners	Sampled population for the semi-structured interviews (No) n=28
District Development Committee (DDC)	4
Village Development Committee (VDC)	4
Government line agencies at the district level, such as the District Forest Office, the District Agriculture Office, and the District Health Office	4
NGOs involved in implementation	4
Project Staff (donor-funded projects)	4
Community-based organisations (e.g. user group or famers group)	8

Semi-structured interviews with policy-makers: The policy-makers and central level stakeholders were selected purposively. Purposive sampling was used because there were only limited numbers of people that had expertise in the area being researched. A total of 17 individuals from a range of different organisations, out of 35 potential identified experts, were interviewed. This represented more than half of the total experts involved primarily in the design of climate change-related policies. This number was the maximum targeted due to practical issues.

Individuals were selected from the National Planning Commission, the Ministry of Science, Technology and Environment, the Ministry of Local Development, six thematic working-group coordinators for the National Adaptation Programme of Action (NAPA), constituent assembly members, three representatives of donor and development agencies, international organisations, the civil society network, members of the climate change council, and academic/research institutions.

Focus Group Discussions with policy-makers, practitioners, and communities: The focus group discussions were conducted at the local and district levels among community members and practitioners. A total of three focus group discussions were carried out in each of the selected VDCs. The participants for the focus group discussions were selected purposively to best represent the different categories of households and comprised of 10 to 12 individual households in each discussion. The participants for the focus group discussions were selected

based on gender, ethnic group, socio-economic/well-being ranking status (rich, medium, poor), and place of residence (village, ward, hamlet). These groups were comprised of people who were not included in the structured interviews, and not associated with a farmers group or a community forestry group. These were a representative sample out of the total population in each study site.

One focus group discussion was carried out in each district, involving a maximum of 10 practitioners. The participants for the focus group discussions were purposively selected, as were the participants for the multi-stakeholder focus group discussions at both the local and national levels. Each multi-stakeholder group discussion comprised 40 individual experts and experienced individuals from the local and national levels.

Key Informant Interviews with selected community members: A total of nine experienced individuals at the community level were selected for the key informant interviews. These key informants represented almost 30% of the key people engaged in decision-making on climate change planning and implementation at the village level (Dhungegadi and Bangesaal VDCs of Pyuthan district). The selection of these individuals was conducted purposively to document the experiences and responses of individuals who could provide a historical insight and who would share their experiences of both development and climate change issues.

4.5.3. Process of contacting and recruiting participants

The agencies who offered support for this research (the Ministry of Science, Technology and Environment, Rupantaran, and the Local Governance and Community Development project), helped the researcher by providing access to their databases on experts and beneficiaries involved in climate change adaptation. The researcher used these agency databases to identify participants. In Nepal, there is a common practice of sharing organisational databases for research purposes if it benefits the public. The personal information of the participants was kept confidential by the researcher until individual consent was granted. The researcher used telephone contact and personal visits to inform and contact the participants.

An information pack containing the research information sheet was provided for each participant. The participants' willingness to participate in the interview and discussion

process was received through either a face-to-face visit or a telephone call by the researcher. The participants' right to accept or reject the request for their participation was ensured during the research process by allowing them enough time to decide on whether to proceed with their participation.

4.5.4. Ethical consideration

The research approach, informed consent, and the storage of the data were subject to approval by the Social and Behavioural Research Ethics Committee of Flinders. There was no conflict of interest in the selection and recruitment of the participants, as the researcher was not affiliated with any of the organisations in question. However, the participants were informed about the researcher's current status and affiliation before each interview in order to avoid any confusion.

This study was conducted purely for research purposes. There were no burdens and/or risks to the participants or other people. The individual participants were not identified in the research process and thesis. Prior consent was granted from both the institutions and the individuals involved in the research process. The interview questionnaire and materials designed for the study involved general questions, and therefore, did not involve any sensitive matters. There was a low level of risk observed due to the participants' exposure during the focus group discussions; however, since the researchable issue was not particularly sensitive, this was considered to be a low risk.

4.6. Framework for assessing the policy and practices for the mainstreaming of CBA

The aim of this section is to present the analytical framework which will form the basis of the data gathering. This thesis explores the policy, practice, and effectiveness of mainstreaming from the literature review and field surveys in order to identify the operational mechanisms for the mainstreaming of climate change adaptation into the development process (Figure 4). The analysis of all both policy and practice is significant in order to understand how CBA can be effectively mainstreamed in development processes.

These three levels of assessment were also used by the Organization for Economic Cooperation and Development (OECD) to analyse national case studies of the links between climate change and development within the ODA (OECD, 2009). The following section describes the research context and focus for these different levels of analysis.

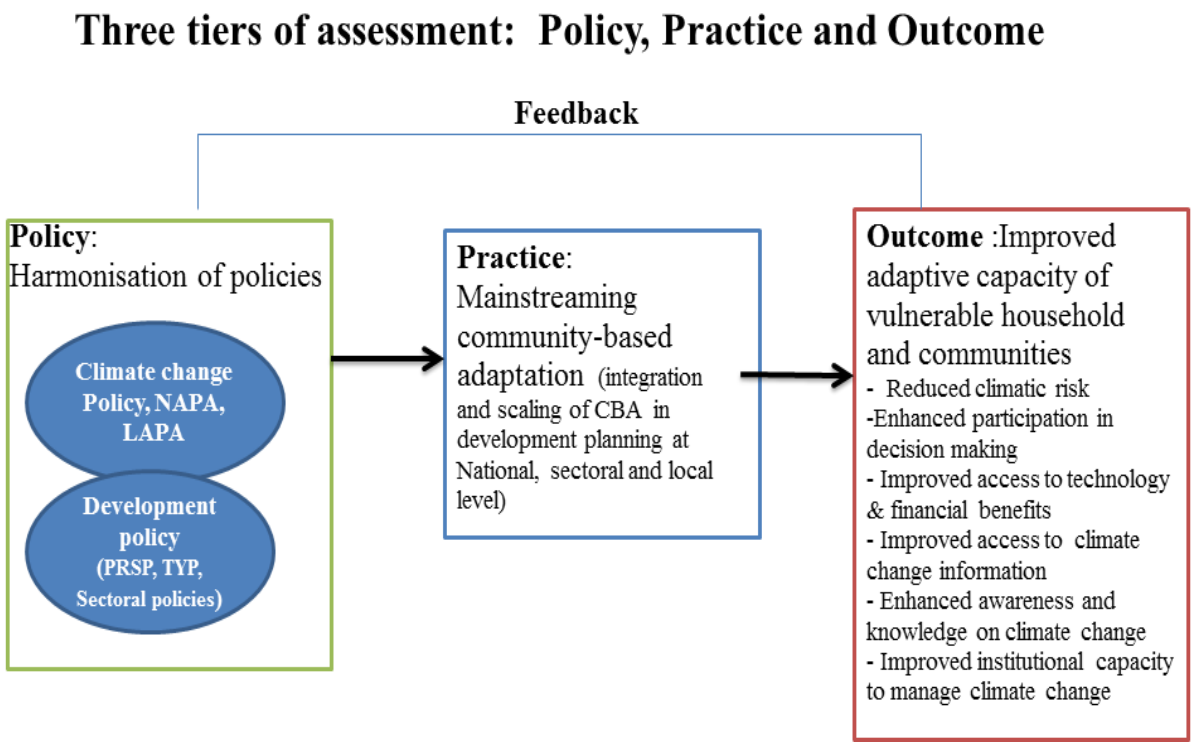


Figure 4. The different types of assessment used in the research (Source: Researcher)

The integrated assessment of policy, practice, and implications of mainstreaming used in this thesis provides a complete picture of how mainstreaming should be carried out in Nepal and other LDCs. The following section outlines the framework used to analyse the policy, practices, and effectiveness of the mainstreaming of climate change adaptation in Nepal.

4.6.1. Analysing the policy provisions and process

Participatory policy analysis has emerged as a debate within the deliberate democracy perspective (Fischer 2003, p.16), along with issues such as indigenous framing, alternative technologies, and environmental risks. Participatory policy analysis assumes that citizens can have a voice and be, or become, interested enough to deliberate on substantive and politically difficult questions. Brockhaus and Kabire (2009) also argue that if participation in policy-

making by citizens is not guaranteed, it will make for a biased reform process in terms of only representing certain interest groups and being far from local needs and realities.

Participatory policy analysis is relevant to the climate change context. This has also been revealed in other studies; for example, Ridder and Team (2006) stated that, due to the complex nature and uncertainty of climate change, stakeholders should learn together to deal with the local issues. Mickwitz's (2003) paper also highlighted that participatory policy analysis is seen as being even more of a necessity for climate change issues than in other areas of environmental public policy.

Participatory policy analysis is the main framework used in the policy analysis chapter in this thesis, because a range of different stakeholders participated in the research process. Walt and Gilson (1994) proposed a 'Policy Analysis Triangle' to assist policy analysts to think more systematically about the multitude of factors (content, process, context, and actors) that affect policy, and the interrelations among these factors. There are a number of advantages to using the Policy Analysis Triangle model. The analysis brings a new dimension to the analysis of climate change policy, namely an actor-oriented perspective, which places a particular emphasis on the views of those who are impacted by the policies and those involved in making them.

In particular, this approach entails analysis at three different levels - the policy itself, i.e. the written text; the process that leads to the policy (how policy-making was carried out); and a brief analysis of the actors involved in formulating the policy. The Policy Analysis Triangle is relevant for Nepal because the model has been specifically designed for analysing development policies in developing countries. The policy analysis was therefore viewed in the specific country context by interacting with the relevant actors and mapping their perceptions of the overall potential of the policies in the mainstreaming of CBA.

In this research, the participatory policy analysis approach is used since it engages with stakeholders in the process of analysis. It specifically focusses on the analysis of policy document, the process of policy formation and the actors involved in policy making. The participation and inclusion was assessed based on the analysis of process i.e. who participated at what level. The process was assessed by assessing the local and national stakeholders' access to information, the degree of their involvement and satisfaction in the policy

formulation and consultation process, and in reference to the Arnstein ladder of participation (Arnstein, 1969).

Arnstein's work is preferred for this purpose, because it has many strengths and advantages. The ladder is useful in the analysis of public policies because it emphasises power and decision-making as being central to the concept of direct citizen participation. In her work on the "ladder of participation," Arnstein clearly distinguishes citizen participation from manipulation and tokenism (Roberts, 2004). In this ladder, each level of participation indicates a specific purpose of the participation (Figure 5). The highest level of participation[12] has the purpose of delegating decision-making to citizens, while the lowest level aims to educate or cure the participants[13]. The middle range of participation[14] aims for facilitating has not to hear and have a voice (Arnstein, 1969).

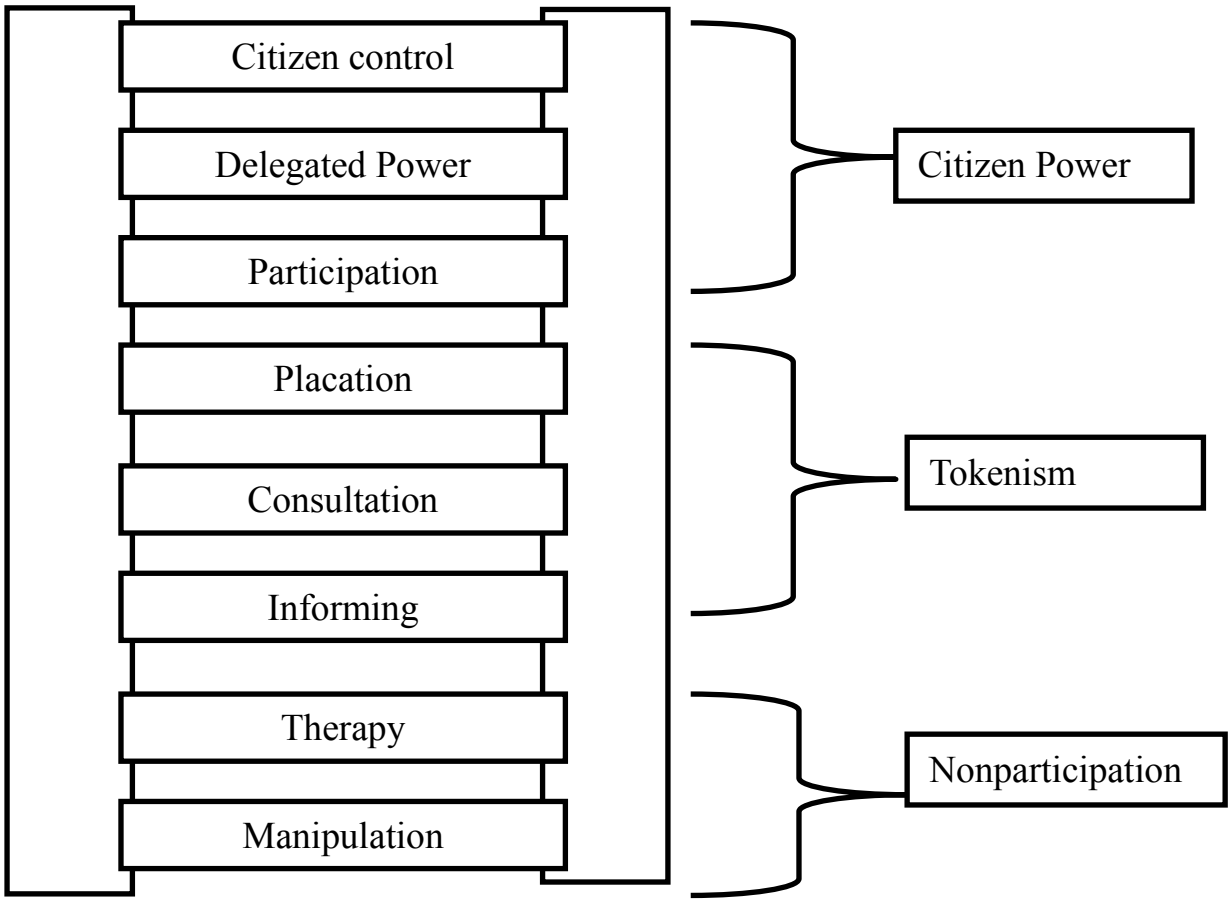


Figure 5: Arnstein's ladder of participation (Source: Arnstein 1969, pp. 216-224)

[12] Participation, delegated power and citizen control
[13] Manipulation and therapy
[14] Informing, consultation, and placation.

Certainly, there are some defects in Arnstein's ladder of participation. Critics such as Tritter and McCallum's (2006) argue that participation in the Arnstein's model is assumed to be hierarchical in nature with citizen control held up as the 'goal' of participation – an assumption that does not always align with participants' own reasons for engaging in decision-making processes (Collins and Raymod, 2006). Bishop and Davis (2002) say that the linear conceptualisation of participation limits the participation process. Yet, compared to the constraints, there are many advantages on Arnstein's ladder. Collins and Raymond (2006) argue that for many practitioners it remains the 'benchmark' metaphor for describing and evaluating participatory activity.

The analysis of policy content, process, and actors, as discussed earlier, are structured using both subjective and normative model. Subjective model includes the views of policy makers who are interviewed during the research process. The normative model comprises the analysis of the policy text particularly looking at the degree of harmony between policies in order to identify the relevance of the current policies, in light of climate change mainstreaming

4.6.2. Assessing the practice of the mainstreaming of community-based adaptation

As argued in Chapter Two, there is very little literature that explores appropriate frameworks for assessing the operational perspective of climate change mainstreaming - that is, how mainstreaming can actually be undertaken in practice. However, Lasco et al (2009) used two approaches to assess how far climate change has been integrated into the major development plans and programmes of the government, i.e. examining the policy and programme documents and interviewing people to map their perceptions.

The framework of Huq and Ayers (2008a) for mainstreaming proposes a linear sequence of building awareness and scientific capacity, targeting information, training key stakeholders, undertaking pilot studies to inform policy-makers, and integrating the learning (Lebel et al., 2012). Other studies have outlined the potential contributions of the mainstreaming of climate change adaptation, which may include avoidance of policy conflicts, reduction of risks and vulnerability, and promotion of individual/organisational efficiency (Persson, 2009; Srinivasan and Uchida, 2008; Lebel et al., 2012).

This study uses the framework proposed by Huq and Ayers (2008a) for examining mainstreaming initiatives at the national level because it has been tried and tested in other LDCs. This framework has potential benefits because it looks particularly at the series of indicators, such as information, capacity, and implementation of policy, that are required to make climate change mainstreaming effective.

The study prefers the framework proposed by Huq and Ayers (2008a) and assesses the practice of mainstreaming at the local level. In particular, it analyses how mainstreaming has contributed to the increased participation of stakeholders in the design and implementation process; enhanced collaboration among agencies; the building of stakeholder capacity; strengthening of the availability of information and knowledge; and institutionalisation/up-scaling of climate change adaptation. The analysis of these indicators will provide information and evidence to look at how mainstreaming has been practiced in Nepal, and how it should be practiced in the future.

4.6.3. Effectiveness of adaptation interventions (planning and delivery)

This research intends to measure the enhanced adaptive capacity of households and communities as an outcome of mainstreaming interventions, by analysing the perceptions of the beneficiaries of the interventions. Smit and Wandal (2006) believe that adaptive capacity is context-specific and varies from country to country, from community to community, among social groups and individuals, and over time. It varies not only in terms of its value, but also according to its nature (Smit and Pilifosova, 2003). As discussed in the literature review chapter (section 2.2), the adaptive capacity is mostly an outcome of successful and positive contribution of adaptation interventions at the household or community level.

The analysis of the effectiveness of the mainstreaming of CBA relies on the major adaptation interventions at the community level. As described earlier, this is case-sensitive and context-specific. Therefore, based on the review of the LAPA project document and its intended objectives and activities, the analysis particularly examined whether or not the mainstreaming efforts of the LAPA contributed to reducing climate risk and impacts on resources and access to these resources; increasing access to benefits and services for adapting to climate change and equitable benefit-sharing (allocation of resources to households based on needs and

urgency); building the capacity of communities and their institutions; increasing working collaborations among local, district, and national level actors and agencies; and increasing awareness and knowledge about climate change and climate change adaptation practices. This analysis was however focused primarily on the process and early indicators of the success of the mainstreaming of the LAPA.

The analysis of mainstreaming at the local level, using the criteria described in the above paragraph, provides evidence about the effectiveness of mainstreaming initiatives at the local level, and whether or not communities and households have benefited from these interventions. Although this analysis focused primarily on the process and early effectiveness of mainstreaming interventions, it also assisted with recommendations for future strategies around the mainstreaming of CBA.

4.7. Data analysis

4.7.1. Data entry and coding

The methods of data collection in this thesis gave rise to a broad selection of data types that required analysis, including transcripts from interviews and focus group discussions, household interview data, field notes, and numerous policy documents and grey literature.

The data derived from both the qualitative and quantitative sources, such as document reviews, case studies, interviews, and the discussions, were processed and analysed by using different techniques upon returning from the field. The transcription of the data from the audio files (in the Nepali language) was carried out first. According to Potter (1996), the production of a transcript is the first step in the analysis of such material because it creates the basis upon which good analytical insights can be made. The audio recording of the multi-stakeholder focus group discussions were transferred into written text. This provided a useful insight into the type of data generated.

This study undertook both manual and computer-assisted coding to document the field information. Both approaches were useful for the development of themes for the analysis and

for arranging the field materials. Manual coding was useful for entering the data generated from the open-ended questions in the semi-structured interviews and the focus group discussions. As well, the computer-assisted coding was useful for compiling the closed-ended questionnaire responses. The coding was developed by using Microsoft Word and Excel, SPSS version 20, and NVivo 10.

The information derived from the secondary sources and policy documents was coded using NVivo software for qualitative data. The use of NVivo was helpful for analysing how the policy texts made reference to both climate change and mainstreaming. The analysed data were categorised into different themes based on their logic and relevance. The themes were determined inductively in order to summarise the extensive and varied raw text data into a summary form to provide answers to the research questions. The themes were used to develop the various sections of the findings and discussion chapters. According to Aronson (1994), a thematic analysis helps to identify themes and patterns useful for bringing interview and discussion materials together to develop theory.

4.7.2. Analysis

The data entry and analysis was carried out using various computer software packages, such as the Statistical Packages for Social Sciences (SPSS) version 20, Microsoft Excel spreadsheets, and NVivo version 10 (QSR International). The combination of different software packages helped with the analysis of the different data sources, including the quantitative and qualitative information derived from the research.

The Microsoft Excel spreadsheets and SPSS were used to enter the household level perception responses. The SPSS software was also used to analyse the responses by using simple descriptive analysis such as frequencies, percentages, means, and cross-tabulations. The responses of the households, policy-makers, practitioners, and communities were presented in table, graph, and chart form to support the research findings.

SPSS was used in this study because of its relevance for analysing quantitative data. It was used to analyse the 30 years of data on climate variables. The monthly temperature and rainfall data were entered into SPSS and analysed using the statistical analysis package. The

temperature and rainfall variability data were calculated based on annual and seasonal changes. The least square curve fitting technique was used to fit the linear trend in the climate series data (y) and time (t) i.e. *y= a+ bt, where: y is temperature/rainfall, t= time in year,* and "a" and "b" are the constants estimated by the principle of least squares (Practical Action, 2009). A simple regression analysis was also conducted to analyse the temperature and precipitation trends of the study sites. This quantitative data was used to support the perceptions of the communities on their local knowledge about climate change and its impacts.

NVivo was preferred in this study as a tool for analysing the qualitative data. This software package assisted greatly with working with the unstructured information arising from various documents, the surveys, and from audio, video, and photographic sources – and ultimately to support the interpretation of the findings. It was used because it made the data entry and analysis of the unstructured responses easier, because it assisted with bringing the different interview responses together (Bazeley, 2007).

NVivo was also preferred for the analysis because of the intensity and large size of the data set. The responses from the semi-structured interviews with policy-makers and practitioners, and the responses from the Key Informant Interviews and the focus group discussions were entered into the NVivo software. The use of various nodes in NVivo, helped to highlight the key points and to develop the discussion themes. The data were then organised into themes. The query tools helped to identify the similarities and differences in the data on specific themes. It also helped with the connecting of ideas and with interpretation.

4.8. Conclusion

This methodology chapter has outlined the framework and structure used for investigating the research questions identified in Chapter One. The chapter has provided a methodological framework to assess the three major areas under investigation, i.e. the policies, practices, and implications of the mainstreaming of community-based adaptation into the development process in Nepal.

This chapter has sketched out the roadmap and methodology used to pursue the research questions in a logical manner. In particular, it has explained where the investigation was conducted and why; how the investigation was carried out; which tools and methods were used; the sources of information and how they were identified and consulted; and how the information was processed and analysed. The subsequent chapters are the results and findings chapters.

5 CHAPTER FIVE: LINKING CLIMATE CHANGE & DEVELOPMENT POLICIES

This chapter explores the scope and potential of the mainstreaming of community-based adaptation into the development process by examining climate change and development policies and plans. This chapter analyses the Nepalese policies in order to understand how they accommodate, or fail to accommodate, climate change adaptation and development goals. The analysis also includes how the policies portray synergies, in terms of linkages and trade-offs in terms of conflicting priorities and focus in order to examine provisions for including both sets of issues – development and climate change adaptation. The aim of this chapter is to provide information and evidence to justify the type of policy process and content required to mainstream Community-Based Adaptation (CBA) into the development process in Nepal.

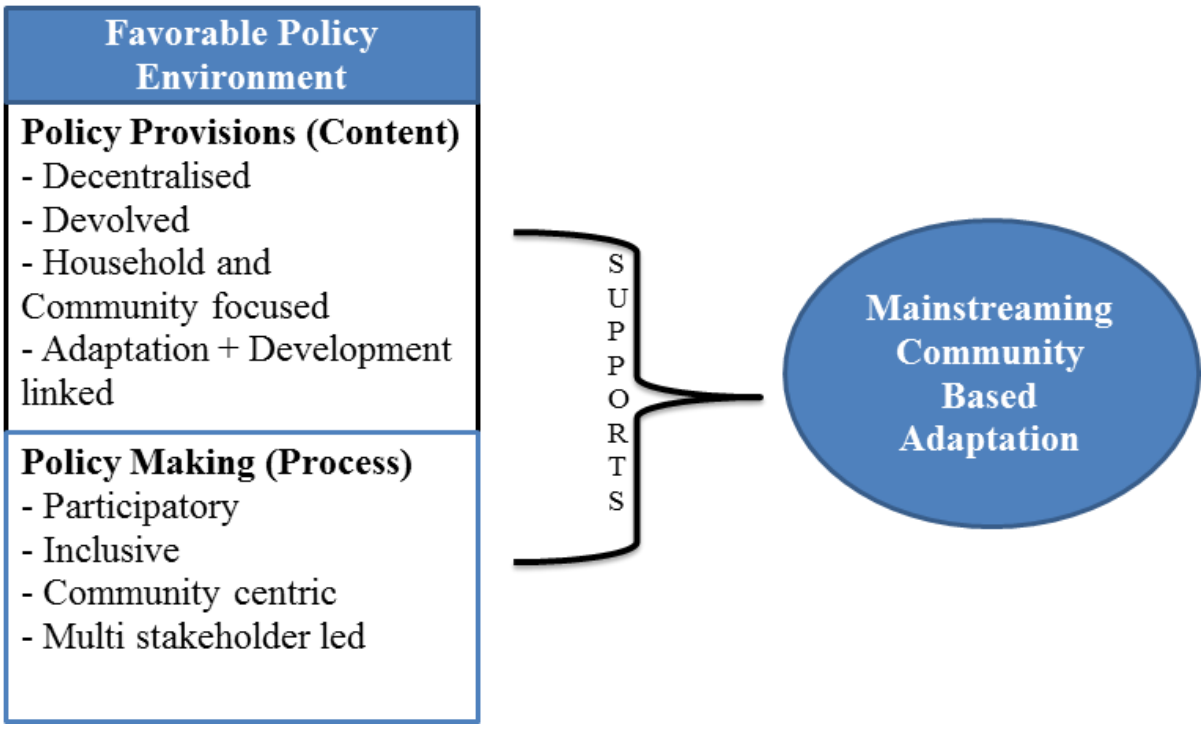


Figure 6: Policy environment needed for mainstreaming community-based adaptation (Source: Author)

The evidence presented in this chapter argues that the mainstreaming of community-based adaptation requires policies that have provisions for the decentralisation and devolution of power and authority to local institutions. The citizen-centric content and processes adapted in

the policies is significant for the mainstreaming of CBA into the development process, because it generates both local and national interest and actions on climate change; empowers communities and local institutions to be inclusive; and recognises multi-stakeholder roles in community-based adaptation. Although some of the policies were formulated before Climate Change Adaptation (CCA) was seen as necessary and therefore did not address it directly, they can still offer opportunities and lessons for the mainstreaming of CCA if they have produced successful community-oriented and decentralised practices (Figure 6).

The policy analysis methodology used in this chapter is based on the existing literature on public policy analysis and climate change. The analysis uses the Policy Analysis Triangle, as described in detail in Chapter Four, to enable a more systematic analysis of the multitude of factors (content, process, context, and actors) that affect policy and the interrelations among these factors. Three different types of policy-making processes in Nepal are reviewed in this chapter in order to capture which approaches to policy-making are effective and why.

As argued in Chapter Three, the Interim Development Plan, the Climate Change Policy, and selected development policies were prepared centrally by a small number of stakeholders. The National Adaptation Programme of Action (NAPA) was also prepared centrally but with the engagement of a wide range of stakeholders. The framework for the Local Adaptation Plan of Action (LAPA) was prepared using bottom-up approaches to engage communities and practitioners. The three policies adopted different approaches to policy-making and thus provide unique lessons in terms of identifying what worked well and how or why. The analysis of the three different policies also provides a useful insight into the process of policy-making and its implications for the level of ownership among policy-makers.

The chapter is divided into two major sub-sections. The first section introduces the concept of participation and citizen consultation in public policy-making and its relevance to the mainstreaming of CBA. The second section of this chapter draws on the empirical findings from the policy review and analysis. The second section contains two types of policy analysis. The first analysis notes the explicit references to climate change in the development and sectoral policies of Nepal. It also examines how the development policies were formulated and the process of developing the policies and plans. The second includes the analysis of the content and process of climate change policies, particularly the Climate

Change Policy, the NAPA, and the framework for the LAPA, in relation to its potential for the mainstreaming of CBA into the development process.

5.1. Participation and citizen consultation in public policy-making in relation to Climate Change Adaptation

This section of the chapter introduces the concept of public and citizen participation in public policy-making. This section highlights the debate on the importance of citizen participation in designing and implementing complex policies such as climate change. This section argues that citizen participation in policy-making is relevant to climate change adaptation policies because this ensures that the policies truly reflect community needs and aspirations.

The concept of participation is not new in development. Participation in development has gained a new legitimacy, and with it, the status of orthodoxy in the development arena (Cornwall 2002, p.15). Participation has a wide range of definitions. According to Hickey and Mohan (2004, p.13), the objective of participation is to radically transform existing development practices, including social relations, institutional practices, and capacity gaps, which cause social exclusion. The public can be involved in policy-making in a number of ways. Rowe and Frewer (2002) argue that public participation is designed to consult, involve, and inform the public who are affected by such decisions, to have an input into the process of decision-making.

Public participation in the 1990s was reported to have been inherently problematic (Brown et al., 2002). The difficulties identified were broadly around two key sets of issues: the different modes of engagement and the extent to which they constitute active participation and hence a meaningful form of inclusion; and the practical and conceptual difficulties in securing broad-based public engagement in the process, including defining who participates and on what basis (Few et al., 2007). Participation during the later part of the 1990s was, in fact, more top-down and centralised where very few of the hand-picked stakeholders were actually involved in policy-making. Actual citizen involvement in decision-making was lacking (Marinetto, 2003).

The latter part of the 20th century saw a shift toward greater direct citizen involvement in public policy-making (Roberts, 2004). There is an argument that government and the citizens should collaborate in the policy-making process. Pierre (2009) considers that collaborative policy-making has the potential to shift from government to a position of governance. According to this perspective, hierarchical decision-making, of the "command-and-control" type, is today being questioned, and is forcing governments to adopt a more vertical approach to public policy-making. This represents a shift from traditional government to governance (Bherer 2010; Exworthy and Powell 2004).

According to Cornwall and Gaventa (2000), participation must be repositioned in the light of current realities, which offer new spaces, as well as new constraints, for citizen engagement. Cornwall (2002) argues that there are different types of spaces created in public policy-making. The closed space is where decision-making spaces are closed in which primarily the bureaucrats, experts, and elected representatives make decisions without broader consultation or involvement. Invited spaces are the more formal events where development agents create forums for stakeholders to contribute and, ideally, reach a consensus in an orderly fashion. In contrast to closed and invited spaces, claimed spaces are more organic and involve the socio-economically disadvantaged populations taking control of the political process, without necessarily being invited in. The claimed space of participation is more meaningful in public policy in countries like Nepal where the citizens can exercise their rights to be actively engaged in the policy-making process.

There are many advantages of, and constraints upon, citizen participation in policy-making which are highlighted in the literature. Citizen participation opens up opportunities within development for addressing issues around implementation and exclusion. Gbikpi & Grote (2002, p.23) argue that citizen participation can be effective in the realisation of policy objectives because it can help to overcome problems of policy implementation. According to Michels and Laurens (2010, p.481), citizen involvement has positive effects on policy-making: it both contributes to the inclusion of individual citizens in the policy process, and it increases the legitimacy of the process and the outcomes. However, there is clearly still a long way to go before these kinds of "invited and claimed spaces" of citizen participation can become genuinely inclusive and equitable process (Fung, 2003). Michels argues that the positive effect of citizen participation is perceptible only to those taking part; however, the number of participants is often small and under-represented (Michels, 2011). The next

generation of issues within citizen participation is how to make it more inclusive and practical.

As argued earlier, the concept of active citizenship in policy-making becomes more important for the reshaping and redesign of policies to deal with complex issues such as climate change adaptation. The multi-sectoral nature of climate change policy-making requires the active engagement of different stakeholders, including citizens, in both the design and implementation of policies. As argued in Chapter Three, due to the complex nature and uncertainty of climate change, stakeholders should learn together to deal with the issues. Multi-agency involvement and partnership also becomes relevant to the formulation of climate change policy, due to its cross-cutting nature and linkages (Bizikova et al., 2012; Pinkse and Kolk, 2012). This places emphasis on the collaborative and citizen-led policy-making process in climate change adaptation.

Public participation in decision-making is now a commonly stated objective in most of the sectors of climate change policies (Few et al., 2006). Participation is the main element of CBA and it focuses on the participatory identification and implementation of community-based development activities which strengthen the capacity of local people to adapt to climate change (Archer et al., 2014). There are many benefits in using participatory approaches in CBA. Sherman and Ford (2014) who studied, the comparison between top-down and bottom-up approaches within climate change adaptation programmes, revealed that community stakeholder engagement in project design and implementation led to higher effectiveness, efficiency, equity, flexibility, legitimacy, sustainability, and replicability.
Mainstreaming CBA in the development policy requires effective participation of both central and local level institutions and communities. One prerequisite for mainstreaming CBA in the development is to have a favorable policy that recognises community-driven adaptation initiatives and enhances local participation and ownership (Dodman and Mitlin, 2013). Mainstreaming climate change adaptation has emerged as a policy approach to scale up CBA (Ayers and Forsyth, 2009). Dodman and Mitlin (2013) argue that while CBA is strong on emphasising participatory processes, insufficient attentional is given to link with policy and higher level political structures. In order to address the issues raised earlier, Tompkins and Adger (2004) argue that co-management between local and higher level institution is particularly important for tackling climate change that extends beyond the local scale.

The literature shows that climate change policy should not operate in a vacuum, but should rather build on past policy successes in development. As discussed in Chapter Three, based on the experiences of countries such as Nepal, policy provisions such as decentralisation and devolution appear relevant to the mainstreaming of CBA, as it ensures the involvement and ownership of local agencies and communities. According to various scholars (Capistrano and Colfer, 2005; Ribot, et al., 2006; Tacconi, 2007), decentralisation associated with devolution is one of the more promising approaches for empowering local institutions and to increase adaptive capacity at the local level.

Forester (1999) argues that very little is known about the actual role of citizens in participatory policy-making processes. Michels (2011) points out that empirical research about the actual effects of participation is scarce. There is also a lack of evidence in relation to climate change policy on the significance of citizen involvement in policy-making, and whether or not active citizen engagement can create meaningful change in addressing climate issues at the national and local levels. The following sections of this chapter analyse participatory approaches in relation to how climate change adaptation policies and initiatives are designed and implemented in Nepal, in order to draw lessons about the types of participation and approaches that are required to mainstream CBA into the development process. This chapter provides a number of empirical insights into the relationship between citizens and governments from the citizens' perspective in policy analysis.

5.2. Analysis of development and climate change policies in Nepal

5.2.1. Provisions made within development policies and plans for the mainstreaming of climate change adaptation

This section examines how development policies in Nepal have been formulated and how the relevant actors were involved. The specific sectoral policies, such as forestry policy, agriculture policy, water resources policy, and the national development plan are reviewed and analysed in this section.

Content of the development plan and policies

This section specifically looks into the recent sectoral and development policy documents, and also explores how climate change and climate change adaptation have been addressed in these policy texts. The Three-Year Interim Development Plan (2010-2013) is analysed in detail because there are specific references to climate change and, more importantly, due to the plan's relevance to the mainstreaming of climate change adaptation. This section of the thesis argues that some policies have led to climate adaptation being mainstreamed while others have not. Specifically, the policies that have provisions to decentralise and devolve authority and resources to the local level have greater potential for mainstreaming CBA into the development process.

Studies carried out by Alam and Regmi (2004), the Agrawala and Aalst (2005), Pant and Gautam (2013), and Regmi and Adhikari (2007) demonstrate that sectoral development policies over the past 20 years have been silent on climate change issues. The policy analysis carried out in this chapter also supports this finding. Furthermore, agricultural policies published in the mid-2000s (the 2004 Agriculture Policy, and the 2006 Agro-Biodiversity Policy) did not consider climate change as a threat to the agriculture sector. These policy documents only made reference to the extreme weather conditions and disasters caused by natural events such as drought, flooding, and landslides. The 2009 Disaster Risk Management Strategy also mentioned climate change only in reference to natural disasters (GoN 2009, p.2). Finally, the Forestry Policies of Nepal have also been silent on climate change (GoN 2000, p.14).

The lack of focus on climate change issues in development policies has also been evident (2000-2012) in other sectoral policy documents. Despite the urgency at the local and national levels, the health sector policy and strategy was silent on climate change issues. Basically, the government failed to formulate policy and strategies to address climate change issues within the health sector. The water-related policies and plans, such as the Water Resource Strategy (2002), the Irrigation Policy (2003), and the Nepal Water Plan (2005) had no content about climate change. *The Physical Infrastructure Development and Implementation Act* (2006), local development policies, energy policies, and the gender and tourism policies also failed to mention climate change within their policies (Pant and Gautam, 2012). This shows that, well into the 2000s, the Government of Nepal lagged behind in policy responses compared to

other LDCs, in addressing climate change issues. One reason, reported by a majority of the policy-makers that were interviewed, was the lack of awareness of government and the public sector about climate change issues.

Past development plans completely left out activities to deal with climate change issues (Agrawala et al., 2003; Alam and Regmi, 2004). The poverty reduction strategies and the five-year development plans of Nepal, formulated before 2007, did not address climate change. As discussed in Chapter Three, the first policy to pay attention to climate change was the first interim three-year plan (2007-2010). Pant and Gautam (2012) commented that climate change entered the national agenda when it was included in the Interim Constitution of Nepal (2007) and into the interim development plans. The findings in this research show that the recent policy and programmatic responses to climate change have been the result of increased government and public interest in climate change, as well as donor and development agencies' willingness to provide resources for responding to climate change.

This was reinforced in the second three-year interim development plan (2010-2013) with specific provisions made for climate change adaptation. The second three-year interim development plan was regarded by the majority of policy-makers interviewed in this research as the most progressive and pro-climate change development plan in Nepal's development history. The focus group discussion with policymakers outlined the elements of the plan as follows:

> The second three-year interim plan has more climate change focus because of the following reasons: a) the plan has clearly recognised the need for implementing climate change policy and adaptation priorities identified in the NAPA; b) the plan has recognised that climate change and development should be addressed together; c) and the plan has identified climate change adaptation activities in each of the development sectors (Focus Group Discussion with Policy Maker – FGDPM, January 2012).

The background section of the interim plan (2010-2013) provides a vision to address problems associated with climate change at both the local and national levels (GoN 2010, p.2). In the priorities section of the plan, it is stated that 'attention will be paid towards minimising the impacts of climate change by protecting the environment and availing

opportunities' (GoN 2010, p.18). The opportunities referred to in the plan were related to the reduction of costs associated with the lack of action in preventing further damage to development interventions due to the impacts of climate change. This provision, as argued by the majority (92%) of the interviewed policy-makers, is an important step in integrating climate change within development plans. Progress on climate change in the second interim development plan, as argued earlier, was the result of the increased awareness of policy-makers, in addition to the influence of national and international level agencies and stakeholders.

The second three-year interim development plan (2010-2013) specifically addressed climate change as a major development issue and devised a sectoral action plan to address these issues. In terms of agriculture, the three-year interim plan identified the uncertainties in monsoon rainfall and disasters caused by climate change as some of the challenges (GoN 2010, pp.86-87). The plan proposed the conservation of agricultural bio-diversity 'through promotion of climate change adaptation-related technologies in agriculture' (GoN 2010, p.87). The three-year plan (2010-2013) also clearly spelled out how agriculture and food security are linked to employment, poverty reduction, and climate change. For example, the plan indicated that variability in rainfall patterns was a major threat to food security in Nepal which tended to aggravate the situation of poverty (GoN 2010, p.86).

The interim plan includes responses to climate change in the forestry sector. Climate change is included in the forestry section of the plan in terms of strategies to deal with climate change issues within the sector, and to address some of the impacts at the community level. The targets set within the plan include the empowerment of Community Forestry User Groups to prepare a community-based adaptation plan and to institutionalise adaptation within the forestry institutions' regular development works (GoN 2010, p.104). The forestry sector strategy section within the plan also envisions the establishment of institutional mechanisms to support climate change actions. For example, the plan envisions climate change and REDD cell within the Ministry of Forest and Soil Conservation in order to focus on climate change issues (GoN 2010, p.100).

In regards to the health sector strategy, the interim plan announces that appropriate programmes would be put in place to mitigate the negative impacts of environmental change on human health (GoN 2010, p.189). The drinking water strategy (GoN 2010,

p.197) included the development of drinking water infrastructure and services in light of environmental and climate change adaptation, and proposes activities that reduce community risk to depleting water resources (GoN 2010, p.198). The sectoral provisions on climate change within the three-year interim plan show that climate change is considered as an issue in Nepal's key development sectors. This recognition of climate change could thus open avenues for sectoral responses on integrating climate change in the future.

As discussed in Chapter Two, successful development practices build the adaptive capacity of vulnerable households and communities, as they helps to strengthen their livelihood resources. Bird (2011) argues that although there is no national legislation in Nepal's development sectors that explicitly address regulatory responses to climate change, there are various acts that deal with development that are related to environmental concerns that are relevant to climate change. There were also similar views expressed by the policy-making respondents in this study who argued that good development practices that are successful in addressing poverty and environmental issues in which community-led practices for managing resources have contributed to improvements in livelihoods and protection of forest resources, can make climate change adaptation more effective because they are based on the experiences of the community and the stakeholder (focus group discussion with policy-makers, December-March, 2012).

As previously mentioned by the respondents, building on past successes is a useful strategy for the mainstreaming of CBA into the development process more efficiently and effectively. In addition, policy provisions and strategies aimed at the local level become more important for the mainstreaming of climate change adaptation because of the connection between climate change adaptation and rural livelihoods (Khadka et al., 2012). In 1999, the Government of Nepal launched the *Local Self-Governance Act and Regulation* (1999) which aimed to decentralise and devolve administrative and financial management authorities to local government. The act, moreover, recognised the participation of International/Non-Governmental Organisations (I/NGOs) and Community-Based Organisations (CBOs) in the implementation of decentralisation programmes (GoN, 1999).

As discussed in Chapter Three, community development approaches, such as community forestry, promoted by the *Decentralisation Act*, have been delivered on the ground. These successes were primarily observed in community-based natural resource management

situations, such as community forestry in the hills, where local communities were involved in resource management and local development. In addition, Lawoti (2007) argues that in specific cases where decentralisation is supported by the devolution of power and authority, for example in community-based natural resource management, local government units in Nepal have performed well in delivering goods and services to people.

The analysis in the previous paragraphs implies that there are provisions within development processes and sectoral policies that favor the mainstreaming of climate change adaptation. These provisions serve to mobilise local institutions and communities in the process of development, which demonstrates the potential to bridge the gap between national level policies and local level needs. The policy successes in community-based natural resource management are of significance to community-based adaptation, because they focus more on empowering local communities in resource management and local development. Agrawal et al (2013, p.576) maintain that local and national adaptation processes can be improved substantially by attending to the ways in which national resource policies are made locally responsive and effective. Ensor and Berger (2009, p.1) also argue that 'a community-based approach has the potential to deliver an enabling policy environment through established mechanisms: enhancing social networks and focusing on the processes of engagement – participation, equality, and respect – that respond to local interests'.

The above discussions reveal that policies that are more grassroots-oriented have greater significance for empowering local communities and institutions. For example, The 1989 Master Plan for the Forestry Sector, and the *Forest Act 1993* set good examples in promoting the decentralised management of forest resources in Nepal (Kanel and Kandel, 2004). The policy-maker respondents emphasised the significance of the forestry legislation, arguing that:

> I think the successful outcome of Nepal's community forestry is due to the creation of appropriate institutional structures at local, district, and national levels. The policies are also accountable to communities. I think the policies provide unrestricted decision-making at the local level, supported by strong institutional networks like the Federation of Community Forestry User Groups (FECOFUN). These mechanisms have ensured community leadership in local development and there are many examples documented (PRN 5).

However, experiences at the local level show that there are many challenges involved in putting these policies into practice. Despite some successes in forestry and other sectors, as mentioned earlier, the majority of the policies failed to provide benefit to the communities, as the implementation of these policies was more centralised and fragmented (Devkota, 2007). The problems with development policies are related to the existing contradictory provisions within the policies, and the hurdles for translating policy into practice. As argued in Chapter Three, although there is progress being made in formulating decentralised policies in Nepal, the majority of the development policies have been criticised for their failure to implement and specifically address the issues of poor and marginalised households and communities. This entails that the current modality of implementing policies in Nepal is not in favour of the mainstreaming of CBA into the development process because of the gap between the intent of the policies and the process of translating these policies into action.

As previously mentioned, the lack of progress in implementing the decentralised policies in Nepal has implications for the effective promotion of CBA. The majority of the respondents argued that the decentralisation policies of the government, which are aimed at decentralising power and responsibility to local government, benefited only powerful individuals and political parties, and further marginalised the poor and vulnerable households. The focus group discussion with the communities revealed that the decentralisation policies failed to provide full authority and power to local institutions. In contrast to this, power and resources were centralised within only a few institutions and to powerful individuals. In response to this claim, one practitioner stated that:

> The local decentralisation programme of Nepal, which aimed to provide more power and resources at the local level, helped the local agencies like the VDC and DDC to design and plan the annual development programme. But they were dependent on the central government, i.e. the Ministry of Local Development in this case, for resource allocation and planning. Many decisions were taken centrally and local government has to follow the guidance from the centre. There is an absence of delegation and responsibility-sharing. Even where the local agencies are fully decentralised, local power-holders, for example the dominance of only a few political actors, also influence them (Practitioner Respondent Number – PRRN 6).

The literature on decentralisation, as discussed in Chapter Three, has outlined similar issues of power and resource-sharing (Gautam and Pokharel, 2011; Dhungel, 2011; Litvack, et al., 1998; Mansuri and Rao, 2012). This form of decentralisation is known as 'deconcentration', which 'merely involves the shifting of workload from central government ministry headquarters to staff located in offices outside of the national capital. Deconcentration does not allow the local unit ample freedom to take initiatives and decisions without the consent of the central authority' (Rondinelli, et al., 1989, p.76). Chapter Three of this thesis also highlights that development has failed in the past in Nepal because the power and resources have been centralised, and only a few institutions and individuals have monopolised the bulk of the resources and have thereby reaped the benefits.

The second issue identified in this research is around diverse and overlapping policy provisions and implementation mechanisms within the development policies that hinder mainstreaming efforts. The majority of the policy-makers interviewed revealed that isolated strategies adopted in the sectoral and development plans conflict with climate change principles. Pant and Gautam (2012) argue that traditionally, sector development, rather than integrated management of a sector, has been where the main emphasis has been focused. For example, at the local level in Nepal, most of the government ministries have their own offices and delivery mechanisms. These were not linked with the overall district and local development planning and delivery process. During the focus group discussions, the majority of the policy-makers said that this sectoral working modality contributed to the fragmentation of resources, because there were overlaps in both the work and in service delivery.

In conclusion, the above analysis demonstrates the challenges that exist within the current policies for effectively managing climate change adaptation in the long run. Climate change adaptation within development planning is often seen as an "add-on" without a strategic policy focus. However, despite the lack of focus on climate change adaptation within the development policies, some of the provisions within the policies, such as decentralisation, a community-driven approach, and the empowerment of communities and institutions, could be strong entry points to the mainstreaming of CBA into the development process.

Process in policy-making of development policies

This section discusses the process adopted in the design of the development policies, and more specifically, in the policy design process within the second Three-Year Interim Development Plan (2010-2013). This section discusses two dimensions of policy-making, i.e. who participates in policy-making and how the policies are made. Here, it is argued that the degree of participation in policy-making determines the ownership of the policies. As discussed in the earlier section of this chapter, since climate change is a multi-dimensional issue, the engagement of the public and their ownership is crucial for its successful implementation. The nature of climate change demands policy design to be inclusive, participatory, and multi-stakeholder owned.

The discussion in Chapter Three argued that most of the development policies and plans formulated in the past were prepared behind closed doors, and adopted a very limited consultation process. As a result, the outcomes of the policies and what actually happened on the ground bore little resemblance to the intentions of those who shaped and drafted the various policy documents (Blaikie and Springate 2007, p.61). This is a general trend in policy-making in Nepal, where the creation of policy is taken merely as a formality to fulfill government or donor requirements. The analysis of Nepal's development policies (the agriculture, health, and water resource management policies) in this section, also suggests that the government employed a small team of experts and consultants to prepare the policy drafts that were later opened to only a few centralised consultation processes and finally adopted as national policy. The process of policy-making was limited to only a few individuals and agencies. This process completely ignored the target beneficiaries such as communities and local stakeholders to which the policy was aimed and who should be accountable. One policy respondent commented on this:

> There is a general trend within our ministry that a small working team is formed within the ministry and sometimes involved the donor agencies or international organisations that support the formulation of policies. In some cases, the development agencies provide consultants to help the working team. The working team prepares drafts, shares these with the Ministry high-ranking officials, and finally submits. Although there is a process of policy revision

> within our government system, it is more of a formal type and does not include public scrutiny (PRN 1).

The analysis shows that the preparation process of the second Three-Year Interim Development Plan (2010-2013) has resulted in greater acceptance by government agencies than by civil society and the public. It is evident from the discussion with government officials that all the respective government ministries carried out discussions with the relevant government agencies to prepare the plan. In contrast, the majority of the policy respondents argued that the policy-making process was limited to government agencies only. One civil society respondent argued that the three-year interim plan preparation was limited to government stakeholders without consulting with communities and civil society. According to this respondent, the consultation was highly centralised and limited which was against the spirit of mainstreaming. The focus group discussion with policy-makers also revealed that:

> Our development planning process is mostly top-down and very much limited to a few of the government line agencies. The planning process does not even follow the procedures of the government. For example, the National Planning Commission asks the ministries to provide their sectoral plans, and this will be compiled and finalised based on the available development budget. Another issue is that the planning process only consults the government line agencies. Public consultation is something that is not considered by the planners (Respondent from focus group discussion with policy-makers).

Other policy respondents echoed similar views to that expressed by the above respondent on the lack of a proper consultation process (PRN 6, 7, 10, and 11). Although the process of consultation in the second three-year interim plan looked far more participatory than did past plans, it was evident that participation and consultation were centralised and limited to only a few organisations and individuals. In this case, only national government agencies were involved. This shows a clear lack of public engagement in the policymaking process. Since the impacts of climate change are felt at the household level, input from households and communities is necessary. As argued earlier in this chapter, consultation needs to be inclusive and flexible in order to allow enough time for the citizens to provide input into, and to critique, the policy content.

The policy formulation process in poor countries is strongly influenced by bilateral and multilateral agencies (Mansuri and Rao, 2004). The discussion with policy-makers revealed that the climate change agenda within the three-year interim plan was influenced by the donor agencies that provided funds to the government within the strategic development framework on climate change mainstreaming. The National Planning Commission was supported by the Asian Development Bank (ADB) to prepare a climate resilience planning framework during the planning process for the three-year interim plan, through a capacity-building project. Interviews with policy-makers from the Ministry of the Environment, the NAPA project, and donor agencies revealed that both the national and international policy environment played a role in influencing the government to integrate climate change into the development plan (PRN 1, 2, and 10, January-March, 2012). This implies that since these donors fund most of the projects on the ground, they might be in a good position to feed local experiences and needs into government plans. Hajer (2005) also found that climate change discourses influence national policy-making, as the international agenda tends to dominate national level discussions.

The policy text on climate change adaptation, and the priorities within the second interim plan, also reflected how the experts, a few policy-makers, and a number of engaged individuals viewed and interpreted the issues. According to the policy respondents, generalisations were often observed in the policy documents which tended to ignore the strategies needed to achieve the goals and objectives. For example, climate-proofing is emphasised more in relation to achieving climate change adaptation goals rather than the building of the adaptive capacity of communities. The policy documents introduced several new concepts as well; for example, climate resilient development, low-carbon development, and green development, without providing much clarity on what these concepts meant and how they could be achieved.

According to some of the policy-makers, these terms were borrowed from experts from elsewhere, which is significant because it has shifted the priorities of countries to meet international requirements, rather than achieving national development goals. It was also evident that the three-year plan was more technology-oriented and failed to consider the socio-economic complexities because it lacked a clear focus on addressing the core issues of climate change at the local level (PRN 4, 6, 8, 13, 14, and 17). The response implies that

there are a number of constraints to the engaging of external experts in the design of local and national policies, as they tend to ignore local level needs and the national context.

The above responses indicate that there are constraints to centralised and top-down policy-making as it overlooks local needs and aspirations. Public consultations are a means of identifying local needs and aspirations, but in practice, much of the policy-making process, in countries such as Nepal, ignores the role of the public. One study also shows that the degree of centralisation affects the inclusivity of policy-making (DiGregorio, et al., 2012). Although Nepal is moving towards decentralisation and a federal structure, it is still challenged by a lack of will from central-level actors to include the local level in policy design.

However, as argued in earlier section, in specific policy cases where policy making process is more consultative and inclusive, for example in community-based natural resource management, the implementation is successful in terms of protecting resources and providing benefits to the communities (Lawoti, 2007; Kanel and Kandel, 2004). The findings thus imply that participatory processes in policy-making need to be more community-centric, inclusive, and devolved in order to encompass the inclusion of a diverse range of stakeholders and actors which lead to more effective policy implementation.

The analysis in this section shows that although the development plans and policies, such as the second three-year interim development plan, incorporate climate change, they may have failed to put the plan into action because participation was limited to only a few actors and institutions. As participation was limited to national actors, there remains the problem of how the government defines consultation and participation. As discussed in Chapter Two, the current form of engagement adopted in the three-year interim plan is a tokenistic type of participation because only 'hand-picked' individuals and organisations were involved. As argued earlier in this chapter, this is a type of participation in which the decision-making spaces are closed and decision-making is reserved primarily for the elites (the bureaucrats, experts, and elected representatives) without broader consultation or involvement of the public, which is problematic because the process reflects only the interests of those involved in the process (Cornwall and Gaventa, 2000).

The findings in this section imply that governments are supposed to represent the people, rather than only the personal interests of those involved in the decision-making process. The

problem, according to Cornwall and Gaventa (2000), exists due to a lack of a clear role for citizens in the shaping of policy because it treats the public as consumers. The findings further imply that relevant citizens and stakeholders should be placed at the centre of policy-making as this will ensure the more effective implementation of policies. As argued earlier in this chapter, the policy-making process needs to go beyond the passive public participation to citizen's supremacy, in which those affected by social policies act as citizens on their own behalf (Cornwall, 2004).

However, as O'Faircheallaigh (2010, p.20) argues, in the real world of public policy decision-making, the issue of public participation is contested and highly political. On the other hand, although it is difficult to ensure meaningful participation at the national level, policy-making for cross-cutting issues such as climate change should ensure that participation in climate change processes is more active, diverse, and input-oriented because this will help to address complex issues such as climate change adaptation more efficiently and effectively. Collaborative and citizen-centric policy-making, as argued earlier, addresses the current policy gaps observed within Nepal's development policies.

5.2.2. Provisions made within climate change policies and programmes for the mainstreaming of climate change adaptation

Having examined how climate change concerns have been integrated into development policies and plans, this section now analyses the content and process of climate change policies and programmes in Nepal. The purpose is to explore the extent to which these policies have managed to make climate change a development issue, one that needs to be seen as part and parcel of development interventions. This section specifically analyses the Climate Change Policy (2011), the National Adaptation Programme of Action (NAPA), and the Local Adaptation Plan of Action (LAPA) framework, arguing that the nature of the participation of actors in the policy-making process shapes the content of the policies. The wider the participation and the greater the inclusion of major actors, including citizens, the more opportunities there are for the policies to be grounded and for creating opportunities to effectively mainstream CBA into the development process.

5.2.2.1. Analysis of the Climate Change Adaptation policy and framework

Climate Change Policy of Nepal

As discussed in Chapter Three, the Government of Nepal formulated the Climate Change Policy (CCP) in 2011. This policy was implemented after the start of the interim plan (2011-2013) and the NAPA (2010). The analysis shows that the Climate Change Policy acknowledges the potential threat of climate change in society and on the livelihoods of people. The policy stressed the need to adopt climate-friendly practices. The policy text states that:

> It is equally necessary to make the country's socio-economic development climate-friendly, and to integrate climate change aspects into policies, laws, plans, and development programmes, and implement them (MoE 2011b, p.4).

The findings show that the Climate Change Policy has also recognised the need to address climate change within the current development context of Nepal. The policy envisions 'a country spared from the adverse impacts of climate change, by considering climate justice, through the pursuit of environmental conservation, human development, and sustainable development - all contributing toward a prosperous society' (MoE 2011b, p.5). Bird (2011) also revealed that the climate change policy reflects the national vision in terms of climate-friendly and socio-economic development. The policy document also mentioned the formulation and implementation of a low-carbon economic development strategy that supports climate-resilient socio-economic development (MoE 2011b, p.5).

The literature suggests that Nepal's climate change policy offers opportunities to mainstream climate change into the development process as it provides a national policy framework to establish linkages between climate change and development works (Saito, 2012; Pant and Gautam, 2013). The text of the Climate Change Policy also indicates a need to formulate and implement a national policy in order to utilise the opportunities created by the climate change phenomenon to reduce poverty and achieve sustainable levels of development. The vision, mission, and goal of the Climate Change Policy emphasised the need to achieve development targets to effectively address climate change issues. The goal states:

> The main goal of this policy is to improve livelihoods by mitigating, and adapting to, the adverse impacts of climate change, adopting a low-carbon emissions socio-economic development path, and supporting and collaborating in the spirit of the country's commitments to national and international agreements related to climate change (MoE 2011b, p.5).

In addition, the CCP has another goal related to the implementation of the national adaptation priorities such as the NAPA. The goal, as it states, is to make provision for financial resources to implement priority activities at the community level, as identified in the NAPA. The provision to formulate a climate change fund, as part of the CCP, is an important step in translating the policies into action. In the same manner, the policy document also mentions the LAPA - which recognises planning at the local government level, and the roles and responsibilities of local communities in climate change adaptation. Although the mainstreaming of climate change adaptation is not specifically mentioned in the CCP, it does mention the linking and implementation of climate adaptation with socio-economic development and income-generating activities to an extent that is possible (MoE 2011b, p.6).

However, the integration of adaptation and mitigation into the development process at different operational scales, including at the policy level, remains a challenge in developing countries (Klein et al., 2005; Swart et al., 2007; Urwin and Jordan, 2008). As discussed in the earlier section on development policies, the findings in this section also demonstrate that the CCP treats the implementation of climate change separately, without emphasising the integration of climate change into national, sectoral, and local policies and plans. According to the majority of the policy-makers consulted, the treatment of climate change as a separate sector, as is reflected in the current CCP, undermines the cross-cutting nature of the climate change issue. The respondents further argued that although the policy mentions the link between climate change and poverty, and a number of other issues, the dominance of one ministry and the lack of a role for the other ministries undermines the mainstreaming efforts (Policy-Maker Respondents).

The institutional structure and mechanisms suggested in the policy contradicts the principle of mainstreaming. The CCP has only recognised the role of the Ministry of the Environment at the functional level, while ignoring the role of other sectoral ministries and development

agencies in the management of climate change. For example, the policy mentions that 'The Ministry of the Environment (MoE) will primarily be responsible for monitoring and evaluating the implementation of this policy' (MoE 2011b, p.10). Tiwari et al (2014) points out that Nepal's CCP fails to identify the main agents of implementation apart from the MoE. The authors further argue that there is no institutional mechanism and institutional capacity for planning and implementation of the climate change adaptation programme. This contradiction within the CCP raises issues around the uncertainty of the implementation mechanism required to translate the policy into action.

As argued in Chapter Two, the treatment of climate change as a separate issue is problematic. According to the majority of policy-makers, climate change is both an environmental and a development issue, because it cuts across a wide variety of issues, and because the impact of climate change is felt by all sectors, each of which should be prepared to deal with it (Focus Group Discussion with Policy-Makers). As discussed in Chapter Three, the cross-cutting nature of climate change therefore demands the role of different agencies and actors. According to one of the policy-makers interviewed, mainstreaming is necessary across different levels of government, as simply centralising the resources and responsibility within the Ministry of the Environment will undermine mainstreaming attempts because it will only centralise power and resources within this single ministry (PRN 4).

Another issue with the CCP is in relation to how it has defined adaptation. As discussed in Chapter Two, climate change adaptation is not simply about reducing risk. In the Climate Change Policy, mainstreaming is considered from a climate risk reduction and climate-proofing approach. This means that the focus is on adopting a low-carbon development path by pursuing climate-resilient socio-economic development (MoE 2011b, p.6). The argument in the policy is that by adopting such a path, emissions will be reduced and the climate-proofing infrastructure will prevent negative impacts on development activities potentially caused by increased climate risk. It will further promote climate-friendly socio-economic development by facilitating carbon sequestration and trading (MoE, 2011b, pp.6-7).

The findings discussed earlier imply that the CCP has adopted risk-reduction and climate-proofing approaches to mainstreaming which undermine the need to help vulnerable households and communities. There is evidence in this research to support this argument. The

majority of the policy respondents (86%) pointed out that the risk-reduction approach has a long-term focus that incorporates technology and infrastructure, while ignoring social issues related to the short-term livelihood needs of households and communities. The household survey indicated that, out of 128 households interviewed in the two VDCs, the majority (102) were in favour of soft measures to deal with climate change adaptation, such as awareness-raising, capacity-building, and support for small-scale agricultural practices and technologies, rather than infrastructure and other risk-reduction activities.

As discussed in Chapter Two, climate-proofing approaches have come under criticism for their failure to address the key issues of vulnerability and poverty. For example, Sovacool et al (2012), who looked at studies of selected Asian countries, argued that adaptation may not work best by simply improving technology and focusing on hardware. The authors recommended that policy needs to take the livelihoods of communities into consideration in the design of adaptation interventions.

There are also implications for mainstreaming of considering only a technology-based (impacts-based) view of adaptation. The literature, as discussed in Chapter Two, revealed that too much focus on climate-proofing limits the scope of mainstreaming to externally-funded projects, as it intends to only climate-proof donor-funded project activities such as infrastructure. Another constraint is that climate-proofing relies primarily on a 'business-as-usual' model, which considers ongoing development interventions without considering climate change risks and impacts, and may not address the urgency and complexities of the climate change problem (Klein 2008; Ayers 2011).

In summary, from the above analysis, it can be seen that, although there are provisions within the CCP to link climate change with the broader national development goals, the scope and approach of Nepal's CCP is not entirely favourable for the mainstreaming of community-based adaptation. Instead, the approach and focus is more oriented towards risk-reduction and low-carbon development rather than climate change adaptation. This raises the issue of how the adaptation priorities identified in the NAPA and the LAPA can be addressed by the CCP. The CCP currently looks isolated, which raises questions about its effective implementation.

The Process of making climate change policy

As discussed earlier in this chapter, the legitimacy[15] of the policy process depends on the process and degree of stakeholder engagement and input. This section analyses the preparation of the CCP in Nepal. It specifically looks into how the policy was prepared and who was involved in the policy-making. The analysis focuses on looking at the effectiveness of a centrally-designed and externally-influenced policy-making process and its implications for the mainstreaming of CBA into the development process.

According to Few et al (2007), major stakeholders need to be included from the earliest stages of climate change policy formulation. The analysis of the process of climate change policy-making in Nepal shows that there were only two agencies actively engaged in drafting the CCP. In relation to the consultation with, and participation of, relevant actors in policy-making, the analysis of the policy documents shows that they were prepared in consultation with only a limited number of stakeholders.

The review of Nepal's CCP shows that the documents were prepared by the Ministry of the Environment with support from the WWF. The policy documents state that the Ministry organised four regional and one national consultation sessions to obtain input from various stakeholders in the policy-making process, which included both government and non-government organisations. However, it was found that the consultations only involved limited government agencies and civil society groups. According to one of the policy-makers, representation in the consultation process was determined by the donor agencies and the Ministry of the Environment, and selection for participation was made in an ad-hoc manner based on hand-picked organisations that were already close to the organising agencies (PRN 5).

Collins and Ison (2009) argues that the participation of citizens, groups, organisations, and businesses has become an essential element in tackling climate change effectively at different levels, including at the local level, because all agencies and groups have a joint responsibility to deal with climate change. Just as in the design of the interim three-year development plan discussed earlier, the design of the CCP was also highly centralised. The findings of this

[15] Legitimacy is defined here as possession or pursuit of right values (Stillman, 1974).

research show that the process of CCP preparation was not accepted by Nepali institutions working on climate change issues because it excluded major actors in the policy-making process. More than 90% of the policy respondents expressed their dissatisfaction with the process of CCP formulation. One policy respondent stated:

> Climate change policymaking was carried out in parallel to the NAPA process. I regard the NAPA process as highly participatory and produced a good policy document. In contrast, the climate change policy was not open and it even did not learn from the NAPA process. This lack of public consultation and engagement again has labeled the climate change policy document as the document of a single agency. I think the policy will have a slim chance of implementation and ownership (PRN 8).

As argued by many of the respondents, the government missed the opportunity to improve the climate change policy-making process based on their past experiences. However, it appears that the government was reluctant to include the public in policy-making and to allocate time for more local and regional consultations. This led to a lack of local and national ownership of the CCP. The literature also shows a number of critical gaps in the CCP, in terms of the exclusion of major stakeholders such as communities in the policy-making process (Helvitas, 2011; Pant and Gautam, 2012).

As argued earlier in this chapter, ownership and inclusion[16] is important to collaborative policymaking. However, in the case of Nepal's CCP, there is a lack of ownership at the national level due to the exclusion of major stakeholders in the policy-making process. The policy-makers were asked about their perceptions of the CCP. Out of 17 individuals interviewed, representing different institutions, one third (6) were completely ignorant of the CCP formulation process. They were also unaware whether there was actually a climate change policy or not. The remaining two-thirds (11) were not very satisfied with the process. The civil society respondents and the INGOs revealed that their role in the policy-making process was not considered, because they perceived that their agencies were not consulted or engaged.

[16] Inclusion is defined as something that results from taking the 'right 'sort of action at different levels of policy-making and implementation (Dyson, 1999).

Some of the respondents felt that the policy-making process followed a centralised approach to policy-making. One of the respondents felt that his/her institution was engaged, but that he/she was not satisfied as the major actors (the community) were not engaged in the process. This shows that the preparation of the CCP was not considered as being positive by the majority of the stakeholders who were interviewed for this thesis, because many of them were not consulted or involved in any way.

The contribution of all major stakeholders is necessary to improve policy processes and outcomes (Mohammed, 2013). The findings of this research show that two-thirds of the respondents at the practitioner level (i.e. 21 out of 28) were either not aware of climate change policy or felt that the policy-making process was exclusionary (Table 9). The practitioners felt that the major stakeholders were not engaged at any stage of the policy-making process. It was revealed that the political parties were also not consulted during the policy process. One policy respondent representing Constitution Assembly members said:

> We are totally out of knowledge about climate change policy. It is very surprising to hear that government has endorsed climate change policy and did not even share with the political parties and constitution assembly members like me. So we do not own this document. I think implementation of climate change policy will have serious issues and implications (PRN 7).

Table 9. Perception of respondents about the Climate Change Policy process

Category of Perception	Policymakers Response		Practitioners Response	
	Satisfied	Not satisfied	Satisfied	Not satisfied
Public consultation including communities (Awareness of policy)	1	16	0	28
Engagement of wider range of stakeholders in the design process	5	12	2	26
Time allocation for policy formulation	3	14	1	27
Discussion with law-makers and relevant agencies	1	16	0	28

Source: Interviews with policy-makers and practitioners, December 2011 - March 2012

The case of CCP shows manipulation of policy agenda by central level actors for their own interests. The policy document shows that the focus of climate change policy is more inclined

to climate resilient development with relatively less emphasis given to climate change adaptation. More than 40% of the policy respondents also share that the agenda is driven by the interests of those actors who are involved in formulating it as they intend to match the policy document with their institution mandate and agenda.

Brockhaus and Kambire (2009, p.333) argued that 'if participation is nothing more than consultation, adaptation efforts designed at global, regional, or national level are not informed by local experience and will not have an impact at the local level'. The majority of the policy-makers and practitioners interviewed perceived that the CCP was confined to the Ministry of the Environment and failed to motivate other ministries and civil society to be part of the implementation process. The evidence of policy implementation in Nepal shows that even after 4 to 5 years of policy formulation, the implementation of the CCP remains very slow and frustrating. Pant and Gautam (2013) also found that the CCP has only a slim chance of being put into practice because the government lacks a serious commitment to its implementation.

According to the Arnstein ladder, discussed in Chapter Four, the participation of the public in the policy-making process for the CCP falls into the 'no-participation' category, which involves the manipulation of the policy agenda by central level actors for their own interests. The analysis also concludes that in the absence of local and national ownership of Nepal's CCP, it has less chance of supporting the mainstreaming of CBA into the development process.

5.2.2.2. Analysis of the National Adaptation Programme of Action (NAPA)

This section of the thesis specifically examines the content of the National Adaptation Programme of Action (NAPA) document, and the process adopted for its design. This section builds on the information provided in Chapter Three which introduced the NAPA. In particular, this section reviews the text of the NAPA with a focus on the provisions for the mainstreaming of climate change adaptation into the development process. This section analyses the engagement and participation of relevant actors and institutions in the NAPA design process.

Content of the NAPA on the mainstreaming of climate change adaptation

> The specific interface between these national development goals and the six thematic areas identified under the NAPA process is taking into consideration the overarching goals of poverty reduction and the Millennium Development Goals as reflected in the previous periodic plans (MoE 2010, p.4).

As mentioned above, the NAPA set out to link climate change adaptation with broader development goals. The analysis shows that the NAPA stressed the importance of building synergies with the development sectors. The NAPA guidelines state that the NAPAs are a means to prioritise urgent and immediate adaptation actions. The document also highlights the importance of mainstreaming. The NAPA envisions that 'mainstreaming climate change into the national development agenda will contribute to poverty reduction, livelihood diversification, and building community resilience' (MoE 2010, p.7). The text search query, carried out using NVivo software, demonstrates that the NAPA document mentions mainstreaming 11 times in the entire document. Meanwhile mainstreaming of climate change is mentioned six times in the document with a focus on mainstreaming into the national development process.

Unlike Nepal's CCP analysed earlier, the NAPA clearly sets out strategies to link climate adaptation with development. The document includes a section entitled 'national development planning as a framework for climate adaptation' (MoE, 2010, p.3). This section discusses Nepal's development planning process and its responses to climate change issues. The section also shows the linkages between the NAPA framework and the national development goals. The table within the NAPA document, in section 1.2 page 4 of NAPA document, further discusses the specific interface between the national development goals and the six thematic areas identified in the NAPA project (MoE 2010, p.4).

It is recognised within Nepal's NAPA that an isolated approach to the formulation of the NAPA will not result in a rapid and well-coordinated follow-up after the process is over (MoE 2010, p.5). This coordinated focus within the NAPA is a reflection of the importance of the programme for establishing linkages between adaptation and development. The NAPA includes the majority of the development themes in the identification of adaptation priorities and action plans. The document states that the specific interface between these

national development goals and the major thematic areas identified within the NAPA process focuses on the overarching goal of poverty reduction and the Millennium Development Goals, as reflected in previous periodic plans (MoE 2010, p.4).

The NAPA document clearly reflects the integrated nature of the climate change response at the national level. The document includes a detailed assessment of the impacts of climate change across the six thematic sectors: Agriculture and Food Security; Forests and Biodiversity; Water Resources and Energy; Climate-Induced Disasters; Public Health; and Urban Settlements and Infrastructure. Based on this assessment, priority adaptation activities were proposed for each of the sectors (MoE, 2010). According to the majority of the policy-makers, this ensures a well-coordinated and integrated response to climate change and development.

The NAPA policy document also recognises the importance of linking local adaptation needs with national level policies and plans. Section 3.1.3 includes the details of the local adaptation plans and how the implementation of these would contribute to policy refinement and formulation (MoE, 2010, p.17). Section 3.7 includes a framework for the implementation of the NAPA. The framework clearly stresses the importance of linking local government and communities with national level policies and plans. The framework also clearly states that at least 80% of the available financial resources for adaptation should reach the local level for the funding of on-the-ground adaptation activities.

The criteria used to identify urgent and immediate adaptation priorities within the NAPA document include: a) whether or not the activity or programme contributes to poverty reduction and livelihood improvement; and b) whether or not the activity or programme is in line with the national plan, policies, and strategies (MoE 2010, p.22). Furthermore, the vulnerability mapping carried out under the NAPA used the Human Development Index (HDI) as one of the major criteria to identify vulnerable areas and communities. The NAPA document, according to one of the policymakers, identified the socio-economic indicators to determine which sector, geographic region, or communities, are most impacted by climate change (PRN 5).

The literature also argues that Nepal's NAPA has a specific focus on the mainstreaming of climate change adaptation into the development process. For example, Ayers (2011), Roberts

(2011), and Helvitas (2011) mention that Nepal's NAPA is very specific about mainstreaming, as it emphasises the linking of climate change adaptation with development, and in particular, addresses the needs of vulnerable households. Roberts (2011, p.31) also suggests that Nepal's NAPA has been successful for designing programmes to address vulnerability, and also has a significant potential to reduce poverty.

The NAPA approach, according to the discussion in Chapter Two, recognises vulnerability as the first approach in the mainstreaming of climate change adaptation by taking at-risk populations into account. This approach provides useful connections to ensure functional linkages and working collaborations between climate change and development, because it shows that the impact of climate change will worsen if poverty and exclusion levels in society increase. A vulnerability-based view of adaptation, as discussed in Chapter Two, gives rise to a more holistic approach, in addition to climate-proofing, in which development efforts are deliberately aimed at reducing vulnerability by including priorities that are essential for successful adaptation, such as income generation and livelihood activities oriented towards poor households (Klein 2010; Ayers and Dodman 2010).

Ayers (2011) also reveals that the NAPA adopted greater flexibility in terms of providing various spaces for stakeholder participation and a vulnerability-based approach to defining climate change risk in Nepal, which enabled the outputs of local deliberations to be meaningful to the climate change policy-making process. According to the literature discussed in Chapter Two, the vulnerability-focused approach, as seen in the NAPA, is relevant because it considers the significance of national policies and programmes to deal with climate changes issues at the local level and primarily in relation to vulnerable households.

As argued in the earlier section on the analysis of the development policies (Chapter Three), the decentralisation and devolution of power to local authorities and agencies is important for the mainstreaming of climate change adaptation needs into development policies and plans (Agrawal et al., 2012). The main elements of decentralisation, which focus on the engagement of local stakeholders, can be observed in the NAPA document. The document recognises the role of local communities and institutions in the planning and implementation of climate change priorities. The document also includes provisions for the

flow of 80% of the available financial resources to the grassroots level to support the adaptation needs of vulnerable households and communities (MoE, 2010).

As discussed in Chapter Two, mainstreaming needs to be built on the existing successes of the development sector in order to avoid duplication and to promote synergies. The NAPA document has clearly stated that it builds on good development practice and successes in terms of reaching disadvantaged communities. The activities proposed in the nine priority adaptation activities aimed at reducing climate risk and vulnerability at the local level, as listed in the NAPA document, were largely based on the good practices of the thematic sectors. For example, community-based approaches, which have been successful in the forestry and agricultural sectors, were included as a means of implementing adaptation priorities in these thematic sectors. According to one of the policy-makers:

> The success stories, mostly referred to in the NAPA, are the specific policy provisions within the development sectors (forestry, agriculture, health) for decentralising the service delivery system to the local level and encouraging local institutions take the lead in delivery. Furthermore, the NAPA document clearly mentions different approaches that are relevant for effective adaptation at the local level. This includes the community's adaptive capacity through livelihood support, improved governance, collective responses, improved service delivery mechanisms, and access to technology and finance. In my opinion, these strategic focuses, within the NAPA, strongly suggest the thrust of it to establish strong linkages between climate change adaptation and development (Focus Group Discussion with Policy-Makers).

Despite clear provisions for, and specific elements of, mainstreaming within Nepal's NAPA, there are a number of tradeoffs in terms of identified priorities, but mostly in the implementation process. There are some common issues of the NAPA that have been prepared in other Least Developed Countries, such as Bangladesh, Bhutan, and the Maldives. The NAPA is considered to be a short-term project approach and is thus limited to specific geographical spaces and communities, as well as times and duration. The adaptation needs of vulnerable households and communities are complex and require both short-term and long-term responses. There were also issues associated with the implementation of the NAPA priorities. The implementation of Nepal's NAPA was delayed due to the lack of clear

governance of the financial structure and mechanism. According to Pant and Gautam (2013), besides governance, inadequate financial, technological, and human resources were also critical problems in the implementation of Nepal's NAPA.

In addition, the sector inclination of Nepal's NAPA, for example, the focus on specific development sectors (such as forestry, agriculture) of climate change adaptation response was also a major barrier to the harmonisation of the policy responses at the local and national levels. The limitations of the NAPA were also documented elsewhere. Of the more than 390 NAPA priority projects identified in the 41 completed NAPA reports, 90% addressed sectoral and 10% cross-sectoral adaptation needs (MoFAD, 2009). Nepal's NAPA is not an exception here. Despite a number of positive elements of the NAPA process in Nepal, the priorities in Nepal's NAPA took more of a sectoral approach, rather than an integrated one. This sectoral approach, according to one of the policy-makers, is a barrier to bringing different sectors together and to developing integrated climate change responses at the local and national levels (PRN 5).

In summary, from the analysis of the NAPA documents, it was found that Nepal's NAPA has learned lessons from other Least Developed Countries and has overcome some of the issues related to integration and the building of national ownership. The NAPA successfully identified the successes of past development policies and attempted to harmonise climate change adaptation with other policies. The link between climate change adaptation and poverty reduction was well-established in Nepal's NAPA. As discussed in Chapter Two, the clear focus of mainstreaming and the cross-sectoral linkages provided genuine opportunities for future entry points for the up-scaling of community-based adaptation in Nepal.

Process in NAPA policy-making

This section analyses the process adopted in the preparation of the NAPA. As argued in the earlier section, this section also provides evidence to demonstrate that the participation of a wide range of stakeholders in policy-making is important for ensuring the successful reflection of the agenda of the different interest groups and communities in the policy. As discussed earlier, this chapter argues that a broader involvement in policy-making is likely to

lead to more people having a sense of ownership of the policy, particularly in relation to implementation.

The NAPA framework at the international level has acknowledged the importance of participation, stating:

> Participation of men and women at the grassroots level in planning and implementation is essential for two reasons: First, they will be able to provide information on current coping strategies that the NAPA seeks to enhance. Second, they will be most affected by climatic impacts and hence will benefit most from actions prioritised in the NAPA (LEG, 2002 as cited by Ayers, 2011).

Researchers argue that Nepal's NAPA is highly participatory and inclusive (Ayers 2011; Bird 2011; Helvitas 2011; Roberts 2011). Watts (2012) also found that the NAPA was effective because it incorporated a wide consultation process, has strong government ownership, and was able to use lessons learned from other countries. Furthermore, Oxfam (2011) reveals that Nepal's NAPA adopted a bottom-up consultation process and included a multi-sectoral and multi-disciplinary team in the preparation phase. Ayers' (2011, p.4) comparative analysis of the NAPA in Nepal and Bangladesh suggests that:

> Nepal took a more inclusive approach to the NAPA preparation than Bangladesh; and that this was a result of the choices around how to 'do inclusiveness' that were in turn influenced by the historical and political contexts within which these decisions were made.

The review of the NAPA process in this research supports the findings in the literature and further shows that a wide range of stakeholders were involved. As discussed in Chapter Three, a total of 80 institutions were directly engaged in the preparation process, with overall input from more than 300 institutions. The NAPA preparation process was guided by thematic concept of focusing on broader development agenda and multi-stakeholder engagement. The thematic concept was proposed in order to best utilise existing sectoral development experiences and expertise (MoE 2010, p.7). It was evident from the discussion that the NAPA development process included a diverse group of institutions, such as the

government, donors, I/NGOs, academic and research institutions and networks, and the private sector (Table 10). The figure described earlier in table 10 indicates that a wide range of stakeholders was engaged in the NAPA preparation process.

The findings show that the NAPA adopted an inclusive approach to the engagement of multiple stakeholders in the preparation process, because it tried to link local level actors with national level policy-makers. It was found that the NAPA formed different sectoral thematic working groups led by the government sectoral ministries and with representation of a wide range of stakeholders, and in some cases, community members. As discussed in Chapter Three, altogether there were seven thematic groups formed during the preparation of the NAPA which engaged the concerned ministries and actors in the prioritisation of climate change adaptation within each sector. One policy-maker involved in the NAPA highlighted this process:

> The working group on agriculture and biodiversity included representatives from the ministry, development partners, international and national NGOs, academic institutions, and community members. The work of the Thematic Working Groups (TWGs) was supported by a wider reference group that consisted of experts, organisations and individuals from the field. Consultation on the document involved public and grass-roots level organisations, including policy-makers. We are happy about the process and end result of the NAPA (PRN 1).

A large number of individuals and institutions contributed to the NAPA process. More than 300 national and international agencies and 3,000 people were involved in the drafting of the NAPA (Table 10). According to the Ministry that led the process, sufficient time and resources were provided to the thematic working groups to carry out the stocktaking exercise, field visits, necessary consultations, and the policy reviews. The process for engaging the different stakeholders and initiating the consultation process enriched the level of understanding and trust among the involved stakeholders.

Table 10. The consultation process adopted in the preparation of the National Adaptation Programme of Action in Nepal

Policy	Number of national and regional level consultations	Number of local level consultations	Lead agencies in the NAPA preparation	Number of involved institutions
NAPA	3 regional and 7 national level consultations; and more than 6 informal consultations	23 districts were covered during transect exercise[17] exercises with more than 12 direct community consultations	Ministry of the Environment and 6 Thematic Working Groups (forestry, agriculture, infrastructure, health, disaster, urban)	80 NGOs, the private sector, academic institutions, the government, and NGOs

Source: MoE, 2010

As mentioned earlier, the multi-stakeholder approach to the design of the NAPA contributed to enhancing the greater participation of stakeholders during the design process. The findings suggest that the participatory exercises of engaging the working group members in the transect exercise were intensive and were enacted in order to link the policy-makers with local level actors, because it allowed close interaction between them. During the transect exercises, the majority of the central level actors had opportunities to interact with the various communities and local stakeholders in order to listen to their views. The majority of the policy respondents said:

> The participatory approaches of engaging different set of actors in the NAPA provided a good opportunity for policy-makers like me to get out of Kathmandu and meet with the local stakeholders and particularly the farming households. We, as policymakers, had this opportunity of really understanding what climate change impact means for the communities. The communities also had a chance to provide input in the policy-making by sharing their experiences and even recommending the policy measures (Focus Group Discussion with Policy-Makers).

[17] Transect exercise refers to an information-gathering exercise which involves participants to identify the transect-line routes and to walk through the route involving key local informants.

The literature documented similar findings related to the success of the NAPA process in Nepal. As previously pointed out by Ayers (2011), the approach taken in the NAPA was inclusive and participatory. The transect exercise and the shared learning dialogue approach adopted for the transect exercises resulted in more democratic outcomes, because more people were able to be included in the consultation exercises, and participation biases were reduced due to the more numerous and smaller-scale informal consultation meetings (Ayers 2011, pp.188-189). These smaller informal meetings were useful for gaining insight into, and input from, the various interest groups and stakeholders on the policy.

The analysis shows that the involvement of multiple stakeholders is a worthwhile effort as it helps to ensure a comprehensive document and greater ownership at the national level. The outcomes of this sense of ownership are reflected in the integration of the NAPA priorities into the national development plans, such as the Second Interim Plan (2010-2013) and the Agriculture Development Strategy (2013). The leadership of the government within the thematic working groups, according to Ayers (2011, p.173) increased both the national capacity and government "buy-in" of the NAPA process. A Climate Change Council member who was interviewed stated that the NAPA process generated important lessons and a way forward for an integrated approach to national planning (PRN 8). This implies that involving multiple agencies is one of the reasons for the success of the NAPA, as it facilitated national ownership and downward accountability. The respondents from the Ministry of Agriculture and Cooperatives stated that:

> The NAPA combined the expertise and experiences of the government and the non-government sector. In this sense, I consider it as a unique policy-making process. It was the first ever attempt to engage such a large number of stakeholders in the policy design process. The collaboration and networking that happened during the design of the NAPA led to greater harmony and synergy among sectors and stakeholders (PRN 4).

The responses, presented above, imply that the role of diverse sectors and stakeholders in climate change policy-making is crucial to addressing the cross-cutting nature of the issues and for obtaining diverse perspectives to be represented within the policy and the programmes. Ownership of the NAPA process among stakeholders also looks promising. Experiences of public participation in environmental policy-making also show that

participation in the development of public policies increases stakeholder ownership of the process and leads to a high degree of compliance (Brayner, 2001).

Despite the success of the wider participation of stakeholders in the NAPA process, the majority of the practitioners argued that the NAPA was acknowledged at the central level, but that it lacked local level ownership because the NAPA process was not fully inclusive and participatory. There were consultations at the local level, but these were limited to only a few events which were conducted in only a few geographical areas. For example, the transect exercise and the regional consultations were limited to five geographical regions and the regional headquarters. Issues of exclusion were also reported by Bishwokarma and Sharma (2011) who points out the legitimacy of NGO representation in the NAPA process in the name of civil society organisations, arguing that local NGOs and community-based organisations were not engaged. This implies that a top-down policy-making process, such as the NAPA, although attempting to include a wide range of stakeholders, failed to involve citizens in the policy-making process.

The evidence presented in this section argues that the NAPA process was more or less guided by the multi-stakeholder team, adapted participatory consultation mechanisms, and was supported by national level ownership. The analysis further argues that the process of engaging different sectors and stakeholders, and providing them with meaningful spaces for consultation, is an important part of policy mainstreaming as it widens the policy lens and supports the spirit of integration and policy harmony. The NAPA case also demonstrates that even with top-down policy-making, there is scope to build on the participatory process, which is important because this will help to reduce the gap between the central level policies and local level needs. However, the evidence shows that there is a need to reform the existing top-down policy-making process to make it more inclusive in order to allow the real beneficiaries and the citizens to have a role in decision-making.

5.2.2.3. Analysis of the Local Adaptation Plan of Action (LAPA)

In this section, the framework for the Local Adaptation Plan of Action (LAPA) is analysed. A detailed description of the LAPA is provided in Chapter Three. This chapter specifically examines the LAPA framework and analyses its content in relation to the policy focus of the

mainstreaming of CBA into the development process. The process of the LAPA framework development is reviewed to obtain insights into the participation of relevant actors and their levels of ownership of the framework.

Content of the LAPA

The literature suggests that the content of the LAPA framework is relevant for strengthening adaptation practices at the local level, and to address the gaps in current development planning. Tiwari et al (2014) argues that the LAPA process provides opportunities to assess site-specific climate vulnerabilities, identify adaptation options, and implement urgent and immediate adaptation actions with the participation of local communities and households. In addition Huq and Reid (2014) argue that the LAPA process is more focused on the local level and is highly community-centric. It links local adaptation practices with national policies and plans because it embeds community level adaptation planning into the development planning process at the VDC level. It is further argued that the LAPA addresses the current gaps in planning and delivery which can bring climate change adaptation and development together.

The analysis of the LAPA framework in this research shows that it places greater emphasis on building linkages between local level community needs and national level policies and programmes. The objective of the LAPA, as stated in the official document, is to ensure that the process of integrating climate change resilience from local-to-national planning is bottom-up, inclusive, responsive, and flexible (MoE 2011c, p.5). In addition, the analysis in this study shows that the LAPA was designed to effectively implement the CCP and the National Adaptation Programme of Action (NAPA). The framework, as expressed in the text, presents a clearly stated link between the LAPA and the national climate change policies. Furthermore, the framework mentions that the LAPA is a bottom-up approach that supports decentralised adaptation planning and addresses issues around implementation by overcoming the barriers to targeting and reaching the most vulnerable areas and communities (MoE, 2011c).

The findings show that there are specific elements of the mainstreaming of CCA into the development process that are reflected in the LAPA framework. The impact of climate change on socio-economic development is discussed in the introductory section of the framework in order to establish the linkages between climate change and development. The

framework recognises that climate change vulnerability is context-specific and varies from place to place; it also recognises the need to mainstream local adaptation priorities within local development planning and processes (MoE 2011c, p.5). This appreciation of the framework to link adaptation to the local planning process is a strategic entry point for the mainstreaming of climate change adaptation into the development process. One policy-maker respondent from the Ministry of the Environment said:

> The LAPA framework is one of the unique policy documents that provide a strong basis for recognising local level vulnerabilities and dealing with the specific needs of vulnerable households. The framework has recognised that poverty reduction and climate change adaptation has to go hand-in-hand, so that the intervention produces good results. I think the LAPA is now the guiding document that can bring development and the climate change sector together at the local level (PRN 1).

The LAPA framework is different to the other policies analysed earlier, because it is based on the principle of decentralisation that focuses on working with local agencies and communities. It outlines a strategy to delegate power and authority to local institutions for promoting climate change adaptation. The LAPA framework was based on *bottom-up, inclusive, responsive, and flexible* principles in order to capture the scale and magnitude of climate change adaptation. The framework outlines the processes required to achieve mainstreaming. One of the key processes involves the integration and mainstreaming of local level adaptation priorities into local, regional, and national development plans, and adopting the spirit of decentralisation (MoE 2011c, p.4).

The framework also provides clear guidelines on how to mainstream climate change into the government planning process and structure. As the CCP and the NAPA represent national priorities and goals, the LAPA, on the other hand, provides guidelines for the implementation of climate change adaptation into practice. Table 11 below shows that the LAPA framework clearly indicates how climate change adaptation can be integrated and implemented in Nepal. Some of the policy-makers interviewed argued that the LAPA framework recognises the existing government structure and governance mechanism as being suitable for the up-scaling of climate change adaptation because it places the emphasis on mainstreaming within the current local and regional development planning of the government.

The LAPA framework addresses the issues of how climate change can be practically integrated into the development process. Mainstreaming, within the LAPA framework, seems to be guided by a step-wise procedure to influence the development plans and policies. The procedure laid out in the LAPA framework shows that it adopts the government's decentralised planning process. The framework outlines seven key steps to executing the LAPA. The fifth step outlined in the framework is 'the integration of the LAPA into the planning process. The background description of this step highlights that it is 'effective in promoting adaptation by integrating it into the local, regional, and national level development planning process and within existing government mechanisms' (MoE 2011c, p.11). For example, the background description mentions the steps for having collective discussions among the major stakeholders to identify the entry points for integration and mainstreaming. The findings show that mainstreaming, as advocated within the LAPA document, is based on the premise that it has to be built on the existing system of practices such as the planning process. By doing so, this will help with the smooth integration of climate change into the development plans, which is significant, because it will also help to build synergies and avoid duplication within the policies.

Unlike the CCP and the NAPA discussed earlier, the LAPA framework provides a clear roadmap for the sustainability of climate change adaptation at the local level. For example, the framework has clear provisions to include climate change adaptation within the government structure. The implementation section of the framework also outlines a need to create operational mechanisms and structures to ensure both vertical and horizontal integration and internalisation of climate change adaptation (MoE 2011c, p.12). Finally, the monitoring section also gives due recognition to the involvement of various institutions in the process (MoE, 2011c, p.13). The recognition of local institutions in adaptation planning, according to the majority of the policy-makers, is important to facilitate the implementation of priority adaptation interventions at the local level and to sustain local and national level responses.

The majority of the policy respondents interviewed also believed that the LAPA framework is a long-term visionary policy document. More than 70% of the respondents (13) from the policy-makers group felt that the LAPA framework is a good means through which to develop an integrated climate and development response. The majority of the policy-makers interviewed argued that the LAPA could bring different agencies together and promote

integrated climate change and development. The majority of the participants from the focus group discussion said:

> The most important element of the LAPA is that it is long-term and sets a clear strategy for integrating local level needs with national level priorities. At the local level, we need a strategy like the LAPA that can bring different sectors together in order to avoid duplication and to promote synergies among different institutions. We think the LAPA can offer the opportunity to bring different agencies together and to ensure collective action (Focus Group Discussion with Policy-Makers).

Table 11. The integration and implementation of climate change adaptation envisioned in the LAPA framework.

Provisions for mainstreaming within the LAPA	
Process of integrating climate change adaptation into development plans	Process of implementing adaptation priorities
- Consolidate the village and ward level climate change adaptation plans into the VDC and municipality development plans - Identify and use the entry points with the local development planning process for integrating climate change adaptation priorities - Sequence the prioritised adaptation activities within local development plans - Present the adaptation plans to the local government authorities and endorse them - Create an enabling environment to mainstream local level adaptation plans into the national level planning process and provide regular feedback to central level agencies on the lessons learned from implementation	- Implement the adaptation plans involving relevant stakeholders - Develop appropriate institutional and communication mechanisms to enhance role clarity and better collaboration and coordination among stakeholders - Develop monitoring indicators and identify clear role of stakeholders in implementation of adaptation priorities - Adapt more flexible and output-oriented approaches to address the changing context and modify the implementation procedure to suit the financial budgeting - Seek support from capable service providers to enhance knowledge and capacity of climate change adaptation

Source: MoE 2011, pp.11-13.

As discussed in Chapter Two, the roles and responsibilities of local actors and stakeholders become important in mainstreaming, because they can help in utilising the different capacities of the stakeholders. Various authors have recognised the role of local institutions

as being positioned between resource users and resource deliverers, and suggest the need to facilitate deliberation between national adaptation planners and local beneficiaries of adaptation interventions (Agrawal 2010; Ayers 2011). The analysis in this research argues that the LAPA framework recognises the roles of multiple agencies and institutions, including local actors, in the implementation of adaptation policies and plans.

Without the involvement of decentralised institutions, local development planning, and the use of participatory approaches, policy implementation is not likely to be successful (Kok and Metz, 2008). The policy-maker respondents interviewed in this research argued that the LAPA is an important framework for the facilitation of mainstreaming because it recognises local institutions and their roles in adaptation. This is important, as it links the bottom-up processes with the national level plan and policies. One respondent from the National Planning Commission also said that the LAPA is a strategic document that can help the development planning process to have a greater focus on the local level (PRN 8). This view implies that the LAPA is the correct framework for empowering community-based institutions to take key roles in the promotion of climate change adaptation.

An important element of the LAPA framework is its focus on vulnerable households and communities. The approach of the LAPA, as discussed in Chapter Two, is vulnerability and adaptive capacity-focused as it emphasises the building of the capacity of vulnerable populations and is a significant element in bringing climate change and development together. According to the majority of the policy-makers (n=15) and practitioners (n=22), the LAPA offers great opportunities for the Government of Nepal and other stakeholders to implement programmes directly targeting climate-vulnerable communities. The communities represented in the focus group discussions also argued that policy provisions that recognise their status as beneficiaries have a positive impact on building their capacity to adapt to the changing climate.

The findings imply that the LAPA framework shows promise for the mainstreaming of CBA in Nepal as opposed to other policies, such as the CCP, the NAPA, and the three-year interim plan. The LAPA framework could create a supportive environment for the Government of Nepal to put more effort into implementing the LAPA framework, and primarily, for addressing the risks and vulnerability of households and communities in Nepal. According to Roberts (2011, p.31), the LAPA offers the best hope for reducing vulnerability on the ground

by linking a top-down policy document with a bottom-up approach, thereby addressing the lack of an implementation phase as occurred in the NAPAs.

Other research carried out in Nepal also supports the argument that the LAPA framework has the potential to up-scale community-based adaptation. Oxfam (2011, p.25) mentions that the LAPA programme is 'one of the most significant to up-scale community-based approaches and to integrate top-down and bottom-up approaches to the mainstreaming of climate change into development planning in Nepal'. A review of climate change policy, carried out by Helvitas (2011, p.16), states that 'the existing draft LAPA framework promises to be more inclusive, comprehensive and, more importantly, community-centric'. Fenton et al (2014) argue that the Nepalese LAPA framework is an example of the integration of bottom-up and top-down approaches to adaptation, demonstrating how financial flows for adaptation can be channeled to the grassroots level.

In contrast to the positive aspects of the LAPA discussed above, the current LAPA framework is ambitious in the context of the current political and socio-economic context of Nepal. The framework identifies the local government unit as the appropriate institutional mechanism responsible for the implementation of climate change adaptation programmes but that these are without supporting structures and mechanisms. As argued in Chapter Three, it is challenging for local government to implement policies and frameworks, such as the LAPA, because the central government is yet to present a clear roadmap for the devolution of power and authority to enable local actors to manage climate change adaptation. According to the policy-makers interviewed, the political unrest and uncertainties in the drafting of the constitution, and the fate of federalism, are some of the constraining factors. Watts (2012, p.3), in his case study report, also revealed that:

> Decentralised governance is both a challenge and an opportunity for the LAPA. It is a challenge because of the difficulties in reaching out to historically marginalised communities and in coordinating decision-making bodies and structures for integrating the LAPAs into the overall local development planning system.

There are other administrative challenges to effectively implementing the LAPA framework. As argued in Chapter Three, the existing structure of government lacks sufficient capacity,

human resources, and a knowledge-base on climate change. The local political structure operates in a vacuum due to the lack of elected bodies and representatives over the last 15 years. This has happened due to the ongoing political conflicts and the Maoist insurgency. As a result, there is enormous pressure and huge workloads for the limited amount of staff at the local government level. Dhungel (2011) also found that the current capacity and institutional arrangements for decision-making are not favorable for the effective implementation of decentralised policies. The findings show that it is not feasible in the current context for local government to be solely responsible for climate change adaptation programmes.

One of the procedural constraints of the LAPA is that it does not specifically take into consideration the local vulnerability context. The LAPA framework treats local and vulnerable communities as homogeneous which means that there is little difference in terms of vulnerability among households and communities. This treatment of households and communities as being homogeneous in fact overlooks the structural power relations within society and how this impacts upon poor people's access to resources. In the rural context, there are socio-economic, cultural, household, gender, ethnic, and geographical differences that need to be considered. Ignoring these power-related structural differences will have a negative impact on access to, and the benefits arising from the sharing of, adaptation resources.

Another loophole in the framework is that it assumes that local government leadership on climate change can smoothly facilitate the mainstreaming of CBA. However, based on the experiences of Nepal's development sectors, as discussed in Chapter Three, a sole focus on local government does not guarantee that local communities, and particularly the vulnerable, will have access to the resources. This implies that there should be an inclusive mechanism that allows multiple local stakeholders, including poor and vulnerable households, to play a major role in decision-making.

Despite some challenges, the findings in this section provide a strong basis and evidence to claim that provisions to link local adaptation with the national plan and policies, as included within the LAPA framework, are relevant to the mainstreaming of CBA into the development process. The evidence shows that the LAPA framework provides opportunities and scope for the mobilisation of local communities and stakeholders to take a lead in adaptation. In fact, the LAPA framework provides a number of mechanisms to enable the mainstreaming of

climate change adaptation at the operational level, through recognising the linkages between bottom-up plans and top-down policies and support.

The process of the development of the LAPA framework

The previous section has demonstrated that the mainstreaming of climate change adaptation into the development plan and policies is specifically reflected in the LAPA framework. The analysis shows that there are specific provisions for the mainstreaming of CBA into the LAPA framework, more than in other documents and policies. This reflection of the mainstreaming agenda in the LAPA is due to the outcomes of the bottom-up process it adopted in the development of the framework. This section reviews the process of the development of the LAPA in order to analyse the relationship between the process and the content of the framework.

Table 12. The consultation process used in the design of the framework for the Local Adaptation Plan of Action (LAPA)

Policy	Number of national and regional level consultations	Number of local level consultations	Lead agencies in preparation of the LAPA	Number of involved institutions
LAPA	Three regional and three national level consultations	Piloted in 10 districts involving local communities and stakeholders	MoE, HTSPE/IIED	Seven national NGOs (RIMS, LIBIRD, ISET, NEWAH, BNMT, RSDC, and Rupantaran)

Source: LAPA framework (MoE, 2011)

The LAPA document states that the framework is the outcome of input from various stakeholders, including from the government and the non-government sectors. The document also mentions the participatory policy-making process adopted in the design of the LAPA. The review of the LAPA framework also shows that the framework was developed based on the experiences gained from the pilot activities carried out by the Ministry of the Environment with support from the DFID and the engagement of local government and selected national level NGOs (Table 12). The document also shows that the process involved an intensive piloting exercise in different parts of Nepal which engaged local government,

NGOs, and various communities. Table 12 below, derived from the LAPA document, shows that, besides the pilot study, the government also organised three regional and three national level consultation sessions to obtain input into the framework.

The findings reveal that the adopted participatory process is reflected within the LAPA framework. The document reveals that the LAPA pilot project mobilised local government structures, such as the Village Development Committees (VDCs) and the District Development Committees (DDCs) to test the tools, approaches, processes, and technologies. The field level evidence also demonstrates that the LAPA process was bottom-up. For example, Rupantaran Nepal, one of the partners in the LAPA piloting, supported communities and local stakeholders in the development of the adaptation plans, and then later, the integration of these within local planning processes (HTSPE, 2011). The policy respondent from the Ministry of Agriculture and Cooperatives emphasised the uniqueness of the LAPA process, stating:

> I think the process of engaging local stakeholders in the design of the framework is unique in the case of policy design in Nepal. It is unique because it was designed jointly by government and Nepal and providing considerable time for piloting and learning lessons. The process was also different from other policy-making because national actors and local institutions led it. The good part of the framework is that it was developed using community input (PRN 4).

The findings show that the amount of time given to the development of the policy framework is significant for ensuring a wide consultative and participatory process. The piloting took more than 18 months to learn and test the different mechanisms. The LAPA document also reveals that the formulation process involved the communities in order to assess climate change issues, identify the adaptation priorities, and suggest the institutional and financial mechanisms for implementation and monitoring. The findings show that the majority of the community groups (10 out of 12) were very satisfied and happy with the LAPA process. They argued that the LAPA adopted an inclusive and participatory process in its design. In the case of the policy-makers and practitioners, more than 70% of the respondents were satisfied with the LAPA process because the communities were directly involved in the development of the framework.

As argued by Robb (2002), participatory policy-making is effective in reflecting the agenda and voice of disadvantaged communities. The involvement of vulnerable households in the policy design process is a significant aspect of the LAPA (MoE, 2011c). The framework shows that the preparation of the LAPA was guided by input from vulnerable populations and local stakeholders, as they were among those who developed the framework (MoE 2011c, p.1). The analysis of the LAPA process in the field study sites for this research, also shows that there were more than 20 community-based organisations and more than 2,000 households involved in the development of the LAPA framework. In addition, a large number of vulnerable households and community groups were consulted with, and engaged, to test the different tools, approaches, and methodologies for the development of the framework.

The community forestry groups who were consulted also shared their positive experiences of the LAPA. According to the majority of the participants, the development of the LAPA involved these groups in the testing of participatory approaches to adaptation planning and prioritisation. They further revealed that different mechanisms for reaching the most vulnerable households and communities were also piloted. For example, the Participatory Well-Being Ranking (PWBR) system was used as a mechanism to identify poor and vulnerable households in order to target adaptation interventions at the local level. This process was significant to focus the study on the most vulnerable households and communities (Focus Group Discussions with Communities - FGDC 1 & 2, January 2012). The literature argues that the LAPA development process was highly intensive, participatory, and bottom-up, because it used grassroots approaches and valued community leadership in the adaptation policy design (Watts 2011).

Due to the bottom-up approach taken in the LAPA, compared to the NAPA and the CCP, the communities who were involved in the process felt that it increased their sense of ownership and satisfaction with the process. The civil society organisations who participated in the national brainstorming workshop appreciated the LAPA process and stated that it is a unique process which put communities at the centre of policy-making. The panelists from the Ministry of the Environment, the Ministry of Local Development, and a representative from an international organisation added that the decentralised and bottom-up process adopted in the design of the LAPA was highly valuable and significant in bridging the gap in policy-making and engaging the real beneficiaries in the policy-making process (Outcomes of national level workshop, 6th March).

The significance of involving the community in policy-making can be observed in the text of the LAPA policy. The policy text, as discussed in an earlier section, has a greater focus on dealing with local level issues, and mostly, in empowering local institutions and communities. According to the majority of the practitioners, the LAPA clearly provides an implementation framework to address climate change priorities through the active participation of local and national level actors. The community participants in one of the focus group discussions stated:

> We think now that communities can also be part of the policy-making process. The LAPA framework is the example where local communities like us were involved in discussing what should be the strategies at the local level for implementing climate change adaptation. Our input is valued now by the central government in policy-making. This approach, in fact, encourages us to collaborate with local government and other agencies to deal with climate change and other development issues (Focus Group Discussion with Communities in Bangesaal VDC, 4 January 2012).

In summary, the analysis of the LAPA process provides a strong rationale for the adoption of a community-centric public policy-making process, and how community-based adaptation policies should be designed. The analysis concludes that if the policy-making process engages a diverse range of stakeholders, over a considerable amount of time and through a combined top-down and bottom-up participatory process and an institutional collaborative mechanism, it increases both local and national ownership of the policy. This participatory policy-making process, promoted in the LAPA, is significant in order to bridge the gap between central level policies and local level needs.

5.3. Conclusion

This chapter has explored the scope of, and the potential to, mainstream CBA into the development process by examining Nepal's climate change and development policies and plans. The findings in this chapter reveal that development and sectoral policies in Nepal need to be revisited in the context of climate change adaptation. Although there are some decentralised policies of relevance, the findings also suggest that policies that favor

decentralisation only, are not sufficient to mainstream CBA into the development process, because decision-making is still controlled and influenced by the centre and mostly controlled by very few institutions and individuals at the local level. These findings show that in order to effectively integrate CBA into the development process, there is a need to have an integrated and overarching policy that is based on inclusive devolution. Inclusive devolution[18] is needed because it builds local ownership of policy implementation, addresses power imbalances, and ensures equitable benefit-sharing at the local level.

This chapter has also examined the policy-making process of Nepal's development and climate change policies. The analysis showed that the policy-making process was centralised and limited to a few agencies at the centre, as in the case of the development and climate change policies, and lacked local and national level ownership of the policies. On the other hand, the policies which adopted the wider consultation of stakeholders, as in the case of the LAPA and the NAPA, showed greater ownership and recognition at the local and national levels. However, the active involvement of citizens in policy-making was lacking in all the Nepalese policies that were analysed in this study.

The analysis therefore supports the argument made at the beginning of this chapter that an inclusive and citizen-centric policy-making process is crucial for the mainstreaming of CBA into the development process. It is evident that policy making process should combine both top down and bottom up approaches and adopt participatory, inclusive, community centric and multi-stakeholder focused principle. Since people in Nepal are more interested in civic democracy and localised participation, inclusive policy making process will have deep influence on them and along with government they can jointly find ways of mainstreaming CBA in development.

This chapter also shows that in order to understand the complete picture of the mainstreaming of climate change adaptation into the development process, only understanding the policy is not enough; the practices associated with the policies should also be analysed. To date, the literature, as discussed in Chapter Two, has outlined the constraints to the mainstreaming of

[18]'An inclusive approach to devolution accommodates diverse kinds of overlapping claims made by multiple actors. The key elements of inclusive devolution are proprietary but not ownership rights granted to individual users and nested governance relations involving state and customary actors' (Thomas, S. and Thanh TN.2007}.

climate change adaptation from a policy perspective only, whereas the following chapter offers an understanding of mainstreaming from an operational perspective. Knowledge of the practices of policy implementation is crucial in order to understand the links between policy and practice in the mainstreaming of CBA.

6 CHAPTER SIX: THE MAINSTREAMING OF COMMUNITY BASED ADAPTATION IN PRACTICE

The previous chapter looked at the policy aspects of the mainstreaming of Community-Based Adaptation (CBA) into the development process. Chapter Five revealed that in order to understand the complete picture of the mainstreaming of CBA into the development process, an understanding of only the policy is not enough; the practices associated with the policies also need to be analysed. An understanding of the practices of policy implementation is crucial in order to examine the links between policy and practice. This chapter examines how climate change adaptation is actually mainstreamed in Nepal.

The main objective of this chapter is to understand about whether or not the existing mainstreaming approaches and mechanisms support the up-scaling of CBA in Nepal. As discussed in Chapter Three, The Poverty Environment Initiatives (PEI) and the Local Adaptation Plan of Action (LAPA) were analysed to understand the practice of the mainstreaming of climate change adaptation in Nepal.

This chapter argues that the successful mainstreaming of climate change adaptation into local development processes depends on a number of enabling governance conditions which include: a) integrated and locally-accountable governance mechanisms that integrate top-down and bottom-up approaches to planning and implementation; b) a multi-stakeholder approach to decision-making and resource mobilisation; and c) enhanced knowledge, capacity, and technology in climate change adaptation at the local level.

The literature supports the argument made in the previous paragraph. For example, Adhikari and Taylor (2012) argue that the ability to undertake adaptation at the local level is influenced by access to, and the availability of, information, technology, and financial resources. In order to overcome the technological and financial barriers to mainstreaming, the research shows that the local and national authorities need to adopt a collaborative approach in which local and national actors are seen as legitimate decision-making agents (Tearfund 2006; OECD 2009; Wiggins 2011). Mitchell et al (2010) argue that making the case for

mainstreaming is not simply about re-thinking the way we work, it also demands changes to our operating structures, the institutional structure, and the financial resource mobilisation channels, including the policies. In addition, Agrawal (2008, pp.3-5) argues that the multi-faceted nature of climate change demands institutional innovation and learning to forge partnerships and collaboration among diverse actors and agencies.

The advantage of a multi-stakeholder approach to climate change mainstreaming is also highlighted based on experiences elsewhere. Overcoming the principal challenges for achieving successful cross-sectoral adaptation to climate change will require a concerted, continuous, and integrated effort (Serrao et al., 2014). Ridder, et al (2006) and Lobo (2011) also suggest that, due to the complex nature and uncertainty of climate change, stakeholders should learn together and forge strong alliances for knowledge and resource-sharing. One of the better ways to address the current gap in the operationalisation of mainstreaming, as discussed in Chapter Five, is to integrate top-down and bottom-up approaches (Urwin and Jordan 2008; Amaru and Chhetri 2013), and to practice an adaptive co-management approach (Berkes, 2009).

This chapter is divided into two major sections. Section one presents a case study of the Poverty Environment Initiatives (PEI) and highlights the major opportunities and constraints of top-down mainstreaming. Section two discusses the Local Adaptation Plan of Action (LAPA) and provides an analysis of bottom-up approaches to CBA mainstreaming.

6.1. Case Study One: Poverty Environment Initiatives (PEI)

This section examines the effectiveness of the Poverty Environment Initiatives (PEI) for the mainstreaming of climate change adaptation into the development process. This section argues that although the top-down approach to mainstreaming has influenced policies and the programme at the central level, it has several flaws that limit local stakeholders and communities from participating in, and benefiting from, the mainstreaming initiative, and that this therefore limits its effectiveness. The top-down mainstreaming approach has also failed to deliver on the ground because of a lack of sufficient governance arrangements related to the management of knowledge, technology, and financial flows. These will be discussed in greater detail in this section.

As discussed in Chapter Three, the PEI is a joint programme of the Government of Nepal, the UNDP-UNEP Poverty-Environment Initiative, and UNDP Nepal. The main objective of the PEI in Nepal was to support poverty reduction and inclusive development by integrating climate and environmental concerns into development planning and economic decision-making (PEI, 2010). The National Planning Commission and the Ministry of Local Development, under the PEI, jointly developed a climate-resilient planning framework[19] to guide the national planning process, which led to the revision of the 'Planning and Decision-Making Guidelines' of local bodies by the Ministry of Local Development, to incorporate environment, climate change, and poverty perspectives (GON and NPC, 2011).

Under the PEI, a number of studies were undertaken on infrastructure development and climate change financing in order to feed the findings into policy decision-making. At the local level, the project identified Dhading and Rupendehi as pilot sites in order to learn initial lessons about the mainstreaming environment and climate change in the district development planning process. The major objective of the PEI was to integrate 'pro-poor' environmental priorities into the DDC and VDC level planning processes and the financial management and rural infrastructure development practices (PEI, 2010). The major mainstreaming activities included the preparation of training manuals; the provision of training to development practitioners; and the integration of climate change adaptation into district level development plans.

The review of the primary literature demonstrated that the PEI concept and programme document was externally-driven, as it was primarily influenced by the donor agencies. The United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) prepared the document. The donor agencies later shared the document with the Nepali Government for approval. The Nepali Government agreed with the PEI framework and finally signed a Memorandum of Agreement (MoU) in 2009 with the development partners (the UNDP and the UNEP) (PEI 2010, p.9). The majority of the policy-makers and practitioners in this study revealed that in the process of programme design, there was no public consultation and discussion. One of the policy-makers stated that, as with the PEI, most of the externally-funded development initiatives develop their programme

[19] This framework, which was developed by the National Planning Commission in Nepal, provides guidance on the national planning process in how to integrate climate change into the development process.

document beforehand, and only consult with government agencies for approval. This process, according to a policy-maker respondent, undermines the role of the national stakeholders in the design of the policy and the programme (PRN 5).

There are other studies in Nepal that have highlighted the influence of donors in programme design and delivery. For example, Bhatta (2011) found that the increasing donor-ministry nexus in Nepal's education sector has narrowed the avenues for broader participation by other relevant national stakeholders. This influence of both donor and centralised decision-making, according to the authors, leads to a continued loss of ownership in countries such as Nepal, suggesting a politics of domination and marginalisation that is likely to increase as time goes on. This is because the project resources are more centralised when participation is limited to only the donors and the relevant ministry. From the findings, it is evident that the donor-driven process hinders public ownership of the agenda and negatively affects the up-scaling process. This finding also raises the issue of the external and donor dominance of the mainstreaming agenda.

The engagement of stakeholders in the PEI was limited to the National Planning Commission and parts of the Ministry of Local Development. The Ministry of the Science, Technology and Environment, which is the focal point for the environment and climate change, and other ministries were not part of the design process. According to the practitioners, there was no role for other public actors, such as NGOs and the community, in the entire PEI design and implementation process (PRRN 6, 9, 10, and 12). The design of the programme, which involved the development of the project concepts and implementation plans, as described earlier, appears to have been highly centralised and focused on only a few agencies.

The participation of local government agencies and the public in the design of centrally-managed projects and programmes is problematic. It was noted that the limited engagement and participation of relevant stakeholders had implications for the levels of awareness about the PEI initiatives both at the local and national levels. Even though they had been in place for two years when this research was conducted, the analysis shows that the majority of the policy-makers (more than 90%) and practitioners (86%) interviewed, were not aware of the Poverty Environment Initiatives (PEI). One local practitioner revealed that:

> Most of the centrally-managed projects like the PEI mention including the NGOs and local communities in the project design and implementation. In reality, the involvement of communities and civil society is not given due consideration. We heard that PEI piloting is done in our district but nobody knows where and who is doing it. It may be that the project thinks climate change is only the responsibility of government agencies, and other stakeholders like us are just passive recipients. In my opinion, this approach of excluding major stakeholders like communities is actually the barrier to policy implementation (PRRN 3).

The exclusion of stakeholders was also observed during the implementation process for the PEI. Despite the provision of a citizen forum, which was guided by the *Local Self Governance Act* as discussed in Chapter Three, in order to best represent the communities and local stakeholders' interests in the development plan, the VDC planning process, in practice, excluded local stakeholders. Even the practitioners who were engaged in the PEI initiative said that the centralised nature of a project, such as the PEI, was a barrier to public participation because it only included national level stakeholders and limited participation to only a few agencies (PRRN 1, 2, and 3). The study by Dhungana and Wagle (2013) of the district development planning of Dhading district, in relation to the PEI, also showed that the systematic channeling of discussions at various levels in local government, from the village to the district levels, did not take place, because the development planners did not realise the importance of community level consultation. This demonstrates the dilemma of participation in centrally-controlled projects and programmes and how this limits the engagement of a wider range of stakeholders.

However, there were a number of positive aspects of the top-down approaches to mainstreaming. Chinvanno and Kerdusk (2011) argue that top-down approaches and processes can mobilise policy-makers in addressing the policy gaps and changes that require urgent policy action. As discussed earlier in the thesis, the climate-resilient planning framework was useful for guiding the national planning process, but primarily for the integration of environment, climate change, and poverty perspectives into the three-year interim plan (2010-2013). Some of the policy-makers interviewed also expressed that the PEI-driven top-down approach to mainstreaming was successful in creating policy and legislative change in a rapid and timely manner (PRN 2, 14, and 18).

The participation of the higher level influential government ministries and bodies can contribute positively to the achievement of policy outcomes, and that their participation in many ways is essential for systemic change. A review of public expenditure on climate change also indicated that there were a number of positive aspects of central agency involvement in policy change. The process of the engagement of the NPC and MoLD were effective, because they assisted with policy reform. This policy influence can be observed in the government's Interim Three-Year Plan (2010-2013) which for the first time addressed climate change adaptation in the planning document (Bird, 2011).

The influence of the PEI also helped the high level policy-makers to create a budgetary code for climate change expenditure. The provision of a budgetary code now allows the government to invest in climate change and, most importantly, to monitor the budget flows. The Nepali Government revised the minimum Condition and Performance Measures Guidelines for local development to include environmental and climate criteria for use by District Development Committees, Village Development Committees (VDCs), and Municipalities when applying for government grants (Bird 2011; PEI 2012). However, the majority of the practitioners interviewed argued that simply developing a budgetary code, or policies and strategies, does not solve the local issues. According to these respondents, there have been many failures of translating policy into action.

Policies are just one among many means to achieve mainstreaming, but the many different means need to work together (Kabeer, 2003). Complex issues such as the environment and climate change cannot be addressed by single agencies, or be considered as one-off events, as climate change adaptation is a dynamic and multi-dimensional process (Hay, 2005). Therefore, the rationale for centralised design and delivery, such as that of the PEI, looks problematic in the Nepali context. Although policy change is feasible through a top-down approach, the process of designing and delivering mainstreaming activities cannot be achieved without the active engagement and support of local stakeholders, including local communities. According to one of the practitioners interviewed, centrally-managed projects are often controlled by project proponents (the staff and the agency involved) and are less open to public scrutiny and participation (PRRN 7). Dhungana and Wagle (2013) also found that the PEI projects were initiated by donor communities in a top-down fashion, and thus, they lacked local ownership.

In Dhading district, the research showed that the issue of low participation had an impact on the implementation of policies and plans under the PEI programme. Although local government has implemented environmental standards in the district's development infrastructure and businesses, most of these attempts proved to be unsuccessful. For example, the PEI initiative intended to regulate the established, but unregulated, sand, gravel, and stone industries along the riverbanks to reduce environmental destruction and climate change risks (Figure 8). In order to achieve this task, the district development committee of Dhading increased allocations to the environment section of the plan, in its annual budget, to 10% in 2012/13 compared to 5% in 2011/2012, with the objective of safeguarding the environment and initiating climate change activities (PEI, 2012). According to one government practitioner, the local government believed that increasing the allocation to environment and climate change activities was intended to reduce the risks from unsustainable practices and to build local level awareness and capacity (PRRN 1).

However, the policy implementation and investment made in the environmental sector did not show any positive impacts. The findings further show that, in the absence of public participation, there are many challenges in implementing such policies. The majority of the practitioners argued that the District Development Committee (DDC) of Dhading could not enforce the implementation of the environmental standards on the contracted industries. This happened because of the erroneous approach of the government in implementing the policies. One civil society practitioner further stated that:

> Most of the government-reported figures and achievements do not match with the actual field realities. Although there was talk on controlling the destructive industrial practices, it was not implemented. I think both local and central government is more interested in revenue generation than protecting environment and climate change. The government has weak connections with the public and civil society and this, in fact, affected the enforcement of the policies. In this case, since the public were not engaged, the government did not get public support for the implementation (PRRN 2).

This informant is more critical about the government approach to dealing with the environmental problems, arguing that it has further worsened the situation. In the absence of public participation, there are challenges in the implementation of the policies. The majority

of the participants in the focus group discussion in Dhading argued that, in practice, nothing has changed and the environmental situation continues to worsen in the study site (FGDP 1[20]). The field observations also show that the sand and gravel industries are still operating and creating negative impacts on the local environment in the study site; for example, the biodiversity of the river is depleting and, due to disturbances in the river flows, the river is changing course and putting human settlements at risk (Figure 7).

Another reason for the lack of implementation of the environmental policies was due to political influence. The majority of the interviewed practitioners and community members argued that party cadres from the major political parties own most of the stone and gravel industries operating in the Dhading district. The owners place undue influence on their party leaders and advocate for their own interests. According to the majority of the focus group respondents in the Jogimara VDC, local government is often helpless and cannot take action to stop the non-compliant practices of these industries and most of the local government decisions are influenced by political parties (Focus Group Discussion with Communities in Jogimara, December 2011). The current development planning decision making, as discussed earlier, is influenced by limited representatives of political parties and the wider public participation in those decision making committees is handicapped.

There are other experiences elsewhere in Nepal which demonstrate the difficulty of translating policy into action. Khadka et al (2012, p.60), in a review of the implementation of environmental policies in Nepal, also reported that there is an emphasis on developing environment-related legislation in Nepal, but the agencies have failed to focus on the implementation of actions and the development of a compliance system. For example, despite tremendous efforts to prepare and secure the approval of the Nepal Biodiversity Strategy and the National Water Plan, these have not been implemented. The findings imply that local government alone cannot deal with issues of compliance, and thus requires support from the public and other actors. As stated by the informants, the problem of policy implementation lies in the erroneous approaches by local government, which do not appear to understand the importance of gaining support from local stakeholders, including community members.

[20] Focus Group Discussion in Dhading District.

Communities and local stakeholders can, in fact, support environmental compliance by putting pressure on industry to adhere to the regulations. It can be proved from one incidence of Dhading district where the local government was compelled to stop new license to the stone and gravel industry after the massive public pressure from 2010-2011. Focus group discussion with communities in Jogimara VDC revealed that the operation of stone and gravel industry in some parts of the VDC were halted for 6 months (in between 2009 and 2010) because of the pressure from the civil society organization and communities. Examples can also be given from forestry sector policy implementation where civil society organisation supports the government to control illegal logging and deforestation (Kanel and Kandel, 2004).

Figure 7: Showing the sand and gravel industry set up along the Trishuli River in the Dhading district of Nepal (Photo Credit: Author)

Awareness also plays an important role in the mainstreaming process (Huq and Ayers, 2008a) as it increases the understanding of the stakeholders and motivates them to participate in the projects and programmes. One of the reasons for the lack of implementation and environmental compliance, in the case of the PEI, was the low levels of public awareness and support. The practitioners interviewed in this research, felt that since the PEI only focused on government officials, other important actors were less aware of, and sensitised to, the issue. According to the community level respondents:

> The PEI only focused on a few selected government officials. A large section of civil society and the communities were not part of the sensitisation and capacity building process. More importantly, there is a low level of political

> will to solve the problems of, and to support the local level. The issue of sand and gravel in Dhading is so complicated because it involves various interest groups, ranging from government to the local business people and political parties. In order to find a solution to the environmental and climate change issue, it needs an understanding of the local power dynamics and interest groups. I think the government cannot deal with the issues alone and thus need support from local stakeholders (PRRN 4).

The findings discussed earlier imply that any issues that involve a diverse range of stakeholders, requires an integrated and multi-stakeholder approach. It is evident from the discussions with the practitioners and communities that the lack of interest of the various stakeholders was mostly a result of the lack of awareness about the issue, and the PEI's failure to involve different stakeholders in the debate about environmental and climate change issues at the local level.

The PEI project documents mention that 'orientation trainings have empowered local groups to demand the integration of poverty-environment climate concerns in local planning and budgeting processes' (PEI 2012, p.3). According to the report, in response to the demand of the Ward Citizens Forum, a small community-based organisation whose members include women and representatives from marginalised communities, and the Community Forestry User Groups, the Jogimara Village Development Committee in Dhading, for the first time, approved climate change adaptation activities which were implemented in 2012. Contrary to the project report findings, a majority of the respondents argued that the PEI has failed to sensitise and build the capacity of local institutions. In both of the focus group discussions carried out in Jogimara VDC the majority of the participants said that they were not involved in capacity-building activities (Table 13). This situation, according to Arnstein's ladder of participation discussed in Chapter Four, is a form of non-participation.

Such fragmented and isolated top-down approaches do not support the mainstreaming of climate change into the development process, because they overlook the role of local institutions, including local government and communities (Adhikari and Taylor, 2012). The review of the PEI document shows that it limited the scope of multi-stakeholder participation. For example, the PEI programme document indicates that 'the key implementing partners for the PEI will be the National Planning Commission (NPC) and Ministry of Local

Development (MoLD)' (PEI 2010, p.15). The interviewed practitioners felt that the initiative contributed little to bringing local stakeholders together and increasing the working collaboration among the different agencies (PRRN 2, 3, and 4). It was also found that there was a lack of collaboration among other government agencies during the implementation of the PEI. For example, the Ministry of the Science, Technology and Environment was sidelined despite its focal role in environment and climate change issues. This happened because the existing approaches of the sectoral ministries are often isolated and fragmented.

Table 13. Perception of the participants of the FGD on their involvement in training activities

	Participation Categories		
Focus Group Number	Participated	Informed	Non-participation
Focus group discussion 1 (n=14)	2	3	11
Focus group discussion 2 (n=16)	1	1	12

Source: Focus group discussions with communities in Jogimara VDC, Dhading

The lack of collaboration among the various agencies had negative implications for the effectiveness of the programme at the local level. The focus group discussion with the practitioners and communities in the PEI site revealed that there was a lack of ownership of the mainstreaming initiatives among local actors, such as civil society and community members (Focus Group Discussion with Practitioners - FGDPR 1). This lack of ownership had negative implications, as it limited the generation of local resources, such as financing, to support the implementation of climate change adaptation activities at the local level, which otherwise would have been easier to generate through collaboration among different agencies.

Responding to environmental and climate change issues, as argued earlier, demands the capacity and skills of different agencies and stakeholders. The PEI Annual Report states that capacity-building involved few events which targeted only a limited number of agencies. One civil society respondent argued that the training event did not include civil society or the communities (PRRN 3). The field observations and focus group discussions with the communities and local officials in Jogimara VDC also showed that, apart from training, no

other activities were conducted. The capacity-building approach of the PEI case had little impact, because it consisted of limited activities that focused on only a few individuals within the government system.

The lack of information and knowledge in relation to the identification of local adaptation priorities also had an impact at the community level. The majority of the community members who participated in the focus group discussions (n=30) stated that they did not know exactly what caused the environmental and climate change problems in the study area and how they could be addressed. They further argued that this is why the adaptation activities they included in their adaptation plan was more of their everyday livelihood needs, and may not be specific to addressing climate-related risk and impact. For example, the adaptation plan of one community group in Jogimara VDC included activities such as control of open defecation, biodiversity conservation, conservation awareness, and community-based seed-bank management activities.

Apart from capacity, information and knowledge about climate change plays a significant role in correct decision-making on interventions related to climate change adaptation. The analysis of the PEI document showed that a number of studies were carried out to feed information to the policy-makers and practitioners on environmental and climate change issues. Studies were undertaken in relation to the practices of revenue generation from natural resources and a climate change expenditure review. According to some of the policy-makers, these studies were useful for designing policies, such as the financial code for the accounting of climate change expenditure and the mainstreaming of climate change into local development plans (PRN 2, 5, 7, and 9). However, the lack of knowledge-sharing and the limited transfer of skills at the local level rendered the implementation ineffective. The field level observations and interactions with the communities and local government in Dhading indicated that the area lacked sufficient human resources and capacity to mainstream climate change and to implement climate-friendly practices (Table 14).

As can be seen in Table 14, the lack of information about climate change had negative implications for the identification of climate change adaptation responses at the local level. The development activities were proposed as a form of climate change adaptation without analysing the existing local practices, and which new technologies or practices would be required to deal with climate change risks and impacts. Although the implementation of these

activities would contribute positively to some aspects of local livelihood, most of these activities are regular development activities and may not address the urgent risks and adaptation requirements of households and communities. This further indicates the opportunities for the mainstreaming of CBA into the development process.

Table 14. Perceptions of respondents on current issues related to human resources, capacity, and access to information

Types of Respondents	Challenges of integrating climate change adaptation at the local planning level		
	Capacity (human resources)	Knowledge and skills	Access to technology and finance
Focus group discussions with communities (n=30)	There is a lack of local level capacity on climate change adaptation. We do not have any member in our community to consult on what to do and how?	Our knowledge and skills on integrating climate change in our community plans is limited. We do not know how to adjust our plan to deal with the current environmental and weather problems	We receive very little support from government and other agencies in terms of finance and technology or goods and services
Focus group discussion with practitioners (n=6)	The current local government is not in a position to handle extra responsibilities, such as climate change because of our limited human resources	We in the planning sector do not have any idea about what is going on and how we deal with issues such as the environment and climate	Our budget is very limited and there is hardly any scope within the current budget to include climate change activities

Source: Focus group discussion with communities and practitioners in Jogimara VDC, Dhading

In top-down mainstreaming, such as with the PEI, the adaptation activities were designed in an ad-hoc manner. It appears, from the interviews and discussions, that the identification of technologies and practices was based on the planning officer's individual experiences rather than on a local level assessment based on scientific evidence. Although some of the activities proposed were relevant to local community development, they failed to address the urgency of the most vulnerable households and communities. The respondents from the focus group discussion in Jogimara VDC stated that:

> The lack of information on climate change is one of the major obstacles for us to take decisions on climate change. The local government agencies were uncertain on what kind of strategy they should take and where they should concentrate their efforts. We propose activities based on our limited experiences and knowledge. Although we do realise that climate change is a complex science, yet the project gave responsibility to us to decide in the selection of the adaptation activities and technology measures (Focus Group Participants, Jogimara VDC).

The views of the respondents imply that there is a need for more information and knowledge for making local level decisions in terms of identifying practices and technologies that can build local adaptive capacity. Many of the interviewed practitioners and communities were faced with the dilemma of what the adaptation interventions actually constituted, and whether or not these interventions were similar to 'regular development' interventions. This lack of understanding and confusion was created as a result of the poor focus of the project in terms of awareness and knowledge-sharing.

The top-down approach to mainstreaming had implications for the up-scaling[21] of the PEI at the local and national levels. One positive outcome of the top-down approach was that the Ministry of Local Development included Environment Friendly Local Governance (EFLG) as a cross-cutting program in the Local Governance and Community Development Programme (PEI, 2012). Recently, the Ministry of Finance developed a budgetary expenditure code to account for climate change-related expenditure. However, the PEI had little influence on other ministries, because it did not involve them in the design and implementation of the mainstreaming activities. This is why there were few attempts by others to mainstream climate change into their annual planning processes. The local government and other stakeholders in the PEI implementation districts (Dhading and Kapilvastu) did not make any attempts to mainstream adaptation into the development process.

There was evidence at the local level that the current government structure and planning process acted as a barrier to the up-scaling of community initiatives. For example, during the informal interactions and the first FGD with the communities in Jogimara VDC, it was found

[21] The up-scaling in this thesis refers to the roll-out of piloting experiences in specific areas across the rest of the country, and continued beyond the timeframe of the programme.

that the agricultural group of the VDC, which had prepared a local level climate change adaptation plan, could not implement its adaptation priorities because of a lack of support from local government. Due to the fixed planning cycle and the rigid structure, the local VDC officials could not accommodate and integrate the communities' adaptation plans within the annual development planning process. According to the communities, the VDC even failed to provide technical and financial resources to implement the adaptation plan of the group. The findings imply that, in the absence of local ownership and government support, the mainstreaming of CBA remains a challenge.

There are key barriers to the mainstreaming of climate change adaptation into the development process within the government system, particularly into district and VDC level plans, due to rigidity in planning and other external factors. The analysis of the District Development Plan of Dhading (2010-2012) district shows that very few activities related to the environment were included in the plan; however, none of these were related to climate change. As discussed in Table 14 above, the majority of the practitioners argued that the reasons for the low priority within the development plan were that climate change was not on the local government agenda because of a lack of information and knowledge, and there were no additional resources available for climate change activities. Dhungana and Wagle (2013) also argue that district government planning has its own priority areas, and climate change was considered as an issue to be dealt with in order to please aid agencies rather than to alleviate the issues of those communities which are vulnerable to the impacts of climate change.

The interactions with the government officials in Dhading also demonstrated that there was little flexibility in the annual development plan due to its structure as well as the funding limitations. The planning process is also highly politicised in terms of prioritisation and resource allocation. According to the majority of the community members consulted in Jogimara VDC, one of the challenges of implementing local environmental and development activities is the lack of adequate financial resources. One of the practitioners argued that the local government budget is very low compared to what is proposed and required, and this makes local government more reluctant to include new items on the agenda, such as climate. Khadka et al (2012) also mention that environmental mainstreaming in Nepal is below expectation because of the government's failure to provide adequate financial, human, and technical resources.

The majority of the community and practitioner respondents argued that the political vacuum created as a result of the absence of a locally-elected government at the local level, led to greater politicisation of the development agenda and misuse of resources in some cases. In the absence of accountable and responsible local government, there were transitional political structures, such as decision-making committees formed by the major political parties, to assist local government in making decisions. The discussions with the communities and the practitioners indicated that these interim arrangements for decision-making, in fact, led to the monopolisation of decision-making by the major political parties (Table 15).

Table 15. Perceptions of respondents on issues related to local level governance

Types of respondents	Issues raised relating to local level governance		
	Planning	Decision-making	Resource allocation
Focus group discussions with communities (n=30)	Mostly the government officials and a few political parties are involved	The major political parties monopolise decision-making and include activities of their interests in the plan	Resource allocation is mostly guided by the interests of the political parties and government officials and are mostly misused
Focus group discussion with practitioners (n=6)	Local level planning is carried out by local government with limited consultations	The plan is finalised by local government officials and some selected representatives, such as political parties	Resource allocation is carried out based on the developed plan and available resources from the centre, but is influenced by political parties

Source: Focus group discussion with communities and practitioners in Jogimara VDC, Dhading

What this case study shows is that adaptation mainstreaming in a 'business-as-usual' scenario, through the existing government planning and governance structure alone, failed to work for many reasons. Among others, as discussed in Chapter Three, the current government structure in Nepal is too centralised, politically-regulated, and top-down, and has only limited capacity to deliver effectively. Another issue is the lack of synergy and coherence among the different plans at different levels. As evident in the findings, there are also governance challenges in top-down mainstreaming that are primarily related to knowledge management, human resources, service delivery, and financing. The weak

governance of the PEI had a negative impact on the effectiveness of the timely implementation of climate change activities.

The PEI case study demonstrates that government mainstreaming is constrained in its ability to translate policy into action and to reach the most vulnerable. Top-down mainstreaming results in simply giving lip-service to climate change in policy and planning documents, and at the same time, failing to support local communities. The case study also demonstrates that decentralisation and devolution at the local level has not happened in practice as local government and stakeholders have less influence on top-down mainstreaming activities. This characterisation is supported by social scientists in the field, such as Escobar (1995) and Scott (1998), who argue that top-down perspectives of development are both disempowering and ineffective, because they rarely prioritise local issues and do not recognise the role of local institutions.

In summary, this section has argued that the centralised, donor-driven, and top-down nature of mainstreaming, as observed in the PEI case study, limits the participation of local and national actors in design and delivery of climate change adaptation programmes, resulting in low ownership which negatively affects outcomes. Other constraints, such as the low capacity of practitioners and the lack of knowledge, technology transfer, and financial resources, also undermine mainstreaming initiatives. The findings in this section support the argument put forward in Chapter Two that local and national ownership are crucial for ensuring the long-term sustainability and effectiveness of the mainstreaming of climate change adaptation. The findings further show that the mainstreaming of CBA at the operational level needs to be inter-connected, inclusive, long-term, and multi-stakeholder in nature.

6.2. Case Study Two: Local Adaptation Plan of Action (LAPA)

As explained in Chapter Three, the Local Adaptation Plan of Action (LAPA) emerged as one of the mechanisms to link the community with the national adaptation planning process. This section examines how climate change adaptation has been mainstreamed into development plans and the planning process in the selected research locations where the LAPA was piloted. It also specifically examines the contributions that the LAPA makes to increasing collaboration between agencies; increasing awareness of, and knowledge about, climate

change at the local level; improving the knowledge-base for informed decision-making; and integrating climate change adaptation into development planning.

In this case study, it is argued that bottom-up approaches to the mainstreaming of Community-Based Adaptation (CBA) can successfully mobilise local institutions and communities in the adaptation process, and can also influence the policy-making process. However, the bottom-up approach is often limited to the specific geographic location of a project and to the households and communities living in those areas. The community-based or bottom-up approach to mainstreaming also overlooks the role of government institutions and thus fails to institutionalise the process within the government system and to sustain it beyond the project's duration. These issues are discussed in further detail in this section.

The process of adaptation planning and implementation

The LAPA programme document (MoE 2011c, p.2), indicates that the design and implementation process was rigorous, participatory, and inclusive. This is backed up by the majority of the practitioners interviewed for this research project, who commented that the process adopted in the LAPA provided opportunities for local and national stakeholders to identify opportunities and constraints to mainstreaming. In the initial 18 months of the piloting period, several background studies were undertaken as part of the LAPA project, in order to increase the understanding of the local governance system, the institutional and financial mechanisms, and the successful practices and available tools and approaches (HTSPE, 2011).

The ownership of the LAPA process was high among the policy-makers and practitioners engaged in addressing climate change in Nepal. Almost all the practitioners interviewed for this research (more than 95%) felt that the process of piloting the LAPA was comprehensive and inclusive. The interviewed participants also felt that the intensive exercises carried out to design the LAPA helped them to identify real interests and needs at the local level and to develop strategies to address the impacts of climate change (PRRN 4, 5, 6, 7, 8, 9, and 10). The LAPA framework document also states that, in terms of the procedural approach, the LAPA seemed to make the best use of different tools and techniques to ensure the design

process was more localised and publicly acceptable, such as participatory mapping of vulnerable areas, participatory well-being rankings, and joint activity planning (MoE, 2011c).

The LAPA initiative tested different tools and methodologies to enable local and bottom-up decision-making (Table 16). It was found that the climate change assessment process, which was intended to identify climate risks and potential adaptation measures, was in fact carried out by local communities, local government service providers, and civil society organisations working at the grassroots level. The piloting also tested the various assessment tools to map the adaptation needs of communities, and adopted several other approaches to climate change adaptation. As argued in Chapter Five, the participatory tools and methods tested and refined by the communities in the LAPA piloting sites were included in the LAPA framework endorsed by the Nepali Government.

Table 16. Participatory tools and methods used during preparation of the LAPA

S.N.	Tools used in the LAPA	Purpose of the tools and methods
1	Timeline	Assessing the past climatic hazards in the area
2	Seasonal calendar	Comparing the seasonal impacts of climate change
3	Hazard mapping	Locating hazard-prone and vulnerable areas
4	Vulnerability matrix	Assessing the impact of climate change and identification of vulnerable households
5	Adaptation prioritisation	Identifying priority adaptation actions
6	Institutional mapping	Identifying institutions and their role in adaptation
7	Cost-benefit analysis	Analysing the cost-effectiveness of adaptation options
8	Gate-way system analysis	Analysing livelihood assets and opportunities
9	Adaptation planning	Preparing adaptation plans and mainstreaming strategies
10	Monitoring and evaluation framework	Identifying monitoring and evaluation processes and plans

Source: HTSPE, 2011

The use of participatory tools and approaches helped the service providers (GOs and NGOs) to reach climate-vulnerable communities and households. Many of the interviewed practitioners argued that the use of the socio-economic and vulnerability criteria within the participatory tools helped them to identify vulnerable households. Local stakeholders in the study areas were involved in an assessment process to identify the vulnerability context and the potential adaptation options to deal with the impacts of climate change (Figure 8). One practitioner from an NGO said:

The local government and communities were involved in carrying out a Participatory Vulnerability and Well-Being Ranking (PVWB) to identify the most vulnerable households impacted by climate change. The LAPA piloting also carried out a participatory vulnerability assessment process to identify the climate-vulnerable sectors and communities. I think this process of engaging different groups in society and a diverse range of people in adaptation planning increased local ownership of the piloting (PRRN 6).

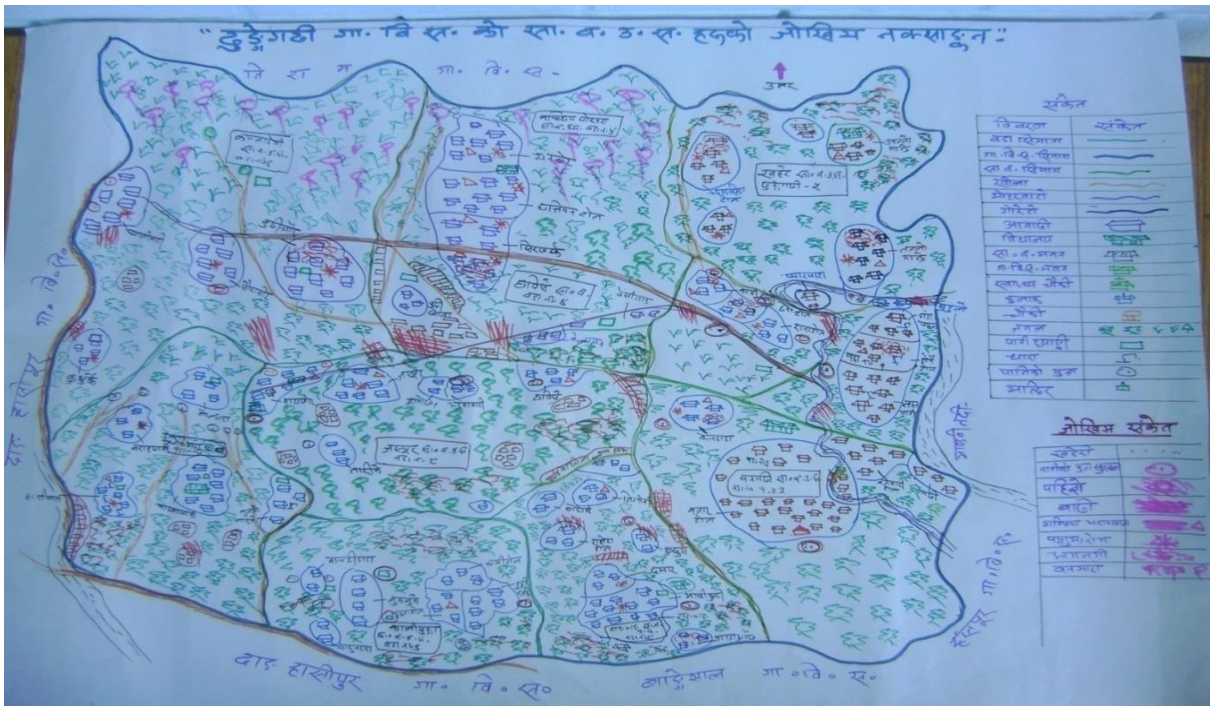


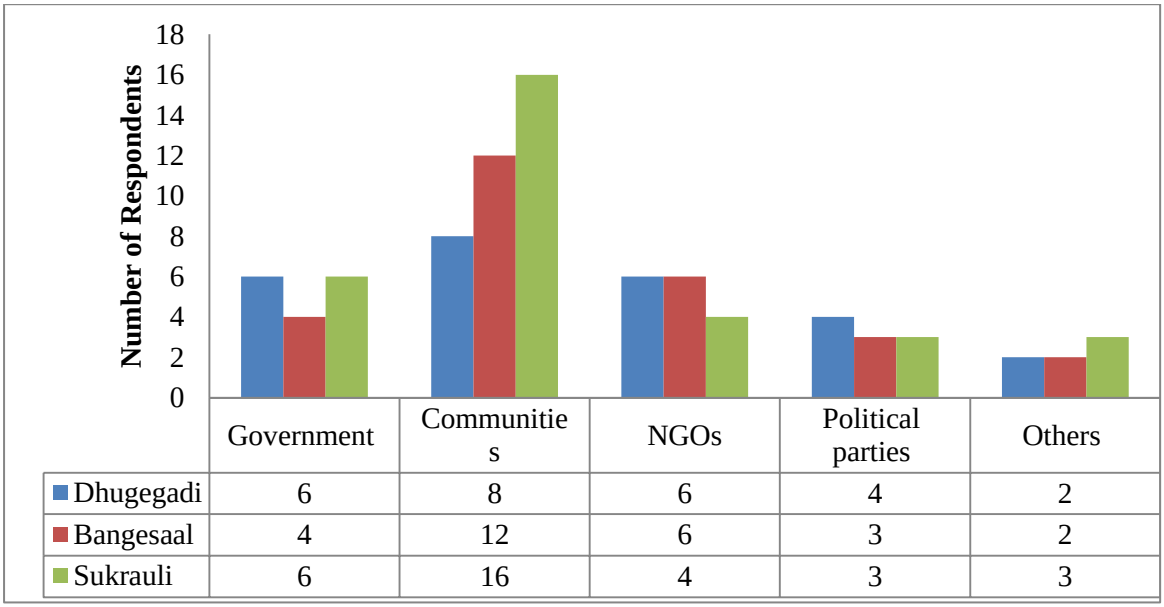
Figure 8: Participatory Vulnerability Map prepared by communities and local stakeholders in Dhungegadi VDC of Pyuthan district (Source: VFCC, Dhungegadi)

In terms of the design and implementation of the LAPA, the information derived from the field observations shows that a large number of community-based organisations and households were part of the adaptation planning process. The role of community members in the piloting of the LAPA was observed in assessing climate change issues, identifying adaptation priorities, and suggesting the institutional and financial mechanisms for the implementation of the adaptation interventions. For example, it was observed that all nine Community Forestry User Groups operating in the Dhungegadi VDC were involved in decisions related to the preparation of the Local Adaptation Plan for the VDC and specific community adaptation plans for vulnerable households (Figure 8). The majority of the participants in the focus group discussions at the local level shared that they contributed to

the adaptation planning process. One of the female participants in the focus group discussion stated that:

> I am so happy to be part of the planning process. It was my first ever experience to be engaged in the process and working with others to discuss about the problem we are facing, and also suggesting the solutions based on our knowledge. The LAPA process, as I observed, included community groups and households. The process has focused more on people like us who are suffering directly from various environmental impacts (FGDC 3[22], 2012).

In line with the above quote, it was also found that there were different types of agencies involved in the LAPA piloting. The data provided by the practitioners indicated that at least 20-25% of total households were directly engaged in the adaptation design process (FGDPRRN 2[23], December 2011). The field level data on the status of the Local Adaptation Planning also provided evidence of local stakeholder engagement in the adaptation process. The major stakeholders involved in the LAPA included government, communities, NGOs, political parties, and other social organisations. Among the stakeholders, community representation was higher in the preparation of the LAPA (Figure 9).



	Government	Communities	NGOs	Political parties	Others
Dhugegadi	6	8	6	4	2
Bangesaal	4	12	6	3	2
Sukrauli	6	16	4	3	3

Figure 9: Types of stakeholders involved in preparing the LAPA in the studied VDCs

[22] Focus group discussion carried out with communities in Daderi CF of Bangesaal VDC during the field survey.
[23] Focus group discussion carried out with practitioners in Pyuthan district during the field survey.

In the district level brainstorming workshop in Pyuthan district, the participants stated that a total of 58 Community Adaptation Plans (CAP) and 3 LAPAs had been prepared across the entire district in between 2010-2012. There were 11 Village Forest Coordination Committees (VFCC) formed to support climate change adaptation work at the local level (Rupantaran, 2012). In addition, the focus group discussions with practitioners in Nawalparasi district revealed that a total of 88 VDC level LAPAs and 165 community level adaptation plans were prepared and implemented throughout the district (FGD PRRN 3[24]). Figure 9 above indicates the different types of stakeholders involved in the LAPA process in the three VDCs under exploration.

The analysis suggests that the LAPA piloting and implementation process in these three communities was, by most accounts, highly participatory. The perception mapping of the practitioners, carried out in this research, involved asking practitioners involved in the LAPA to express their perceptions about the involvement of stakeholders in the LAPA process. More than 64% of the respondents believed that adaptation planning had involved a diverse range of stakeholders in the process and that the engagement and participation of agencies was very high. Another 25% of respondents perceived that the coordination and engagement of local stakeholders was good. This indicates that the majority of the respondents (89%) felt that adaptation planning engaged a wide range of local level agencies and stakeholders in the process. Only 11% said that the district line agencies had little involvement in adaptation planning (Figure 10).

However, there were still some gaps in linking district- and local-level institutions with local processes. The district and central government line agencies perceived that they had only a limited role in the implementation of the LAPA. This perception of government agencies is supported by the figures above which show that 11% of the respondents, mostly the district government line agencies, felt that the district agencies were not engaged in the LAPA piloting.

[24] Focus group discussion carried out with practitioners in Nawalparasi district during the field survey.

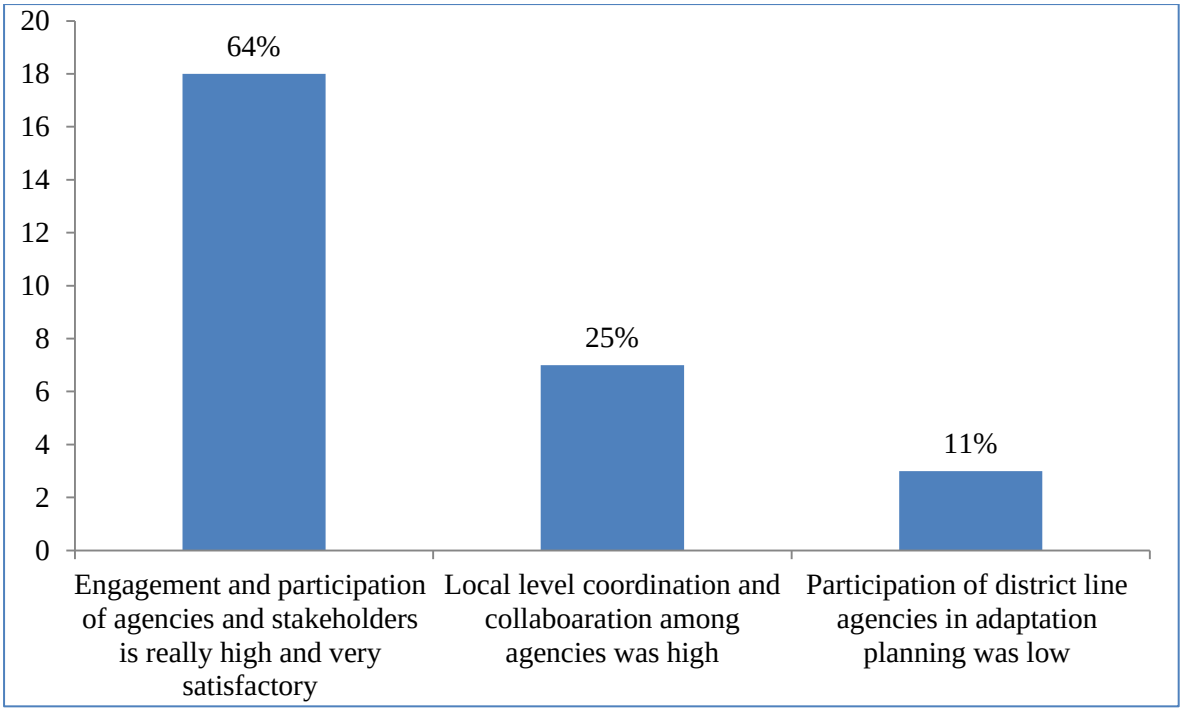


Figure 10: Perceptions of practitioners on the participation of stakeholders in the adaptation planning process

The government participation in the LAPA was problematic at the district level. In Pyuthan district, although the pilot study attempted to mobilise district level agencies, it could not successfully increase their involvement because the government agencies hesitated to participate in the LAPA process as they felt that their role was not clear. The discussion with district level agencies showed that they were not consulted during the design phase of the LAPA, and the central agencies did not inform them about their role in the implementation process (PRRN 16 and 17). Paudel et al (2013) also argue that as most local level adaptation planning is driven by non-state development agencies, there is little political ownership and no accountability mechanism for integrating adaptation into the local development process at the district level. It was also revealed that the government agencies were reluctant to take part because the LAPA piloting was led by NGOs (Paudel et al., 2013).

As discussed in Chapter Five, at the central level, only the Ministry of the Environment was involved, in part, in the LAPA design and piloting process. It was found that the donor and the Ministry of the Environment formed an Activity Coordination Committee (ACC) to oversee the LAPA design and piloting process. This committee only included representation from the Ministry of the Environment and the donors. Other important ministries were

excluded from the initial LAPA design. There are several implications of the low central level engagement. A policymaker respondent from the Ministry of the Environment said:

> It took a while for government to accept the framework endorsed by the community piloting because of the process, which was more local and could not actively engage the central level agencies, besides the Ministry of the Environment. The piloting could be perfect if it had included more central ministries and district based agencies. Since district line agencies were not actively engaged, it will be an issue for the up-scaling of the LAPA. It could be one of the reasons why many sectoral agencies did not allocate any financial resources for adaptation activities in the fiscal year 2010/2011 (PRN 2).

The design of the LAPA at the central level further contributed to the lack of national ownership. One of the practitioners from a government agency felt that limiting the LAPA design and piloting work only within the Ministry of the Environment at the centre, was the major reason behind the lack of ownership of other sectoral ministries and district line agencies (PRRN 16, 17, and 18). The secondary information derived from the project, shows that there were already a number of implications of the lack of participation of district agencies. The implementation of the LAPA by the Ministry of the Science, Technology and Environment in other parts of the country was delayed due to the lack of capacity within local government. It was found that the government again used the help of NGOs to prepare 70 Local Adaptation Plans of Action in the 14 districts selected for up-scaling, which were mostly in the mid- and far-western regions of Nepal (GoN, 2013).

There were a number of problems with the institutional mechanisms established by the LAPA at the district and village levels. The discussion with the practitioners also revealed that local institutional mechanisms, such as the Village Forest Coordination Committees (VFCC) and the community forestry groups, which were used to mainstream climate change adaptation were not recognised by the central government. The government practitioners felt that the creation of a parallel institutional structure undermined the government's role in service delivery (PRRN 16). In contrast, the civil society practitioners argued that the creation of a supportive structure helped the government to deliver services more effectively (PRRN 7).

This shows that there is a lack of a common understanding among the stakeholders about which institutional mechanism is most suitable for implementation of the LAPA.

The findings of the analysis imply that the success of the mainstreaming of climate change adaptation lies in to what extent vulnerable households, communities, local actors, and the national government is involved in the planning and delivery process. It appears from the above discussion that adopting a bottom-up approach alone cannot address the issues of the multi-scale governance of climate change mainstreaming, as it is constrained by a lack of top-down support and government ownership. The evidence supports the argument made earlier in the chapter that multi-stakeholder involvement in implementation is crucial for the mainstreaming of CBA into the development process.

Stakeholder approaches to mainstreaming

Building on the previous section, this section argues that there needs to be strong collaboration between the state, the citizens, and the communities to share information, knowledge, and technology for mutual support. This section investigates two major aspects of stakeholder approaches to mainstreaming. It analyses how far the LAPA has been successful in: a) enhancing working collaborations among various stakeholders, including local communities; and b) generating benefits out of such partnerships and collaborations.

Adaptation to climate change is a complex, multi-dimensional, and multi-scale process (Bryant, et al., 2000). The complexity of climate change adaptation requires a multi-institutional approach to mainstreaming. According to Few et al (2007, pp 56-57), involving appropriate people from the start of a project is critically important. As well, the consultation must go beyond formalities and include stakeholders to construct, discuss, and promote alternative actions.

The findings of the present study show that more than 58% of the practitioner respondents (n=18) perceived that the LAPA was successful in bringing different agencies together. Five of the respondents said that collaboration at the local level was highly rewarding for the communities because it generated financial resources, as the agencies involved agreed to provide support to the communities. Among the respondents, four perceived that

mainstreaming is a holistic approach to bringing different stakeholders together. Most of the respondents thought that the participatory process used in adaptation helped to build working relationships and ownership among local stakeholders (Figure 11). The district level multi-stakeholder focus group discussions also highlighted the achievement of the LAPA in terms of ensuring working collaborations among local level government service providers and the communities (DMFGD[25], 13th January 2012).

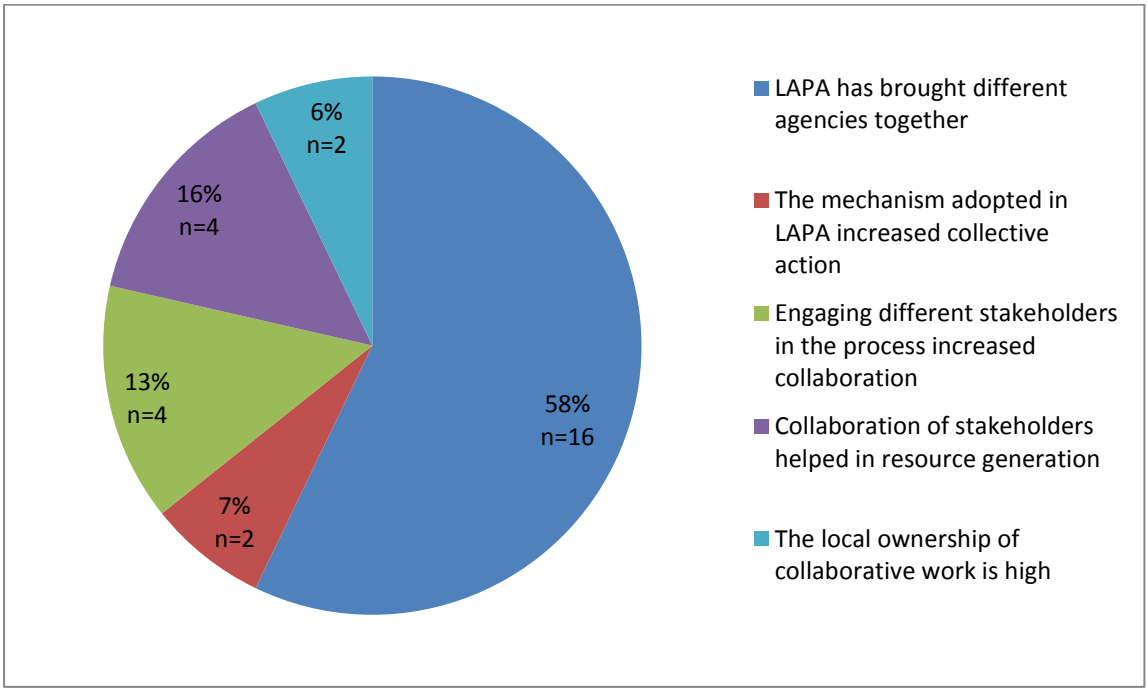


Figure 11: Perceptions of practitioners on working collaborations among stakeholders

The LAPA case study analysed in this research shows that the process has helped to raise awareness among local institutions and has brought grassroots institutions together. Among the stakeholders, community representation was relatively high in the preparation of the LAPA. Most FGD participants in the Sukrauli, Bangesaal, and Dhungegadi VDCs (n=120) at the local level, felt that they had contributed to the adaptation planning process. Similarly, more than 60% of practitioner respondents (n=18) felt that the LAPA had been instrumental in bringing different agencies together.

As argued in earlier chapters, there is a benefit to increased working collaboration among agencies. The field data reveals that the collaboration among local agencies in the LAPA,

[25] District level multi-stakeholder focus group discussion conducted in Pyuthan district involving district level practitioners (13th January 2012).

assisted in generating financial resources to implement adaptation activities at the local level. The report, from one of the LAPA piloting partners, Rupantaran, showed that the scale of resource leverage was very encouraging in the Livelihoods and Forestry Programme (LFP) implemented in districts where the LAPA piloting was carried out. The total direct investment was USD$1.87 million, resulting in additional resources of USD$0.51 million (equivalent to 21%) being leveraged from government and other sources (Rupantaran, 2012).

At the grassroots level, there were examples where government, NGOs, and community groups had jointly established a local climate change management fund and started to finance adaptation programmes. For example, the public land management group and local agencies collaborated in the Sukrauli VDC of Nawalparasi district to implement the priority activities identified in the adaptation plans. Out of the total funding, the Livelihood and Forestry Project (LFP) contributed 12% (NRS 22,500) and the District Soil Conservation office contributed 6% (NRS 12,000) to the adaptation activities (Figure 12).

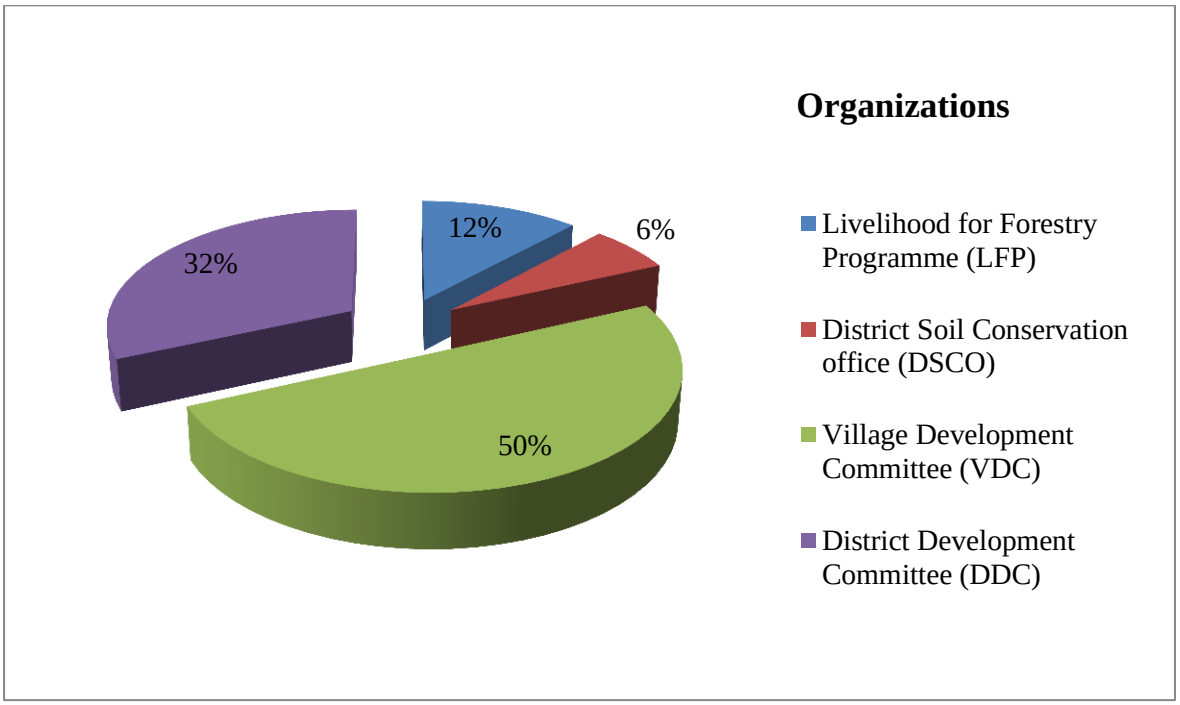


Figure 12: Resource contributions in terms of cash by type of agency in Sukrauli VDC

This study found also that the Village Development Committee of Sukrauli contributed 50% (NRS 95,000), while the District Development Committee contributed 32% (NRS 60,000) of the total funding to support the implementation of adaptation activities. The community contributed by providing labour support during construction activities. The contribution of

the community was useful in including climate change adaptation within their annual plans. In Dhungegadi VDC, the Dhandemela Community Forestry User Group collaborated with other agencies (GOs and NGOs) in income-generating activities for vulnerable households. The investment in these activities, according to the majority of the participants in the focus group discussions, was helpful in targeting poor and vulnerable households.

As argued earlier, the other advantage of increased collaboration among local agencies was the empowerment of vulnerable communities and groups. The mobilisation of the community forestry groups helped to mobilise the communities to take part in climate change activities. The findings also show that the involvement of non-government organisations helped to raise awareness of local communities and local government authorities. According to the majority of the communities consulted, the social mobilisation initiated by the NGOs successfully created a group of community members who took the lead in working with local government to plan responses to climate change issues. One of the contributions was the establishment of a Village Forest Coordination Committee (VFCC) to coordinate local agencies. One local government respondent said:

> In fact, there are a lot of advantages of involving non-government organisations in climate change and local development. They have been important players in mobilising communities and helping us to reach the target groups. I think NGO and GO collaborations will be really fruitful in bridging the gap between communities and the government. This is particularly important when the donor funds are terminated. I personally think that engaging multiple institutions is important in dealing with issues such as climate change (PRRN 12).

It is important to note, from the above evidence, that networks and collaboration among local stakeholders contributed to the empowerment of communities to actively participate in local development. The analysis shows that local communities were active in demanding services and proposing their needs and priorities to service providers. Table 17 below shows that almost all the community groups in the Dhungegadi VDC were successful in receiving financial resources (cash) from the local government and other agencies to implement their adaptation priorities. The communities were successful in obtaining resources because of their close relationship and collaboration with local government. This example demonstrates

that if there is local-level collaboration, communities benefit from such networks as they can access technical and financial resources. This is also a good example of how effective collaboration at the local level can contribute to addressing climate change and development issues at the same time.

Table 17. Financial support received by community-based organisations for implementing climate change activities

Types of Activities Funded	Name of Groups Receiving the Funding	Amount (NPR)
Bacchidanda water tank construction and emergency fund	Kalidhunga ward number 9	73,894
Khaltak Pani water tank construction	Ward number 5	50,886
Revolving fund and emergency fund	Khahare community forest	67,000
Revolving fund for supporting adaptation	Kamaladi ward number 6	60,000
Revolving fund for supporting adaptation activities	Bachimpokhara	35,000
Providing fire control material	Kamaladevi ward number 6	7,500
Water tank construction	Bagedi ward number 3	70,000
Gatkhola water tank construction	Chaukedawla ward number 7	70,000
Dharadikhola irrigation support	Chabise ward number 4	70,000
Plastic pond for water collection	Rangbang ward number 8	51,210
Stretcher and medicines for emergencies	Jaspur ward number 8	29,500
Emergency fund establishment	VDC level	25,000

Source: Information derived from focus group discussion with VFCC members in Dhungegadi and their database (FGD with communities, January-February 2012)

However, such collaboration appears simple at the grassroots level, but becomes more complicated as it goes upward to the district and national levels. This is because of the diverse and often conflicting interests and working approaches among district and central level institutions. As argued in Chapter Three, there is also the culture of working in isolation at the district and central levels which makes collaborative work more challenging. Collaborative work was still lacking within government institutions, particularly at the district level. Throughout the research process, it was difficult to find concrete examples of mainstreaming attempts by district agencies. According to the majority of the practitioners (94%), the conventional working modality at the district level, which is more sectoral and centrally-dependent, results in the district agencies being more reluctant to make decisions on climate change issues. In addition, the government practitioners revealed that inadequate

action on climate change was also related to a lack of sufficient human resources, knowledge, and information on climate change (PRRN 16-18).

The discussion in Chapter Four indicated that although decentralisation policies were in place, actual devolution of power at the local level was not happening in Nepal. Most of the local government bodies still rely on the central level in terms of resources and decision-making. Almost all the district-based practitioners interviewed agreed that the rigid government approach to planning and decision-making constrained the government agencies from participating and making decisions at the local level. One district level practitioner said:

> The district level agencies have set and fixed annual work plans and guidelines with very tight resource allocations. We cannot move beyond our set plans and targets unless, and until, it is changed from the centre. Climate change has not been our development priority. We are aware of the LAPA piloting but officially we have not been informed or even requested by any agencies to put resources into it. It is also true that we do not have any idea about how we should act on climate change (PRRN 16).

There are implications for climate change adaptation at the grassroots level of the lack of government collaboration and support. Although, the mobilisation of local resources is advantageous, there needs to be a sustainable flow of resources to support local adaptation. The findings show that due to the absence of support from the district and central level sectoral line agencies, financial and technological gaps were high at the local level. For example, the implementation of the adaptation plan at the community level was stopped due to a lack of adequate financial and technological resources.

Communities were also constrained by the lack of access to government services. It was revealed in the field that community-based organisations and local institutions relied only on the NGOs and various projects for financial and technical knowledge on adaptation planning and implementation. The reliance on project funding was problematic because of the limitation of resources and the lack of continuity. As argued in Chapter Three, most of the donor-funding in Nepal is of a short-term nature (1-3 years), for example, the LAPA piloting, and is limited in terms of financial resources (an average of USD$100,000).

The evidence presented in this section supports the argument made earlier in the chapter that networking and collaboration among stakeholders is necessary for sustaining mainstreaming initiatives. As argued in Chapter Two, a multi-stakeholder approach is significant in climate change mainstreaming as it complements the required capacity and resources. This case study has also provided evidence to show that if local agencies and communities collaborate, it can lead to resource-leveraging and can generate more benefits for poor and vulnerable households. However, the case study also demonstrates that collaboration needs to happen across different levels. Local level collaboration needs to be supported by district, national, and international institutions in order to overcome the barriers related to financial flows and technology transfer.

Enhanced climate change knowledge-base and information

The literature review chapter (Chapter Two) identified that the information and knowledge gap in climate change is one of the major hurdles to the mainstreaming of climate change adaptation into the development process. However, there are advantages of decisions about climate change beings based on information[26] and knowledge[27] about climate science, because this supports the identification of appropriate technologies and practices to address the impacts of climate change at the local level. This section of the case study examines the LAPA's contribution to the enhancement of a climate change knowledge-base and information.

The LAPA case study suggests that the initial period of the piloting was focused on exploring the opportunities and challenges of mainstreaming. There were several background studies carried out in order to increase the understanding of the local governance system, institutional and financial mechanisms, successful practices, and available tools and approaches (HTSPE, 2011). The LAPA document outlines the associated studies conducted as part of the programme, such as the documentation of good practices, and cost-benefit analyses of some of the identified adaptation and development interventions, in order to find ways to up-scale

[26] Information here refers to information about climate change primarily related to science, practice, and projections.
[27] Knowledge here refers to local and scientific knowledge on climate change adaptation primarily related to assessment and technological practices.

local initiatives to the national level. The majority of the practitioners revealed that lessons from the pilot project, and the understanding of good practice in the development sectors found during the LAPA piloting, were useful to feed into the design of the LAPA framework (FGDP 2 &3).

The building of a knowledge-base on climate change plays an important role in decision-making about adaptation interventions (Ayers et al., 2013). It was found that adaptation planning and the prioritisation of adaptation options in piloting the LAPA at the local level, was based on the available local knowledge of communities and the staff of the facilitating organisations (e.g. NGOs and project staff). When asked about how the communities and practitioners devised the options for adaptation, most revealed that they relied on their experience with climate variability and current risk factors (FGDPRRN[28] 2). Although community knowledge was useful, most practitioners interviewed in this study shared that it was not sufficient to merely deal with the impacts of climate change. In addition, it was observed that there was a lack of top-down support for the provision of scientific information and knowledge about climate change. It can be concluded from the findings that external support is needed to fill the knowledge gap at the community level.

Correct scientific information and knowledge about climate change adaptation technologies and practices also play an important role in making appropriate choices of adaptation interventions (Ayers, 2011). The field-level assessment of the LAPA shows that the technologies and practices identified by communities for adaptation comprised the majority of the development activities. Likewise, the analysis of the adaptation plans in all three field sites showed that more than 75% of the total activities implemented in the study areas were related to infrastructure development activities which do not address climate change risk. The inclination towards development activities was the result of a lack of information and knowledge about adaptation-related technologies and practices.

In comments that are consistent with the views of majority interviewees, it was found that household had only limited access to knowledge about the technologies and practices associated with climate change adaptation. Communities in all three research sites also identified the lack of technology, knowledge, and financial resources as major constraints to

[28] Focus group discussion carried out with Practitioners in Pyuthan district during field survey.

mainstreaming. It appears from the findings that lack of technological knowledge is a major barrier to the implementation of climate change adaptation at the local level. The NGO practitioners further added:

> I think one of the challenges of decision-making at the local level is the lack of correct information on climate change. Nobody of us knows how climate change will impact our resources and what kind of technology and practices is needed. As far as I know, there are no studies and research conducted in our working areas on climate change. The decisions we take in terms of technology identification are mostly ad-hoc and based on our development experiences, which may be right or completely opposite. I think the national and local system is not well-equipped with information related to climate change (PRRN 5).

Although the LAPA incorporated a number of background studies, it appears from the above informant that the outcomes of these studies were not shared with local communities. Like the informant above, the majority of the communities felt that the information related to the scale and magnitude of the impacts of climate change and its prediction is missing at the community level. The lack of information and knowledge is reflected in how local stakeholders identify adaptation priorities. Figure 13 also shows that, in the absence of adequate knowledge on climate change, the prioritised adaptation activities seem to only focus on development activities, and primarily on infrastructure development.

Studies conducted in other countries also reveal the need for a strategic approach to technology identification. Sovacool, et al (2012) investigates the climate vulnerabilities of four least developed Asian countries - Bangladesh, Bhutan, Cambodia, and the Maldives, and argued that practitioners should stop focusing predominantly on the improvement, or "climate proofing" of infrastructure and technology. The information in this research has also showed that the existing pre-assumed knowledge about infrastructure of the NGO practitioners guided most of the technology identification process in the LAPA and the technology-based climate change responses.

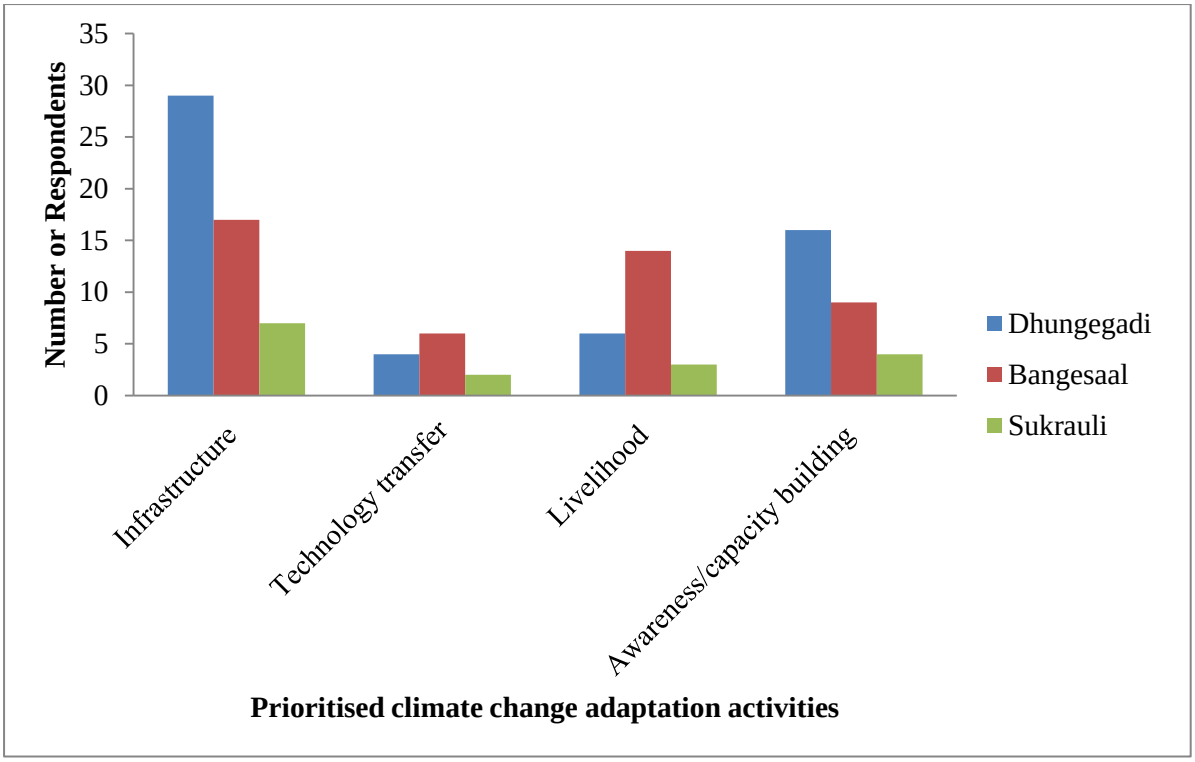


Figure 13: Distribution of prioritised adaptation options in the study VDCs (Source: Adaptation plans of Dhungegadi, Bangessal, and Sukrauli VDCs)

Ayers, et al (2013) argue that the most effective and sustainable way of supporting communities in the adaptation process is to respond to their requirements. There are examples where local knowledge and innovations have provided a strong basis for addressing climate risks and impacts (Regmi et al., 2009). Some local practices, such as the creation of tree plantations and species conservation adopted in the research sites have been successful. It was also revealed that the Community Forestry User Groups successfully addressed degradation issues, such as landslides and water resource protection. For example, it was observed that the Public Land Management Group in Nadiya tole of Sukrauli VDC carried out plantation activities along the riverbank and protected their villages from flooding. One of the female interview respondents stated that after managing the forest, their village was protected from river damage and this contributed to household safety (Key Informant Respondent - KIRN 2).

However, the identification of technologies and practices through the use of participatory approaches is always challenging, as communities tend to be inclined towards their immediate needs and many do not consider future risks. Lebel (2012) also argues that there is little evidence to show the direct contribution of local knowledge in reducing vulnerability.

Most of the contributions were based on responses to existing climate variability or particular events, as opposed to longer-term changes in climate. The discussion implies that there is a need to integrate top-down planning into local level decision-making in order to make climate change technologies and practices more effective.

As discussed in Chapter Two, although many researchers argue that good development practice contributes to the building of the adaptive capacity of households and communities (Huq and Ayers, 2008b), it is difficult to practice at the community level because of the various interests and needs. Local level decision-making is still influenced by a few powerful elites according to their own interests, and there is no guarantee that vulnerable households will have access to climate change interventions. As was evident in the earlier discussion, an interest in investing in hard-core technologies is one example of the difficulties of practice at the local level.

Figure 14: A defunct water pump in Bangesaal VDC of Pyuthan district (Photo Credit: Author)

The findings also pointed to the issue of technology identification in climate change adaptation. The field evidence shows that there are some pitfalls in the process of treating all development activities as a form of adaptation, as some of the activities identified as adaptation actually lead to mal-adaptation practices[29]. For example, water extraction activities

[29] Mal-adaptation practice here refers to development practices that lead to more ecological hazards and risks.

for irrigation, promoted in Bangesaal VDC, in fact decreased access to water resources for downstream communities, which relied on the same source of water from the river (FGDC[30] 4). Figure 14 shows that, in the same VDC, the water pump which was promoted as an adaptation technology to increase water access could not function because of the low water levels caused by the severe drought and the lowering of the water table through excessive water extraction.

The lack of knowledge about climate change, as mentioned in the previous paragraph, contributed to haphazard adaptation planning and implementation, such as the case of the drinking water schemes in Bangesaal VDC. The findings show that the capacity of communities also depends on their access to quality services from service providers. The knowledge and service delivery gap exists because the practitioners, mostly the service providers, are not aware of the projected changes and impacts. The perceptions of the practitioners in Pyuthan and Nawalparasi districts indicate that although practitioners have more information about climate change adaptation, they had only limited knowledge about the technologies and practices that would be suitable for climate change adaptation (Figure 15).

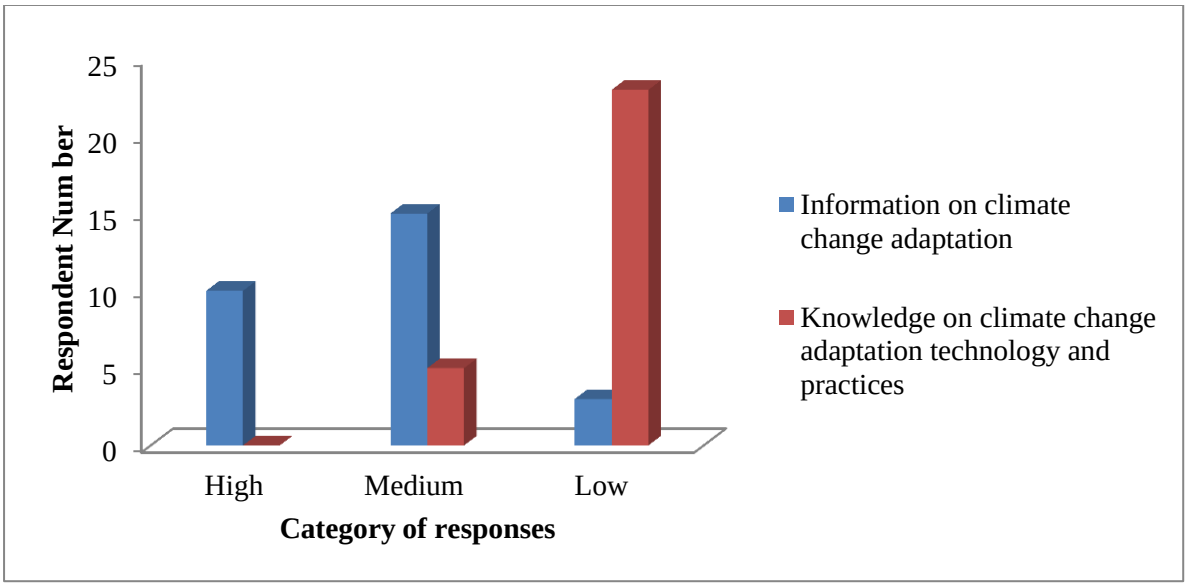


Figure 15: Perceptions of practitioners on their existing information about climate change and knowledge of the technologies and practices related to CCA

[30] Focus group discussion carried out with communities in Bangesaal VDC of Pyuthan district during the field survey.

The above perceptions of practitioners represent a genuine knowledge gap at the local and district levels in the research sites. It was also noted in the discussion with the district line agencies that even though they had financial resources and increased demand for the extension of, and services related to, climate change adaptation from the communities, they were reluctant to carry out research and extension work related to climate change. They also argued that the integration of climate change into their sectoral plans was delayed because they were not clear about what they should do and how they should do it (FGDPRT 2). This implies that one of the prerequisites for decision-making on climate change is the available information and knowledge on adaptation measures and technologies.

As part of the LAPA programme, studies were initially conducted to identify and document the existing institutional and financial mechanisms and good practices in natural resource management. However, the generation and sharing of knowledge was inadequate to facilitate local decision-making. The findings suggest that in order to address the scale and magnitude of future climate risks, additional efforts will be required involving stronger interactions between households, communities, and the scientific/research community.

Furthermore, the findings from this research suggest that the uncertainties of climate change and the lack of information at the local level have a negative impact on decision-making with regards to responding to the impacts of climate change. The literature has also pointed out the fact that awareness of the risks associated with future climate change conditions, especially at the local government and community levels still require a systematic and structured knowledge transfer mechanism to communicate climate change and risk (Chinvanno and Kerdusk, 2011).

Enhanced capacity of institutions to support mainstreaming

The effectiveness of climate change adaptation responses depends on skills and capacity at the local and national levels. For the failure to prioritise the building of local cross-scale relationships, knowledge and capacity is a fundamental problem in meeting future climate change. As argued earlier, awareness is the initial step towards mainstreaming, the building of capacity, and other facilitating factors that follow. In this section, progress on the mainstreaming of climate change adaptation into the development process will be examined

by looking at the contribution of the LAPA to increasing the awareness and capacity of practitioners and communities in the research sites.

The findings of this research suggest that awareness raising and the building of capacity in relation to climate change has been focused on government and the donor agencies at the central level rather than at the local level. This clearly reflects the practice of accumulating resources and services at the central level. International organisations and consultants have led the design and piloting of many climate change-related policies and projects (for example, the NAPA and the PPCR), according to the literature. This is also similar to the LAPA where the donors signed an agreement with the government to develop the framework. Although there were only minimal activities at the centre, the capacity-building activities within the LAPA were centered on only a limited number of agencies in the central government. The policy-maker respondents in the interviews argued that the technical assistance provided by the donor agencies for capacity-building, heavily relied on external consultants and experts, and the handover of knowledge and skills was limited to only a few individuals within the Ministry of the Environment and the NGOs involved (PRN 1, 4, and 13).

However, the evidence from the LAPA case at the local level shows that the awareness and capacity-building activities, initiated within the project, contributed to the creation of a favourable environment for the mainstreaming of CBA at the grassroots level. The awareness activities, in fact, mobilised a large number of communities, government line agencies, non-government organisations, donors, and community-based organisations to take the initiative on climate change adaptation. The field observations and interactions with communities and practitioners showed that the LAPA piloting enriched the interest and curiosity about climate change adaptation for communities and community-based institutions at the local level.

Local community-based adaptation planning was successful in increasing the awareness of communities and households on issues related to climate change. It was observed from the field visits that the level of interest and awareness of local stakeholders had increased due to the capacity-building activities. A large number of community groups in the research areas used the information derived from their training to deal with climate change issues more systematically. For example, 31 community groups in Bangesaal, Dhungegadi, and Sukrauli VDCs, with support from NGOs, prepared local and community adaptation plans to address climate change issues. These community groups also created institutional mechanisms to

coordinate action on adaptation to be carried out by different community-based institutions (Table 18).

Table 18. Number of community groups involved in implementing adaptation activities and their household coverage

Research sites (Village Development Committees - VDCs)	Number of community groups involved in adaptation interventions at the local level	Number of households benefiting from adaptation interventions	Number of vulnerable households involved in the interventions	Number of coordination mechanisms formed to facilitate adaptation
Bangesaal	11	1,521	827	1
Dhungegadi	9	1,177	579	1
Sukrauli	11	335	250	1

Awareness about climate change is not limited to a single event, but rather includes a combination of initiatives that sensitises communities and builds their knowledge-base. The information from the LAPA case study shows that a wide range of communities and stakeholders at the local level were sensitised and had their capacity on climate change issues increased. The multi-stakeholder focus group discussion in Pyuthan district revealed some interesting data demonstrating the impact of the capacity-building activities initiated within the LAPA. The discussion indicated that a total of nine events were organised in Pyuthan district, which increased the awareness of 610 females and 560 males about climate change adaptation. The sensitisation process also reached 595 disadvantaged groups, 450 ethnic minorities, and 50 religious minorities (DMSFGD, January 13, 2012). The focus group discussions with practitioners from Pyuthan and Nawalparasi pointed out that large numbers of households and communities benefited from the capacity-building activities (Table 19).

Table 19. The number of people sensitised and had their capacity built on climate change adaptation issues in the study districts

Research districts	Number of people benefiting from climate change awareness activities	Number of people benefiting from capacity-building activities	Total number of professionals trained and prepared on climate change adaptation
Pyuthan	70,000	1,037	100
Nawalparasi	14,569	1,500	More than 100

Source: District-level multi-stakeholder focus group discussion in Pyuthan and Nawalparasi

This is further supported by the interviews and focus group discussions with selected households and communities (Table 19). Almost 95% of the practitioner respondents perceived that they had good exposure to training on climate change. They considered that the capacity-building events organised through the LAPA helped them to become familiar with climate change issues, and to gain insight into the assessment and planning process and further technical knowledge. One practitioner respondent stated that:

> The information and knowledge gained during the LAPA process helped us to realise the significance of linking climate change to development and its benefits. We got the opportunity to participate in the climate change-related training and learn about how to carry out participatory climate change assessment and planning. This kind of exposure provided communities and households with an opportunity to act collectively to address the issue. These kinds of activities should be continued (PRRN 10).

Despite some promising progress in raising awareness at the community level, it was found that capacity and the transfer of knowledge remain a major unaccomplished task. The literature review chapter of this thesis also shows that the lack of capacity and a number of technical issues act as barriers to the advancement of the mainstreaming of climate change adaptation (Tearfund 2006; Gigli and Agrawala 2007). This research found that knowledge and skills transfer to service providers, particularly government agencies, was limited. For example, the NGOs who were involved in facilitating local level adaptation planning do possess experience and knowledge of the subject matter, but did not transfer this to the government service providers (mostly at the district level). This is backed up in this study which found that, according to the majority of the practitioners (95%), the knowledge and skills of NGO staff was not transferred to government service providers mostly at the district level. One local government respondent said:

> We in the VDC and community-based organisations relied on the direction provided by NGO representatives on what to include in development planning. We have to rely on them because we do not know much about climate change. I think this limited skills transfer created more dependency of us on the NGO staff for decision-making on climate change. (PRRN 16).

Furthermore, the increased awareness and the capacity-building activities failed to motivate the practitioners to take the necessary adaptation measures to address climate change issues. The interactions with practitioners and communities suggest that they had only basic knowledge of climate change and that this was limited to the use of some participatory methods and tools in carrying out simple assessments and planning. According to these respondents, they still face difficulties in responding to the technological need of communities and households. The limitations of knowledge and capacity were also highlighted in the district-level multi-stakeholder brainstorming workshop in Pyuthan district. The participants stated that:

> The knowledge, technology, and skills on climate change is limited both at the community and district levels. We don't have any special package on adaptation to address the climate change impact. Nobody knows how we deal with issues of disease outbreak or scarcity of water. The scale of impact is high and we assume this needs more scientific knowledge, good technologies, and skills to implement. There is now a capacity gap within the government and communities. We in the district lack technical manpower and human resources to help communities to respond well to climate change (DMSBW, 13th January 2012).

The findings imply that limited skills and capacity at the local level have institutional and policy implications for the up-scaling of CBA within government institutions. The National Capacity Self-Assessment study, initiated by the Government of Nepal (2008), also identified a lack of institutional capacity for climate change risk management as the main reason why climate change was not formally integrated into development planning at the national, sectoral, district, and village levels (Saito, 2012). This implies that capacity-building is one of the prerequisites for the mainstreaming of climate change adaptation in Nepal.

In summary, the analysis in this section suggests that although the LAPA raised greater levels of awareness, little has been done in terms of the analytical capacity of communities and practitioners. More specifically, it can be argued that mainstreaming is effective if awareness and capacity is built within and among individuals and institutions across various levels. Adaptation should be seen more as capacity building process thorough which the challenges of climate change can be met. Capacity-building for climate change adaptation requires

multi-institutional collaboration at different levels. As Agrawal et al (2013, p.576) argue, 'capacity building also requires coordination across a variety of local actors and decision-makers since no single blueprint solution for partnering with a specific type of actor can address the multiple needs for effective local adaptation'.

Institutionalising and up-scaling of the LAPA

The literature reveals that although the opportunities to mainstream climate change are increasingly recognised by analysts and in (inter)national policies, and are starting to be formulated, implementation is still in its infancy (Kok and Coninck, 2007). The success of mainstreaming depends on how well it is operationalised and up-scaled[31] within the formal and informal systems of both government and public institutions. As discussed in Chapter Two, one of the steps to achieve mainstreaming is to integrate adaptation into the ongoing planning process of both the government and private sector. This section of the chapter analyses the LAPA case study in order to identify the contribution of the LAPA in terms of its success and effectiveness in the up-scaling of CBA practices in Nepal.

In Nepal, the mainstreaming project and programme, initiated by the government, donors, and civil society, has focused on the government planning system so that climate change adaptation becomes a strong pillar of the development plans. The Government of Nepal has formulated a climate change policy, prepared through the NAPA and endorsed in the LAPA framework, to support mainstreaming initiatives. Although policies exist, there are however only limited government actions for the integration of climate change into the development process. Although the first and second three-year interim plans included sectoral resources on climate change adaptation, the major sectors such as agriculture, health, water resources, and local development have not integrated climate change adaptation. Likewise, institutional and budgetary support for climate change integration is poor within the major sectoral development agencies (Bird, 2011).

The LAPA case study demonstrates a different scenario in terms of how climate change adaptation is mainstreamed into local development planning. One of the major expected

[31] Up-scaling in this thesis refers to the rolling out of the piloting experiences of specific areas across the rest of the country, which then continues beyond the timeframe of the programme.

outcomes of the LAPA initiative is to develop institutional and financial mechanisms to facilitate the development of an adaptation plan and to integrate it into the annual development cycle. The field information shows that these mechanisms have been tested at different levels of governance in the piloting areas (Figure 16). The different mechanisms present both opportunities and constraints for the mainstreaming of climate change adaptation at the local level.

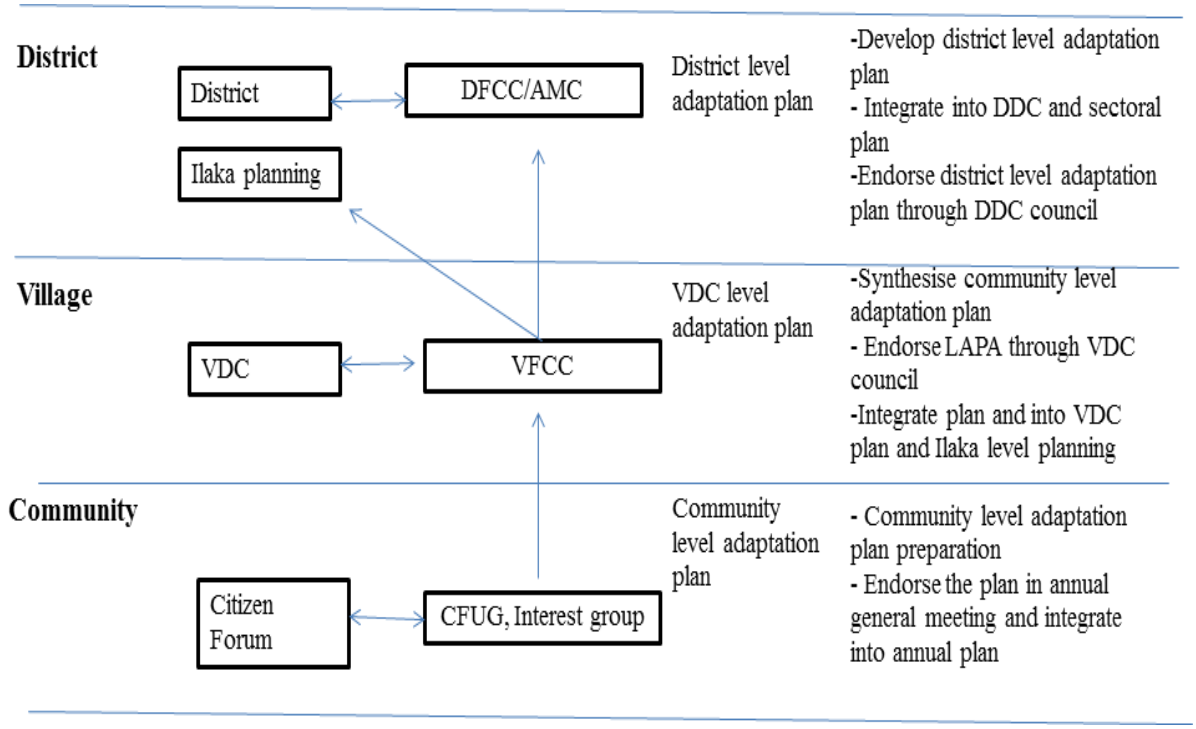


Figure 16: The various types of institutional structure and mechanisms adopted within the LAPA (Source: Rupantaran, 2012)

The mainstreaming of climate change adaptation into the development process has contributed positively to the development of an institutional mechanism at the local level. The Community Forestry User Groups were mobilised as grassroots-level community groups to coordinate households and community-level adaptation initiatives. For example, at the Village Development Committee (VDC) level, Village Forest Coordination Committees (VFCC) were formed under the chairmanship of the VDC secretary involving all the Community Forestry User Group representatives, political parties, government service providers, and local NGOs. There is evidence to show that these mechanisms are working well. The Village Forest Coordination Committee and the Community Forestry User Groups in Dhungegadi and Bangesaal VDC have jointly facilitated the development of the VDC-level Local Adaptation Plan of Action (LAPA) and established a revolving fund as a financial

mechanism to support the implementation of adaptation plans. In Sukrauli VDC, it has been observed that the Public Land Management Group has taken the lead and worked closely with the Village Forest Coordination Committee to prepare and implement adaptation plans (FGDC 1, 2, 3, 4, and 5).

At the district level, the District Forest Coordination Committee (DFCC) and the Activity Management Committee (AMC) have been used as institutional mechanisms to coordinate climate change initiatives in the Nawalparasi and Pyuthan districts of Nepal. For example, in the Nawalparasi district research site, the District level Climate Change Adaptation and Mitigation Committee (DCCAM) has been formed to coordinate climate change activities. The field evidence shows that the DCCAM-N in Nawalparasi supported the community-based organisations and NGOs in implementing a number of climate change activities in the district (FGDP 1 & 2). Majority of the respondents commented that, these mechanisms have created a number of positive impacts, particularly in ensuring better coordination among stakeholders and initiating a few adaptation activities such as improvements in agricultural practices and income generation activities at the community level.

The integration of climate change has been successful at the community level. The Community Forestry User Groups have now revised their operational plans[32], and incorporated climate change issues into their ongoing agendas. More than 90% of the Community Forestry User Groups in Dhungegadi (12) and Bangesaal (9) VDCs have included activities to support climate-vulnerable households. Likewise, the Public Land Management Group (PLMG) in Sukrauli VDC also revised their constitution and operational plans to accommodate climate change issues. It was also evident from the field that the Community Forestry User Groups used the different participatory tools and methods to set their priorities. For example, the communities involved in Kalidhunga Community Forestry in Dhungegadi used the participatory-ranking exercise to identify the most vulnerable women and poor households for the targeting of adaptation activities (FGDC 1).

Grover (2010) suggests that enhancing the quality of local development plans can result in substantial climate change management gains. Improvement in the quality of the local

[32] The Community Forestry Policy in Nepal has mandated Community Forestry User Groups to develop their own operational plans to outline their management activities and detailed plans of action (Source: Acharya et al 2002).

planning process is also relevant in the context of promoting climate change adaptation in Nepal. The analysis also shows that climate change is an integral part of development planning in Dhungegadi and Bangesaal in Pyuthan district. The annual development plan (2010/2011) of Dhungegadi and Bangesaal VDCs included climate change activities and an associated allocation of financial resources (DDC annual plan, 2010/2011). It was found that the adaptation planning process carried out by the various communities influenced the development planning process in Pyuthan district. One of the practitioner respondents from local government said:

> The integration of climate change priorities was ensured in our VDC in a number of ways. At the community level, CFUGs of Dhungegadi and Bangesaal shared the activities of adaptation plans with the Citizens Forum. The LAPA was then endorsed through the VDC Council. The endorsement was made with the inclusion of priority adaptation activities and the allocation of more funds. One of the major contributions of the adaptation plan is that the local government development plan now puts more emphasis on climate change environmental issues than before (PRRN 19).

As discussed in Chapter Two, an important element of mainstreaming is the up-scaling and institutionalisation of CBA practices and approaches piloted in small geographic areas to a larger scale, particularly through national policies and plans (Ayers et al., 2013). The literature review and the field level evidence suggest that the piloting of the LAPA in the initial pilot areas led to the implementation of the same approach elsewhere, in some cases, by bilateral donors. The Interim Forestry Programme, with support from the DFID and the Swiss Development Cooperation (SDC), supported the preparation of 298 LAPAs and 1,468 community adaptation plans. The review shows that WWF Nepal also piloted 3 VDC level LAPAs and provided support to vulnerable communities in implementing priority adaptation activities. The Nepal Climate Change Support Programme (NCCSP) government document shows that the Ministry of the Environment prepared 70 LAPAs in 14 districts of Nepal and is in the process of implementing the plans (Rupantaran, 2012). Refer to Table 20 for details.

As mentioned earlier, across different governance structures, grassroots and community level institutions were more active and engaged in the integration of climate change into the development process, because the communities realised that taking action on climate change

is urgent and necessary (FGD communities 1-8). The findings of this research further show that integration within grassroots level community organisations (such as Community Forestry Groups) is far easier and quicker compared to the government agencies, because climate change impact is more directly felt at the household and community levels. This is corroborated by research which found that more than 2,500 Community Forestry Groups in Nepal included climate change adaptation within their operational plans, and many are in the process of integration (Rupantaran, 2012). According to the practitioners, the integration within the Community Forestry User Groups happened quickly because the communities realised that they needed to adapt to the adverse climate change impacts.

Table 20. The status of the LAPA up-scaling at the local and national levels by government and donor-funded projects as of 2012

Organisations involved in up-scaling of the LAPA	LAPA up-scaling districts	Number of LAPAs formed in the districts
Interim Forestry Programme (IFP)/DFID and SDC	Terai (Nawalparasi, Kapilvastu, and Rupendehi) East (Terathum, Dhunkuta, Bhojpur, and Sankhuwasaba) West (Parbat, Baglung, and Myagdi) Mid-West (Rukum, Rolpa, Pyuthan, Salyan, and Dang)	298 LAPAs and 1,468 Community Adaptation Plans (CAP)
World Wildlife Fund (WWF)	Rasuwa (Ramche, Saphru, Bhorle, and Laharpauwa)	3 VDC-level LAPAs
Nepal Climate Change Support Programme (NCCSP)	The Jumla 'hub' includes: Dolpa, Humla, Jumla, and Mugu districts; Dailekh 'hub' has Dailekh, Jajarkot, and Kalikot districts; Dang 'hub' has Bardiya, Dang, Rolpa, and Rukum districts; and Kailali 'hub' includes Achham, Bajura, and Kailali districts	70 VDC-level Local Adaptation Plans of Action (LAPA)

Source: Author

However, the data collected for this research shows that the experience of mainstreaming at the district and national levels was not particularly successful. As previously argued, the findings show that mainstreaming initiatives in both the study sites were carried out in an ad-hoc manner and was limited to mostly NGOs and community groups. The majority of the central level government agencies were passive in taking action on climate change. The up-scaling currently happening in Nepal is limited to donor-funded projects (Table 21) rather than within the government system. It can be concluded from the findings that the lack of

ownership among government institutions is a result of the LAPA approach that only focuses on grassroots community groups and NGOs.

The district line agencies are more reluctant to integrate climate change adaptation than the VDC level government agencies and communities. The lack of interest among district level agencies is related to a lack of central level policy directives and their limited capacity to act on climate change issues. There was a general tendency for district line agencies to rely more on central level guidance and suggestions. Paudel et al (2013) also find that the inaction of local governments on climate change adaptation was due to the lack of a clear and explicit policy mandate. One practitioner from the district government stated that:

> We need to have clear policy directives and circulars from the centre to act on climate change. If our central agencies do not guide us, we will not be able to take any decision. There is another issue which is related to making decisions on resource allocation. We do not have much flexibility in terms of the annual budget. Our budget is also determined by our central agencies. All these factors make us more rigid and reluctant. Similarly, another issue is about the sectoral way of working in most of our government offices. Every sector works on their own-in terms of programme delivery. The DDC tries to coordinate, but it has not happened because some of the agencies have their own planning and reporting systems. This is also due to the lack of a culture of working together (PRRN 16).

The above response implies that the approach of the government is more centralised and not favorable to the up-scaling of local adaptation practices as there is often a lack of coordination and communication among the sectors. As discussed in Chapter Five, the sectoral agencies have their own planning and delivery cycle, which is often isolated and not linked with other sectors. This lack of integration is one of the causes of work duplication and resource overlaps (Dhungana and Wagle, 2013). Huq and Reid (2014) also argue that government structures are notoriously slow to take action and respond to local needs, and have a history of failing to respond to the needs of the poorest and most vulnerable households and communities. The practitioners interviewed in this research were also concerned with the current government system. The NGO practitioners argued that the mainstreaming of climate change adaptation under the current government system will fail

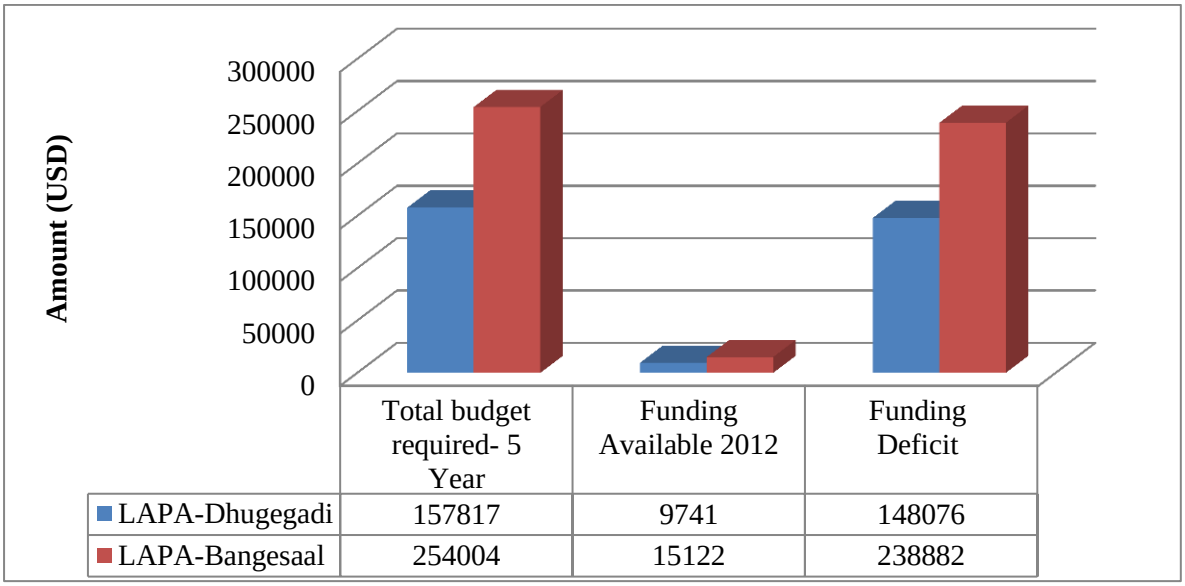
because it does not have the capacity and a system to address the current issues of capacity, knowledge, and planning (PRRN 4-8).

Similar to the findings of the PEI case study, the LAPA case study also demonstrates that there are issues around the mainstreaming initiatives, from the project mode through to the national level. One of these challenges is around the requirements for the financial resources to mainstream CBA. As discussed in Chapter Three, the current resources available for adaptation at the national level, as of 2012, only amount to USD$78.9 million. Out of the USD$350 million required for implementing the urgent and immediate priorities in the NAPA, only USD$6.5 million was available by 2012 from the Least Developed Countries Fund (PRRN 1). The international funding of climate change adaptation has been uncertain and has had a negative impact on national climate change mainstreaming efforts. One of the NGO respondents said:

> Looking at the probability for the next three years, it is unlikely that the financial requirement for adaptation at the local level will be fulfilled. Majority of the funding, currently available for Nepal, was made through bilateral and multilateral funding. However, these financial resources were made available within their bilateral aid package and no additional funding on climate change was observed. I think with regards to the international funding, it is still under debate and mostly uncertain (PRRN 9).

As argued in Chapter Three, due to the huge task of addressing poverty and under-development, the scope for using the development budget for climate change is limited in a country such as Nepal. The development budget is already in deficit and under-funded. The development budget is around USD$20,000 on average/year per VDC, and is already overstretched by other demands (MoF, 2012). The government agencies were not interested in diverting their resources to climate change, unless and until, they received additional funding. One of the policy respondents argued that ‘climate change financing should come from developed countries and it is almost unethical to utilise under-budgeted development resources’ (PRN 1). On the other hand, the reality is that the government has to rely heavily on bilateral aid and loans to support the implementation of the majority of development activities. In this context, climate change will continue to receive a lack of attention and resource allocations from the government.

The funding limitations are already having negative implications at the community level, particularly on the failure to implement and sustain adaptation priorities. The financial analysis of the VDC level LAPA shows that the requirements of funding for adaptation are huge, i.e. USD$415,486 (VFCC Dhungegadi and Bangesaal, 2010). This study shows that less than 10% of the funding requirements have been met (Figure 17). According to the focus group discussions with members of the VFCC in all three research sites, they are only able to implement less than 25% of the planned adaptation activities. This lack of funding presents a challenge for how mainstreaming can be sustainable and supportive to the needs of vulnerable communities and households. A study by Tearfund in Nepal, Bangladesh, and six other countries on the effectiveness of the integration of climate change adaptation also concluded that one of the major challenges of integration is the lack of money for adaptation activities (Wiggins, 2011).



	Total budget required- 5 Year	Funding Available 2012	Funding Deficit
LAPA-Dhugegadi	157817	9741	148076
LAPA-Bangesaal	254004	15122	238882

Figure 17: Comparative assessment of funding requirements and availability, as of 2012 (USD) (Source: NAPA document, LAPA document, and field assessment)

The second issue of the wider up-scaling and mainstreaming of CBA identified in this research is related to institutional structures and practices within government. According to the majority of the policy-makers (85%) and practitioners (90%) interviewed, the current capacity and service delivery approach within government is not favourable to community-based adaptation, as it is constrained by the siloed approach and lack of collaboration among agencies, and the lack of efficient service delivery, human resource capacity, and access of households to government services. Ensor and Berger (2009) also point out that the current

governance structure at the national and international levels presents key barriers to the expansion of climate change adaptation. The third issue to emerge out of the discussions at the local level was in relation to the approach to mainstreaming. Currently the LAPA, in a similar way to the case of the PEI, takes planning as the entry point to the mainstreaming environment around climate change. The majority of practitioners and communities stated, during the interviews and discussions, that the annual planning cycle is short-term and rigid, and that accountability was upward and towards government agencies only. The other limitations of development planning are limited input and engagement from stakeholders and the poor implementation record.

The literature emphasises that the mainstreaming of adaptation into local government planning and policies is necessary because it creates more synergies and coordination among the different sectors and institutions (Lebel et al., 2012; SEI 2013), while others argue that fixed planning solutions are doomed to fail, because they do not address the uncertainties and the degree of impact of climate change (Roggema, 2012). Although short-term planning is required to address urgent and immediate adaptation needs, it needs to be accompanied by a long-term plan and adequate resources to address the nature of climate change adaptation, but primarily the uncertainties and the scale of the impacts. This implies that top-down and bottom-up planning needs to be linked in order to address both short-term and long-term adaptation priorities at the local and national levels.

The assumption that local governance and bottom-up approaches work well is problematic. Mansuri and Rao (2012, p.19) argue that local governments and local institutions in developing countries are not necessarily more accountable and transparent than central governments. According to a number of policy respondents interviewed in this thesis, the political instability, frequent changes in government, the interim constitution, changes in rules and regulations, and resource constraints are some of the challenges facing the mainstreaming agenda. The respondents further argued that climate change is not a priority on the Nepali political agenda due to many other pressing issues (PRN 1, 3, 4, 7, and 9). On the other hand, one respondent representing the development partners and civil society, argued that the Government of Nepal should fix the governance challenges, such as the fiduciary risks, corruption, transparency, political influence, under-funding of the budget, human resources, and the flow of financial resources to communities (PRN 5, 6, and 11).

The findings demonstrate that the approach taken by the donors and the development agencies to mainstream climate change into the development process raised issues of sustainability. There was some disagreement among government, donors, and civil society on how external resources should be used. The donor and NGO respondents perceived that the government system cannot efficiently and effectively channel resources to the most vulnerable communities, thus a project approach would be the best format through which to deliver programmes. On the other hand, the government official respondents perceived that the NGO project approach, promoted by donors, has weakened the government system. However, the majority of the respondents raised the issues of aid fragmentation and the failure of the project-based approach to mainstreaming. As argued in Chapter Two, an integrated and in-country approach to mainstreaming is needed to effectively up-scale CBA at the national level.

The fourth issue that emerged as a challenge to mainstreaming is the lack of ownership and commitment within government institutions. As argued in Chapters Three and Five, climate change adaptation was still not on the agenda of many central government agencies as of 2012. An interview with a government practitioner in this study showed that climate change was not yet the priority of local governments as opposed to development issues, such as addressing basic development infrastructure and needs. This is the reason why the majority of the local adaptation plans developed during the LAPA piloting were not implemented. Paudel et al (2013) points out that the local governments and district line agencies do not own these plans, and this makes it more difficult for the adaptation plans to be implemented.

The lack of government leadership on climate change has, in fact, created donor-led project dominance of the climate change agenda. The recent report published by the Ministry of Finance also indicates that more than 60% of donor funding is not aligned within the government system (MoF, 2013). The majority of the policy-maker respondents argued that the lack of coordinated financing at the national level has created problems of overlap and duplication of work on climate change. There is a lack of a coordinated national database to record the climate change initiatives. The majority of the policy-makers in the focus group discussion said:

> One of the problems of implementing climate change policies and strategies is the lack of a coordinated mechanism. Our government does not have any system of

> coordination or even a mechanism to bring the donors, civil society, the private sector, and even government line agencies together. Due to a lack of proper government guidelines, most of the donors provide resources based on their own interests and mostly outside of the government system (Focus Group Discussion with Policy-Makers).

This response indicates that despite international commitments on aid effectiveness, the donors have failed to implement the promises made in Paris, Accra, and Bussan in terms of harmonising aid within government systems. This lack of donor and government alignment, according to the majority of the policy-makers, has negative implications for the implementation of climate change policies, NAPAs, and LAPAs in the future. Chapter Three also highlighted similar challenges of aid fragmentation and lack of donor harmonisation with regards to the development sector in Nepal.

Mainstreaming efforts in other areas of development are also very weak in Nepal. The reasons for the failure to achieve mainstreaming in other areas are almost identical to the findings of this research. Khadka et al (2012, p.54) also mention that environmental mainstreaming in Nepal falls below expectations because the government has failed on several counts: an inadequate focus on crosscutting issues, continuous intervention by political parties, the inability of national advisory bodies to function properly, the inability of policy institutions to implement policy and, most importantly, the lack of adequate financial, human, and technical resources. The experience of gender mainstreaming and the mainstreaming of biodiversity within the development process is also not particularly encouraging (Mainlay and Tan, 2012). A common barrier that exists within climate change, the environment, and gender is the lack of synergy and collaboration among different agencies and at different levels of government.

In summary, the findings of the LAPA case study show that bottom-up approaches to the mainstreaming of climate change adaptation into the development process are a stronger means of reaching vulnerable households and communities than top-down approaches. However, bottom-up approaches, in the case of the LAPA, also face challenges in relation to sustaining and up-scaling, because the government line agencies are left out of the process and hence their ownership is low. There is also a lack of access to information and knowledge, and to the financial and technological resources necessary for making

mainstreaming effective. This means that for the mainstreaming of CBA to be successful, many facilitating factors are required to come together.

6.3. Conclusion

This chapter has assessed how climate change is mainstreamed in Nepal by examining two different case studies. The findings demonstrate that there are both opportunities for, and constraints on, the mainstreaming of CBA into the development process in Nepal. The two mainstreaming initiatives analysed in this research demonstrate the differences in mainstreaming progress due to the approach and strategy applied by each. The PEI has progressed more with respect to policy influence, but less in terms of putting mainstreaming into action. Influencing policy and changing existing environmental regulation has occurred at the central level, but the policies have not been translated into action. In contrast, the LAPA mainstreaming initiative has been successful in mobilising local community groups and increasing their awareness. However, the mainstreaming of CBA into the development process at the operational level has been constrained by: limited scientific information on climate change; limited knowledge on the technologies and practices of adaptation; limited awareness among practitioners and communities; a rigid planning structure; and limited financial resources.

The findings show that neither approach (top-down or bottom-up) has been successful in effectively mainstreaming CBA into practice. The findings also propose the rejection of a one-way (top-down or bottom-up), projectised, donor-driven, and short-term mainstreaming approach, instead focusing more on a nationally-owned, integrated, and long-term approach. Based on the lessons from the two case studies, the most suitable operational mechanism, specifically for Nepal as argued in this chapter, is to have an integrated institutional and financial mechanisms at the district and national levels, and locally-inclusive and responsive institutional and delivery structures at the local level that address the equity issues and varied adaptation demands of households and communities.

This chapter has provided a number of scenarios of how mainstreaming has been designed at the operational level and the opportunities and challenges of operationalising the policies. The two analysed cases indicate that the success of mainstreaming depends on how

effectively it addresses climate change adaptation issues at the local level. In order to understand the effectiveness of mainstreaming, the outcomes and impacts at the grassroots level need to be better understood. The following chapter looks specifically at the effectiveness of implementing adaptation interventions at the local level, and primarily analyses the contributions of mainstreaming initiatives to the well-being of vulnerable households and communities.

7 CHAPTER SEVEN: EFFECTIVENESS OF MAINSTREAMING INITIATIVES IN BUILDING THE ADAPTIVE CAPACITY OF HOUSEHOLDS AND COMMUNITIES

The two previous chapters examined the policy and practices of the mainstreaming of community-based adaptation in Nepal. These chapters analysed what actually happened in terms of the policy response and the implementation of policies related to climate change adaptation. As argued in Chapter Two, another important aspect of mainstreaming is the outcome of policy and practice, particularly in addressing climate change issues at the local level. This chapter explores the effectiveness of mainstreaming at the community level, in terms of: a) how mainstreaming has resulted in providing benefits to vulnerable households and communities; and b) how community-based adaptation initiatives can generate greater benefits for poor households? The project on the Local Adaptation Plan of Action (LAPA) was used as a case study to generate evidence to answer the research questions.

As discussed in chapter two, the main focus of climate change adaptation is to build adaptive capacity and long term resilience of household and communities by implementing adaptation responses that are appropriate to local contexts (Schipper, 2013). Using on the methodology proposed in Chapters Two and Four, this chapter analyses the effectiveness of the LAPA mainstreaming initiatives, particularly in improving the adaptive capacity of households and communities through the reduction of household level climate risk and by improving access to (not the just the provision of) knowledge, information and technology on climate change adaptation.

This chapter argues that climate change adaptation for the most vulnerable requires a two-way approach: firstly, a locally-inclusive approach that is sensitive to the disaggregated nature of climate change vulnerability and the fault lines of social exclusion at the local level; and secondly, local institutions should adapt inclusive mechanisms that: a) directly empower the most vulnerable households; and b) enable the easy access of poor and vulnerable groups to the assets and institutional systems that build their adaptive capacities.

This chapter is divided into two major sections. The first section provides an overview of climate change risk and the vulnerability context of the study area. The second section analyses the communities' perceptions on the effectiveness of the LAPA.

7.1. General description of the study areas

This section of the chapter provides a brief summary of the climate change vulnerability context of the study sites. This background section argues that vulnerability at the local level is high because the severity of climate change impact is higher than the existing coping and adaptive capacities. There is thus a need to take urgent and immediate development and adaptation actions to increase the adaptive capacity of vulnerable households and communities.

7.1.1. Socio-economic context

The field study was conducted in Pyuthan district of Nepal. Pyuthan is a hilly district that lies in Rapti zone of the mid-western region of Nepal (Figure 18). The two study sites, Dhungegadi and Bangesaal Village Development Committees (VDCs), lie in the southern region of the Pyuthan district (DDC-Pyuthan, 2008). The total area of Dhungegadi is 3,458 square kilometers with an altitude ranging from 500 meters above sea level (masl) to 1,000 masl, while Bangesaal VDC has an area of 4,254 square kilometers and an altitude ranging from 380 to 800 masl. These study VDCs are located at a distance of 15-17 kilometers from the district headquarters of Khalanga (DDC-Pyuthan, 2008).

The total population of Dhungegadi and Bangesaal VDCs was 4,264 and 6,607 respectively in 2011 (CBS, 2011). The socio-economic features of the two VDCs are quite similar (Table 21). The trend of rural-urban migration is higher than urban-to-rural migration in the study area. The average household size in the study VDCs is 7.48. In terms of access to basic services such as education, the household survey shows that the mean educational status of households in the study VDCs is 6.00, which is considerably lower than the national average of 8.1 (CBS, 2011). In addition, in both VDCs, the illiteracy rate of the female population was 33%. The survey data shows that females were also less privileged in terms of access to

education and other support services because of prevailing gender-biased socio-cultural practices in the rural areas of Nepal.

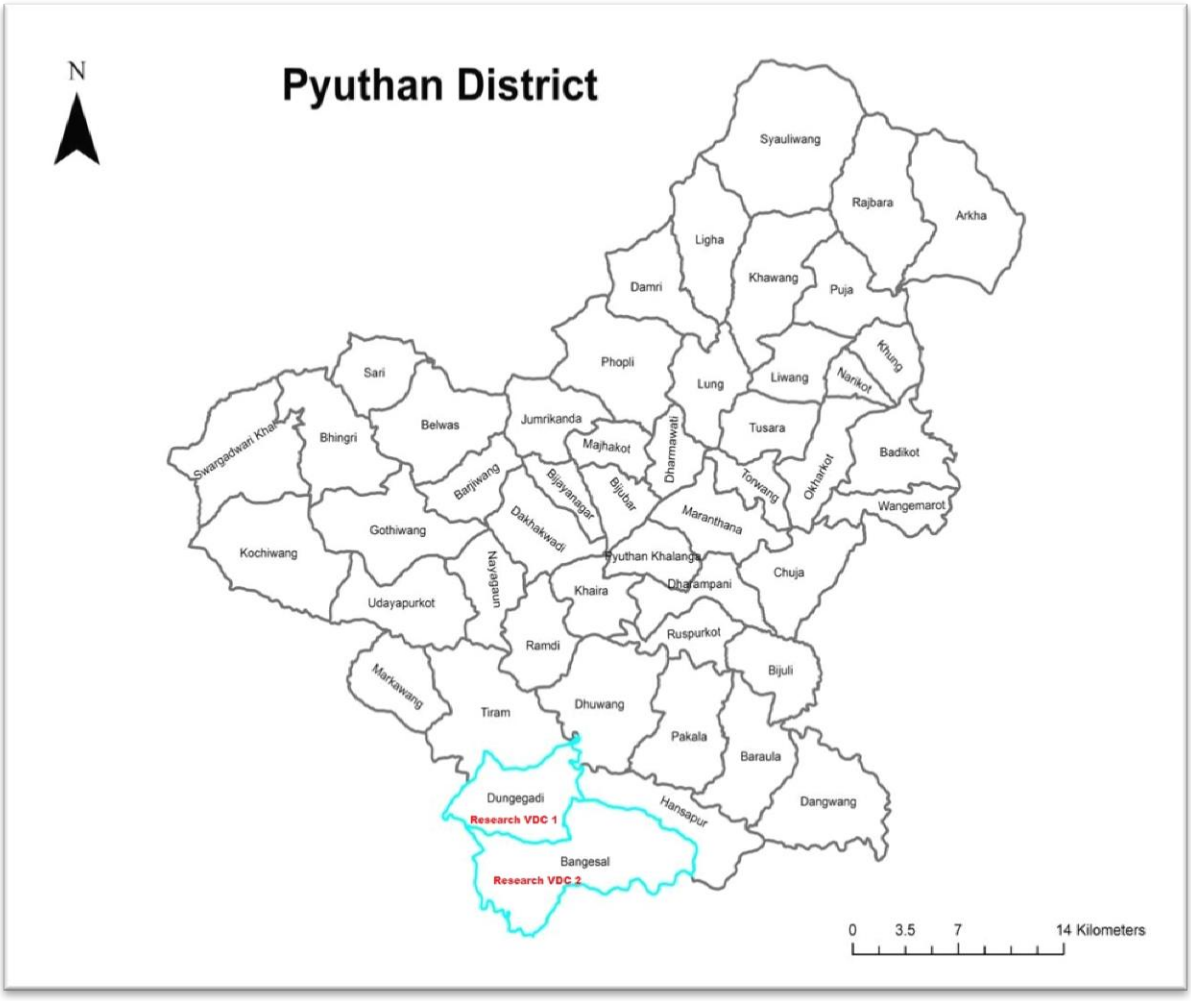


Figure 18: Map showing the study area that includes the two village development committees (Source: CBS, 2011)

The census data shows that agriculture was the major source of income in both Dhungegadi and Bangesaal VDCs (CBS, 2011). The household survey conducted for this study also shows a similar trend. Around 61.7% of households were engaged directly in farming, while 14.8% of respondents depended on both farming and other occupations such as labouring work and business. Overall, the data indicates that approximately 76% of the population depended on agriculture and farming both directly and indirectly (Figure 19 showing the agriculture landscape of Dhungegadi).

Table 21. The socio-economic characteristics of the study VDCs

Socio-economic features	Village Development Committees (location)			
	Dhungegadi VDC		Bangesaal VDC	
	Mean	No of household surveyed	Mean	No of household surveyed
Net income amount (Nepali rupees)	118,553		121,719	
Household size (persons)	8		7	
Migration number	1		1	
Land holding size of household (ha)	13.73		11.69	
Food sufficiency status of household (average month)	7.0	64	7.5	64

Source: Household Survey (2011-2012)

The land-holding size in the study areas is an average of 13.73 ropani[33], with land holdings ranging from 1 ropani to 65 ropanies (Table 22). Only 16.4% of households have more than 1-2 hectare (ha) of agricultural land, and only 3.9% of households have more than 2 ha of land. The limited availability of agricultural land has negative implications for food security in the study areas. The survey data shows that the average food sufficiency status is only 7.2 months per year. The data further reveals that only 21% of the population has food sufficiency, while the other 79% do not have enough food from their own plots and are forced to explore other alternatives.

Limited access to both physical and technological resources has a negative impact on the socio-economic condition of households in the study sites. The survey data shows that those households which have smaller plots of land also have less income compared to those households on larger plots. This demonstrates that poor people are more vulnerable than wealthier people due to their limited resources. Services such as roads, markets, government services, and communication also influence household access to resources. Although more than 40% of the households stated that they had access to drinking water, electricity, health,

[33] 1 Hectare = 19.965 Ropani

postal services, transportation, school, and communications, the quality of services is poor and the services do not reach the majority of the population in remote areas (DDC-Pyuthan, 2008).

Figure 19: Landscape of Dhungegadi VDC, Pyuthan District (Photo Credit: Author)

In summary, the demographic and socio-economic conditions of the study sites show that the majority of the population in the study areas depends on climate-sensitive sectors such as agriculture, for their survival. It is also apparent that households face problems in relation to access to education, food, technology, and physical services. The findings in this section further contribute to the discussion presented in Chapter Three that the socio-economic vulnerability of households is higher in the study areas due to poor socio-economic conditions.

7.1.2. Climate change impact and the vulnerability context

Climate change is assessed, in this section, based on the analysis of variability in temperature and rainfall (Shrestha et al., 2000). The analysis of precipitation data (from 1975-2003) of a station in Pyuthan district (Bijuwataar[34]) shows that the average rainfall has slightly changed (Figure 20). The figures further show an overall decrease in the precipitation trend of 2.03mm

[34] The station is located at an altitude of 823m above sea level.

per annum. Monsoon precipitation between the same time periods also shows a decreasing trend of 2.0mm per year. This decreasing trend is however statistically insignificant (Figure 20). A similar analysis of precipitation data at the national level also reveals insignificant trends (Shrestha and Aryal, 2011). However, the data does indicate a greater variability trend, indicating that the rainfall pattern is more uncertain and unpredictable. This annual and seasonal variability has a negative impact on the agricultural system practiced in the study sites, which rely heavily on annual and seasonal rainfall trends.

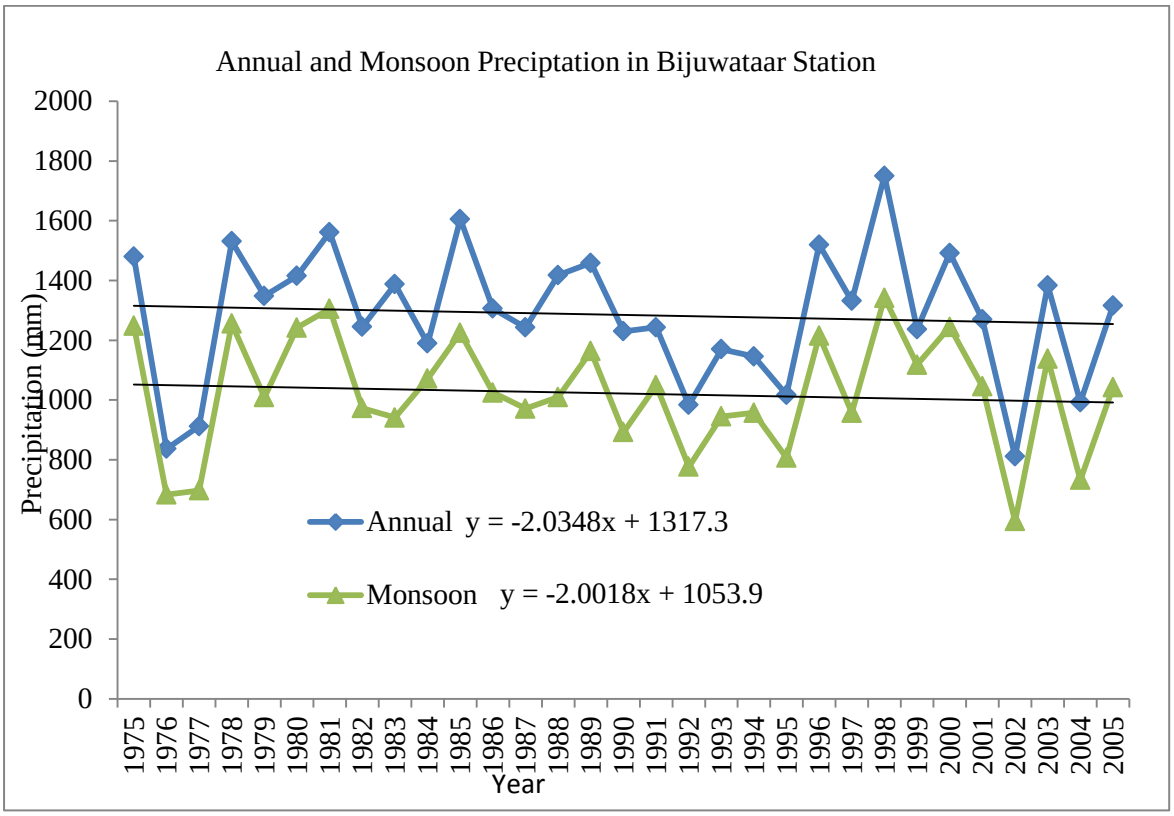


Figure 20: Annual and Monsoon Rainfall trend in Bijawataar Station

The analysis of 30 years of temperature data at the nearest Dang Deukhuri station[35] shows that the temperature has been increasing (Figure 20). The mean annual maximum temperature trend from 1975 to 2005 in the study area is also increasing. Likewise, the mean annual maximum temperature is increasing at a rate of 0.055℃. The increasing temperature trend in the study area is slightly higher than the national mean temperature increase which is 0.04℃/year (Figure 21). Among many examples, the report produced by the NCVST (2009) shows greater climatic variability and increases in temperature over the country, with rises

[35] This meteorological station is at 725msl, and is similar to the two study VDCs. This station data was used because of the lack of meteorological data within the study district.

ranging from 0.5 to 2 degrees Celsius, with a multi-model mean of 1.4 degrees Celsius by the 2030s. The analysis shows that communities in the study areas are more likely to face severe socio-economic and ecological challenges in coming years, mostly from increasing numbers of climate-induced disasters such as drought, the outbreak of diseases, and loss of biodiversity.

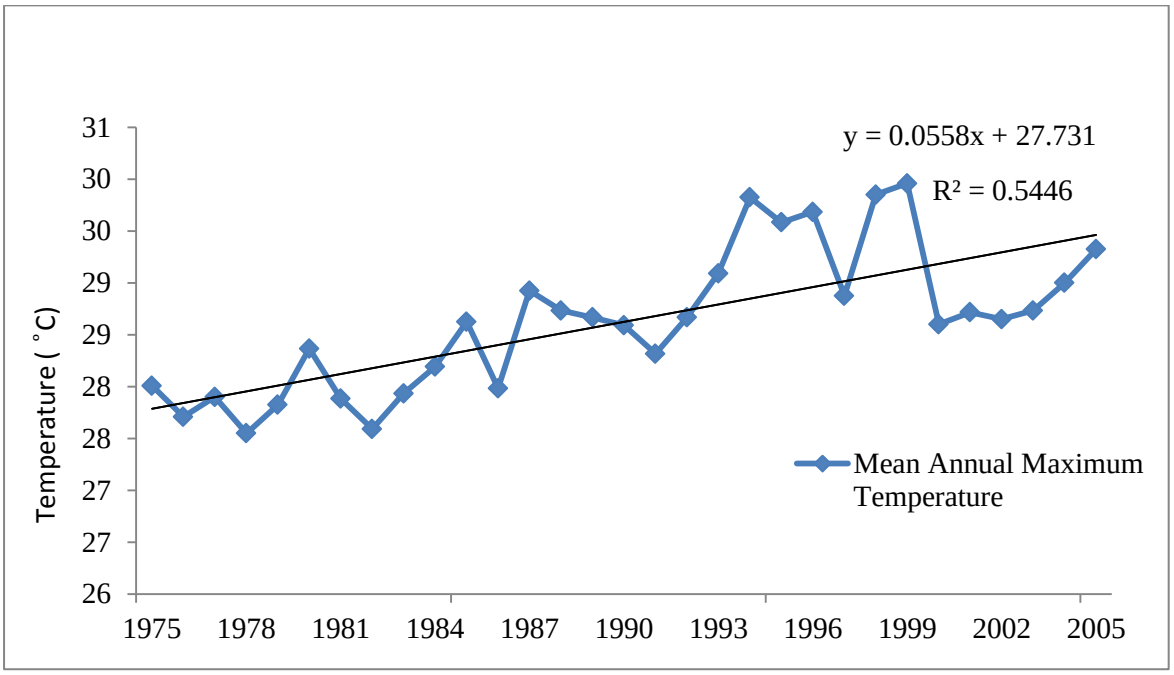


Figure 21: Mean annual maximum temperature and mean average annual temperature trend

However, there are limitations to the analysis of climate change in Nepal which relies solely on the meteorological data (Shrestha and Aryal, 2011). The precipitation and temperature trends, using the meteorological data of a single specific locality, are inadequate for mapping the actual climatic trends and specific local climate change issues in the study sites. There is also a general problem in terms of down-scaled or localised climatic data in Nepal. This implies that in the absence of scientific data on local climates, local knowledge held by people who live in these localities, becomes more important. There are studies which show that local knowledge is useful for understanding the local context and the localised impacts of climate change (Berkes and Jolly 2002; Byg and Salick 2009). The results of this study by Becken et al (2013) provide further testimony to the value of local knowledge for macro-level climate projections, as well as local level climate change adaptation initiatives.

The findings in this thesis show that there is rich local knowledge on climate change in the study areas. The local knowledge of the communities in the study areas matches the scientific analysis and climate modeling. The focus group discussions, carried out in the Dhungegadi and Bangesaal Village Development Committees, revealed that the communities had experienced changes in temperature and rainfall. All the households interviewed (n=128) said that the temperatures in summer are 'getting hotter'. The meteorological data also showed that summer temperatures have increased at a faster rate than have the other seasons. The majority of households and communities perceived that annual and seasonal rainfall variability, mostly changes in rainfall time and frequency, is now higher than it was previously. These community's perceptions match the variability trends observed in the analysed meteorological data (Figure 20).

Table 22. Perceived indicators of climate change and its impact among the communities in the study areas over the last 20 years (1992-2012)

Research Sites	Indicators of climate change impacts in different livelihood assets					
	Weather and climate	Water resources	Climate disasters	Agriculture and food security	Human health	Forestry and biodiversity
Dhungegadi	Erratic rainfall (intense rainfall in short period)	Drying of springs and sources (50% reduction)	Increased frequency and impact from landslides and drought	Change in cropping time and early maturity of crops, outbreak of pests/ diseases	Occurrence of mosquitoes in higher altitudes	Early flowering and fruiting of some forest species e.g. Chiuri
Bangesaal	Extreme hot days, decrease in winter rainfall	Lower water table	Increased frequency and impact from drought and flooding	Loss of production of wheat, lentil, peas; loss of local rice varieties	Occurrence of new diseases, mostly waterborne	Spread of invasive species and outbreak of diseases e.g. potato blight

Source: Outcome of focus group discussions and survey

The interviews with households in the study areas suggested a list of perceived indicators of climate change such as increased temperatures, rainfall variability, and increased disaster

trends (Table 22). Scientific reports and papers have also suggested that the increasing number of hot days, variations in rainfall, changes in the local diversity of species, and changes in plant and animal behaviours, are also indicators of climate change (Chaudhary and Aryal, 2009). These communities have indicated that climate change has created additional pressures on their agriculture systems, water resource management, public health, and biodiversity.

The anecdotal evidence provided by the communities indicates a severe climate change impact at the local level. This however needs to be supported by the scientific research because local people's knowledge is useful but insufficient. Combining scientific and local knowledge is important because it helps to provide a better understanding of climate change issues and complexities at different scales. Becken et al (2013) and Simelton et al (2013) argue that scientists, policy-makers, and developers of climate adaptation projects need to be more in tune with the existing local knowledge to effectively implement adaptation interventions. The relevance of local knowledge becomes important in the rural context in countries such as Nepal because of the gaps in scientific knowledge.

The analysis of local perceptions suggests that the impacts of climate change were severe in the study areas. The communities in the study sites perceived that there was a medium to high impact of climate change on their various livelihood assets[36] (Table 23). For this indicator, there were no responses in the low and no impact categories. This means that climate change had a negative impact on all the households and their livelihood resources in the study areas. The vulnerability assessment, carried out in the Dhungegadi area by the Livelihoods and Forestry Programme in Pyuthan district, as part of the LAPA, showed that more than 200 households (out of 753) were directly impacted by climate-induced disasters, such as fire, drought, and landslides between 1999 and 2009. The government data also shows that a total of 1,119,000 NPR, the equivalent of USD$12,750 were lost due to disasters in Bangesaal in the year 2009, which is almost equivalent to 10% of the total local development budget. The analysis of local perceptions suggests that the impacts of climate change were observed to be severe in the study areas (DDC-Pyuthan, 2009). The communities in the study sites perceived that there was a significant impact from climate change on their various livelihood assets (Table 23).

[36] Livelihood assets here refer to physical, financial, human, technological, and biological assets that individual households depend on for supporting their well-being.

Table 23. Household perceptions on the impact of climate change on livelihood assets

Village Development Committee (location)	Perceptions on the impact of climate change on livelihoods assets (n=128)				
	Medium Impact		High Impact		Total
	Number of HHs	%	Number of HHs	%	Number of HHs
Dhungegadi	37	48.70%	27	51.90%	64
Bangesaal	39	51.30%	25	48.10%	64
Total	76	100.00%	52	100.00%	128

The most climate-impacted sectors in the study sites were agriculture and water resources. More than 60% of the cultivated area of Nepal is fully-reliant on monsoonal rainfall (CBS, 20011). In the two study sites, more than 62% of households directly relied on rain-fed agriculture for their livelihood. Out of 128 respondents, 87 felt that the decline in production was the major impact of climate change on agriculture. The field interactions also indicated that there were sharp declines in the production of maize, wheat, mustard, and potatoes (Figure 22). The farmers in the study sites also experienced production declines of some cash crops (peas, lentils, turmeric, and mustard) due to variations in winter rainfall. Other researchers have also reported the impact of erratic rainfall and monsoon behaviour in the decline of agricultural yields in Nepal (Sapkota et al., 2011; Gentle and Maraseni 2012; Bigg et al., 2013).

As discussed in Chapter Three, the global circulation climate model for Nepal suggests that climate change will have a negative impact on total water flows, seasonal runoff, high- and low-flow conditions, and surface-groundwater interactions (Manandhar, et al., 2012). The impact of climate change was also visible in the water resources sector in the study areas. The communities in the research sites perceived that the depletion of water resources had direct negative impacts on them. According to these communities, almost 50% of the local springs and water sources have dried up over the last 10 years because of the rainfall variations. The findings of the research match with the earlier findings that showed that the water springs in the mid-hills of Nepal were drying up in the recent past due to climate change (Gurung and Bhandari 2009; Regmi et al., 2009).

Figure 22: Farmers in Bangesaal VDC who left most of their land barren during winter due to variations in winter rainfall (Photo Credit: Author)

These studies indicated that the impacts of climate change were severe in the study areas. Among the population, the impacts of climate change are worse for the poor, women, and ethnic minorities. The study by Mainaly and Tan (2012) argue that the poor and women in Nepal face greater impacts due to their limited assets, financial resources, and the nature of their livelihoods. The participants in these research areas shared that more than 70% of the victims of floods and landslides were poor households. For example, the focus group in Bangesaal recalled:

> During the drought in 1998, more than 90% of poor households had a food deficit for more than 10 months because they depended only on their limited agricultural land and had no alternative options. Poor households during that time generally ate only one meal a day or even sometimes went completely without. In contrary, the middle income and rich households had other alternatives like businesses and bank savings from which they arranged the purchase of foods (Focus group discussion - Bangesaal, 2013).

The findings in this thesis show that women were impacted to a greater extent by climate change in the study areas. The comparison of data generated from the focus group discussions and secondary sources indicates that, between 2009 and 2012, women's workloads, in terms of fetching water and agricultural work, increased by 30% (1 hour/day)

in the study area (Table 24). Bishokarma and Sharma (2013) and Jones and Boyd (2011) also found that institutional impediments in Nepal, primarily in relation to land tenure, markets, caste- and gender-based occupations, and caste-based discrimination, contributed to the increased vulnerability of marginalised groups. These reports indicate that, due to existing socio-economic differences and the gender division, the poor and women, mostly residing in remote geographical areas, are more vulnerable to climate change than other people.

Table 24. Increase in time for fetching water for female-headed households in Dhungegadi VDC

Time needed to collect water	2009 (% of female-headed household engaged)	2012 (% of female-headed household engaged)
Within house (0 minute)	19.1	10.0
Less than 15 minutes	50.1	27.1
15-30 minutes	18.0	20.6
More than 30 minutes	22.8	42.2

Source: VDC Profile Dhungegadi 2009, FGD community members Dhungegadi, 2012

It is evident from the previous discussion that exposure to temperature and rainfall variability, and the sensitivity of household and community livelihood assets to the impacts of climate change is higher in these areas than in other areas of the district. This study also explored the existing knowledge and practices to deal with climate change in the study VDCs. The majority of respondents in both research VDCs felt that they used traditional practices/technologies to deal with the impacts of climate change mostly in relation to farming and land use management practices.

However, respondents reported that many of the adopted traditional practices had become less effective in dealing with the severe impacts of climate change. For example, the use of vegetative check dams proved ineffective during an episode of massive flooding in Bangesaal VDC. Almost 89% of the respondents in both VDCs perceived that the existing adaptation options were ineffective and inadequate for dealing with climate extremes because of the lack of access to knowledge and technology in the communities. As argued in Chapter Two, the scale and magnitude of the impacts of climate change often makes local coping strategies and

practices ineffective. The findings thus conclude that there were critical gaps in the community's capacity to deal with climate change.

As argued in Chapter Two, if the communities' degree of exposure and sensitivity is higher, and the adaptive capacity of communities is lower than normal, then they are more vulnerable to climate change (Smit and Pilifosova 2003; Cannon and Muller 2010). The meteorological data and the local knowledge on climate change, as discussed earlier, suggests that community exposure and sensitivity to climate change were higher in the study sites. However, based on the interactions with the communities, it was found that the communities had only a limited capacity to respond to the impacts of climate change. The gaps in the responses resulted in increased vulnerability for the majority of the households in the study area. Among these households, the poorest and most excluded were the most vulnerable to the impacts of climate change, both because of their high dependency on climate-sensitive resources and their poor socio-economic conditions.

The findings in this section reveal that climate change has emerged as an additional problem for poor households on top of the existing problems of socio-economic disadvantage, inequality, and lack of access to better services in the study sites. The weak socio-cultural context means that climate change interventions should consider adaptation and development together in order to address both poverty and vulnerability.

7.2. Perceptions of communities on the benefit of mainstreaming initiatives

This section analyses the perceptions of households in the Bangesaal and Dhungegadi Village Development Committees (VDCs) of Pyuthan districts, in terms of the building of the adaptive capacity of communities as a result of the implementation of the LAPA mainstreaming initiative. Drawing from the academic literature discussed in Chapters Two and Four, the adaptive capacity of communities is determined by analysing the contribution of CBA mainstreaming initiatives (the LAPA) in : a) reducing climate risks and impacts at the local level; b) engaging communities and other stakeholders in the adaptation planning process; c) providing financial and technological benefits to households and communities; d) enhancing local institutional capacity and mechanisms; and e) increasing awareness and knowledge of households and communities about climate change.

7.2.1. Impact of adaptation interventions in reducing risk and vulnerability

This section examines the perceptions of the interviewed households on the effectiveness of the adaptation interventions of the LAPA in reducing climate change risk and vulnerability at the local level. The disaster map prepared as part of the LAPA at the local level shows that the major climate risks in the study areas include drought, floods, landslides, and fire incidence (refer to Figure 8 in Chapter Six). The prioritised adaptation plans of the Bangesaal and Dhungegadi VDCs further show that almost 60% of the activities were related to infrastructure and access to basic services, which aimed to reduce climatic risk in major sectors such as water and irrigation (VFCC-Dhungegadi 2009; VFCC-Bangesaal 2010). The major risk-reduction activities implemented in the study sites included: water source protection; fire protection; construction of check dams (Figure 23); and infrastructure for water supplies.

Figure 23: Construction of stone and gabion check dams as part of climate change risk-reduction activities in Bangesaal VDC (Photo Credit: Author)

The findings from the discussions and field observations revealed that the majority of the investment went into water resource management, primarily for the establishment of drinking water facilities in the selected villages. The household survey also showed a positive contribution of the LAPA interventions towards reducing the risks of climate change. Around 57.8% of respondents in both the VDCs perceived that the impact of adaptation interventions

in reducing household risk was medium to significant (Table 25). This means that more than half of the interviewed respondents perceived that adaptation interventions were effective in addressing household-level climate risks and hazards. The respondents argued that the issue of access to drinking water was addressed partly in some villages by the adaptation interventions.

Table 25. Household perceptions on the impact of adaptation in reducing household risk

	Responses on climate change impacts at the household level (n=128)				
Village Development Committee (location)	No Impact (No of HH)	Low Impact (No of HH)	Medium Impact (No of HH)	High Impact (No of HH)	Total (No of HH)
Dhungegadi VDC	2	30	28	4	64
Bangesaal VDC	10	13	31	10	64
Total	12	43	59	14	128
Total in %	9.4	33.6	46.1	10.9	100

The findings showed that investments in risk-reduction were made primarily in infrastructure-related activities. In Dhungegadi alone, 60.5% of the funding support was in construction and maintenance of drinking water sources, pipelines, and reserve tanks[37], whereas in Bangesaal VDC, more than 67% of the budget was invested in drinking water facilities and the maintenance of irrigation channels[38] (Figure 24). In the Key Informant Interviews, the majority of the respondents said that the implemented adaptation activities have the potential to reduce risks for the communities. One key informant from Dhungegadi said:

> The early indications show that adaptation planning is very effective in sensitising communities and building their confidence to deal with climate extremes. The implemented activities have also provided relief to communities. For example, the repair of irrigation canals and the maintenance of drinking water sources increased the access of poor households to water for drinking and irrigation. It has also addressed the risks for households of climate change hazards (Key informant respondent Number- KIRN 4, 2012).

[37] Out of 876690 NPR, a total of 531190 NPR was invested in drinking water.
[38] Out of 1360956, a total of 9131822 NPR was invested in drinking water and irrigation.

In contrast, 42.2% of the respondents believe that the adaptation interventions were inadequate for reducing the risks and vulnerability of households. The majority of the key informants also revealed that such investments were targeted to the community as a whole, rather than to vulnerable households only. The focus group discussions also revealed that, due to the lack of financial resources, less than 10% of the designed priority adaptation activities were implemented. Although agriculture was identified as one of the sectors most affected, investment was less in this sector. The review of adaptation plans also showed that less than 5% of the financial resources were allocated in the two VDCs under investigation, to address the risks related to agriculture. The information also shows that there were minimal activities implemented in both VDCs (Figure 24) to deal with other issues, such as flooding, drought, and landslides (VFCC-Dhungegadi 2009; VFCC-Bangesaal 2010).

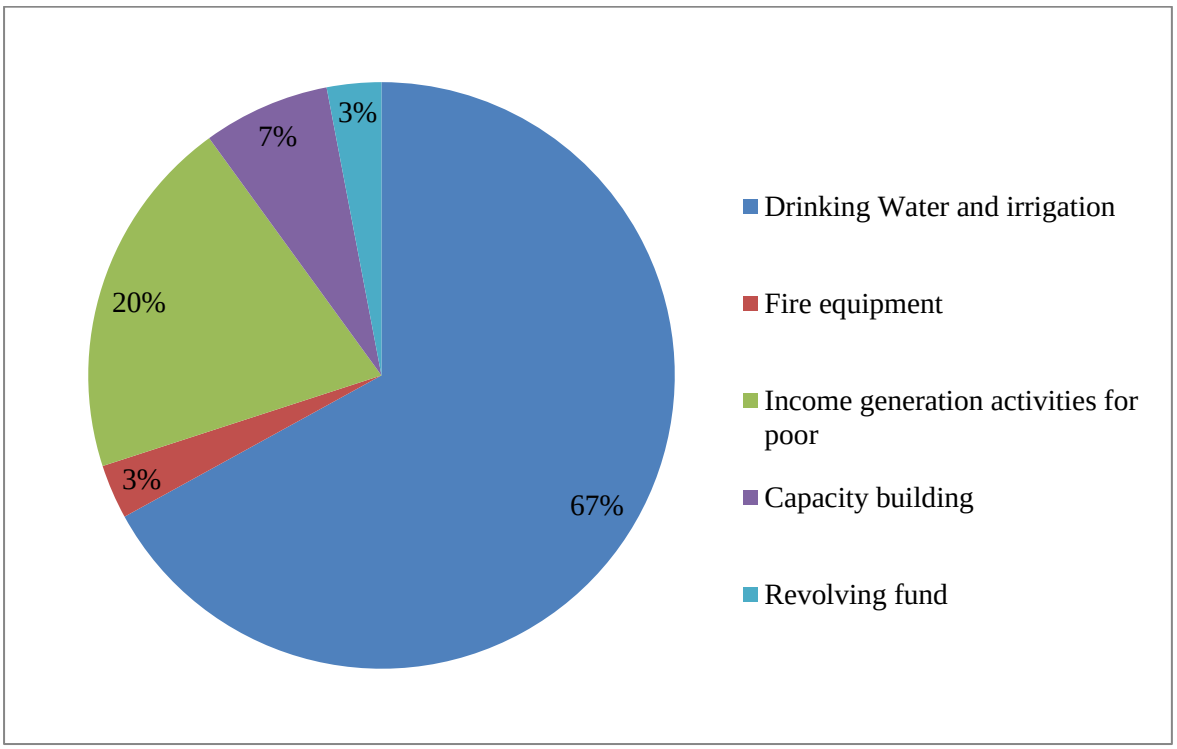


Figure 24: Financial investment trends for climate change activities found in the studied VDCs

As argued in Chapters Two and Six, risk reduction activities which are only focused on infrastructure, do not necessarily benefit poor and vulnerable households. The findings in this thesis show that investments made in water resource management only benefited a few households because they had limited household and geographical coverage. The LAPA document of the study area shows that the decision to invest in water resource management

was guided by the decision of the Village Forest Coordination Committee (VFCC)[39]. The investment was made based on the demands made by various groups, rather than on the adaptation needs of vulnerable households. In comments which are consistent with the views of the majority of interviewees, the selection of areas for investment was neither transparent nor based on climate change vulnerability. One key informant from local government argued:

> There is now dissatisfaction among some of the households regarding the allocation of resources and selection of investment areas. The resource allocation was made considering the group request rather than assessing the actual risk and impact of climate change. The community forestry groups that were vocal and influential received the support. Within the group also, the selection of villages and settlements was not transparent. The poor households in fact had nothing in their plate (KIRN 3).

In contrast to the vulnerability-focused approach adopted in the LAPA framework, as discussed in Chapter Five and Six, the implementation of the LAPA focused more on risk and impact reduction. The decision-makers viewed the adaptation activities from a technology and impact-reduction perspective, which assumes the use of infrastructure and related technologies to address impacts such as drought or landslides. This is the reason why the needs of poor and vulnerable households were ignored. For example, in Bangesaal VDC, one of the Community Forestry User Committees, despite the urgent need identified in the local adaptation plans for investment in food production, decided to invest instead in fire control. As argued in Chapter Two, the risk and impact-based approach is limited not only by physical attributes, but also by the lack of knowledge about the vulnerability of communities and social groups.

Other constraints of integrating climate change into the development process, as outlined in Chapter Two, is that there are often issues associated with the hijacking and fragmentation of the adaptation budget in favour of development activities. The key informants interviewed in this research, also argued that the adaptation budget was not well-used because there were overlaps in the development and adaptation budgets and both investing in same (KIRN, 5, 6,

[39] VFCC was formed at VDC level to coordinate climate change activities at the community level. The main role of VFCC was to develop and implement Local Adaptation Plan of Action and coordinate with government line agencies and stakeholders.

and 9). It was also observed in the field observations that most of the climate change adaptation budget was spent on development-oriented risk-reduction activities, such as infrastructure development rather than on household-identified needs such as capacity-building and small-scale agricultural practices. The household survey indicated that the majority of households were in favor of soft adaptation measures to build their resilience, as described in Chapter Two. The soft adaptation measures included activities that focused on community mobilisation and activities such as awareness and capacity. There were two reasons, cited in the interviews, for this diversion of resources and lack of focus on adaptation. According to one of the NGO practitioners:

> I think the lack of awareness and knowledge among local decision-makers contributed in haphazard planning and resource allocation. The uncertainties of climate change made the planners and decision-makers choose strategies that they are mostly familiar with and which were a popular investment. Another reason is that mostly the decision-makers were influenced by their specific interests and political will. Their decisions were in favor of their specific group and their own vested interests. Elites and ethnic majorities who decide on their groups' interests dominated the decision-making (PRRN 8).

Another constraint of the risk and impact-based adaptation approach is that it is highly resource-demanding and requires more financial resources to implement. In reality, the limitations of funding for climate change at the local and national levels may create problem in terms of the prioritisation of investment. It was found that LAPA interventions raised unnecessary expectations of communities despite the lack of financial resources to meet communities demand. The LAPA intervention allocated more than 70% of its funding to risk-reduction activities, but could not even meet 10% of the funding requirements of the local level. According to one of the key informants interviewed, the scale and magnitude of climate change disasters was high compared to the financial resources available for developing infrastructure and necessary risk-management measures (KIRN 7). The risk-reduction activities are needed, but it is also necessary to best utilise the limited funding available for climate change adaptation in order to invest in, and prioritise, low-cost soft measures that directly empower communities and build their adaptive capacity.

There are conceptual issues around how CBA has been designed and implemented in the study sites. Communities and practitioners are not clear about the commonalities and differences between climate change and regular development activities. As discussed in Chapter Two, CBA practitioners have also failed to adequately conceptualise risk and uncertainty and their implications for CBA activities. This occurred because climate change adaptation responses were viewed from the impact perspective. The findings in this research also suggest that the focus of the LAPA intervention on technological solutions to risk-reduction contradicts the community's aspirations to deal with their own well-being and long-term capacity. One practitioner from local government said:

> The process of identifying adaptation priorities was problematic because it looked at the impact of climate change on the sectors rather than the impact of climate change on people's livelihood. This happened because most of the NGOs and project facilitators were trained and driven by the sectoral approach and solutions to climate change. In contrast, it was revealed by the households that the majority of poor and vulnerable households wanted to see the priority of investment being to enhance their capacity and well-being (PRRN 16).

The findings, based on the evidence presented in this section, have revealed that risk and impact-based adaptation approaches and interventions alone do not address the root cause of vulnerability, because they benefit the general public rather than poor and vulnerable households. The mechanism, such as institutions, used to identify risk and impact is flawed and therefore there is need of equal attention to risk and institutions. . The findings in this section support the criticisms of the risk and impact-based approach discussed in Chapter Two.

The findings further argues that at the local level, there is a need to educate communities and practitioners on effective ways of prioritising adaptation activities and harmonising adaptation with other development efforts. It is also necessary to build the capacity of planners and decision-makers in order to make the investment in adaptation more specifically-focused on vulnerable households. These interventions need to be strategic and long-term in nature. Coirolo and Rahman (2014) also argue that in terms of the mainstreaming of climate change into the planning processes, there is a need to move beyond

short-term, reactive coping and include support for the adaptive transformation of livelihoods.

7.2.2. Satisfaction with the engagement and participation of vulnerable households and communities in adaptation planning

This section investigates the contribution of the LAPA in terms of how the initiative engaged and increased the participation of poor and vulnerable households and communities in decision-making about the prioritisation and implementation of adaptation activities. As discussed in earlier chapters, studies have shown that the involvement of communities and households in adaptation is important for ensuring their participation in, and ownership of, CBA.

The review of the LAPA process shows that representatives from communities and households were part of the community and local level adaptation planning preparation. Community engagement was evident in the assessment of the impacts of climate change, identification of adaptation activities, and the prioritisation of urgent adaptation actions. A few households were also engaged in climate change-related awareness-raising and capacity-building activities. The LAPA document also shows that different stakeholders at the local level were engaged in the LAPA preparation process (VFCC-Dhungegadi 2009; VFCC-Bangesaal 2010).

The findings of this thesis show that the majority of the interviewed households were satisfied with their involvement in adaptation planning (Table 26). There was a significant difference in the level of satisfaction between regular members and executive members. More than 80% of the executive members were satisfied with their involvement in climate change adaptation activities, but in case of general members only 22% were satisfied with the interventions. The majority of individuals, and particularly male members who were exposed and oriented to the issue, were more satisfied compared to female households and others who did not take part in any event (Table 26). The gender and class bias seemed to be prevalent in the study areas, with mostly males involved in making decisions in their favour.

Table 26. Perception of households on their involvement in adaptation planning and implementation in Dhungegadi and Bangesaal VDCs

	Categories of respondents (n=128)			
Response	Well off	Medium	Poor	Very poor
Very satisfied	12 (37%)	8 (25%)	0 (0%)	0 (0%)
Satisfied	15 (47%)	20 (63%)	3 (9%)	0 (0%)
Medium	5 (16%)	4 (12%)	3 (9%)	4 (12%)
Not satisfied	0 (0%)	0 (0%)	12 (38%)	14 (44%)
Very dissatisfied	0 (0%)	0 (0%)	14 (44%)	14 (44%)

However, there were households who were dissatisfied with their engagement in the LAPA. The findings show that 9.4% of households were not satisfied with their involvement. The review of the LAPA process in the field also shows that only limited individuals and representatives were involved in the LAPA design and preparation. The document shows that a total of 35 to 40 individuals, representing different organisations, were involved. This representation was less than 5% of the total households affiliated with the Community Forestry User Group. It was also found that the selection of the participants was somewhat ad-hoc and based on NGO and project staff criteria and interests (KIRN 4).

The findings show that although the majority of the interview participants were satisfied with their participation in adaptation planning, their participation levels were different according to their status. For example, it was found that the executive members of the community groups were more actively engaged in making decisions about what should be the priority adaptation measures for the village. The general members, who were consulted once or twice during the finalisation of the plan, only had the opportunity to express their views, but not entirely to influence decisions. There were also many households who did not attend the consultation meetings. The main reason for this is that people felt excluded and did not want to participate; as well, many who wanted to participate did not have an opportunity to become involved. The outcome of the analysis shows that there are different forms of participation evident in the study sites (Table 27). These different levels of participation had an impact on the level of ownership of the LAPA at the local level. The households that were excluded felt that the LAPA was not designed to address their climate risks and vulnerability.

Table 27. Input of different stakeholders in the LAPA design process

No	Categories of Stakeholders	Participation Status of Stakeholders
1	Government officials (at VDC level), Executive members of Community Forest User Groups, and VFCC, NGO facilitators, project staff	More engaged in making decision about the LAPA in terms of both time and input
2	Invited general members of community groups	Consulted and informed (but limited)
3	General members	Informed by various means (passive consultation)
4	Non-group members	Neither consulted nor informed

Source: Interviews and focus group discussions

The exclusion of households in decision-making occurs when they are not affiliated with grassroots-level institutions, such as community forestry in this case. The field level information further shows that there were problems with the non-participation of households. Out of the total population, around 20% of households were neither engaged nor consulted in the LAPA preparation process. These households were not affiliated with community groups. The LAPA used community forestry and local community groups as institutional means to reach vulnerable households. This reveals that those who were not part of any community group were actually excluded from the adaptation interventions. One respondent who was not part of the adaptation planning process stated:

> Impact of changes in our environment is visible. We have seen changes and experienced impact. We have heard about project activities, but never got opportunity to participate in any of the events. We are 10 households belonging to poor ethnic groups and stay in remote areas of this VDC. Some of us are affiliated and some not with the groups. I do not know why we were not involved in any of the programmes. There are NGOs often visits our place and promise to provide support, but we have not received any financial and technical benefits till now (KIRN 6).

Participation is often problematic when it is more centered on the community groups, and more specific to the executive members of these groups. The analysis of the composition of the executive members in all 20 Community Forestry User Groups in the two VDCs shows that more than 70% of the executive members were male, 80% rich and educated, and 60% belonged to the higher castes (Brahmin and Chettri). The findings show that the majority of the key informants in the interviews also agreed that the majority of the executive positions were occupied by elite male members (KIRN, 3, 4, 6, 7, 8, and 9). The review of the community adaptation plan by the Multi-Stakeholder Forestry Programme (MSFP) also shows that most of the participants involved in the adaptation programme were male. The report further shows that on average, each Community Adaptation Plan of Action (CAPA) represents 140 households, and 25 to 35 elite male participants were involved in the planning preparation process (MSFP, 2013).

There are similar studies which demonstrate issues of exclusion within Community Forestry Groups in Nepal. The first issue in forest management is representation. By law, although at least 33% of the members of the Executive Committee must be female, male members dominate the forest user groups with a share of 80-85% of the decision-making process and resource distribution, resulting in the perpetuation of inequality. This is partly caused by the informal rules of hierarchy based on caste, gender, and class in the community, and also due to the lack of time, language skills, and information to participate on the part of those who are excluded. Due to the low ability to invest in participation, it is unlikely that all users, especially the poor Dalits, indigenous groups, and females are able to participate actively, particularly in decision-making and benefit-sharing (Adhikari 2012; Dahal and Chapagain 2012). The findings conclude that the internal governance of community groups, particularly in terms of low representativeness and exclusion, is a barrier to the active engagement and participation of poor and vulnerable households.

Involving a particular interest-based community organisation only may not be a viable institutional mechanism for adaptation planning and implementation. The findings in this research also revealed that only Community Forestry User Groups were involved and participated in adaptation planning in the study sites. The majority of the key informants interviewed argued that Community Forestry User Groups are legally recognised, have experience at the local level, and were thus considered to be the most likely institutions to lead climate change interventions. It was found that the smaller interest-based community

groups, such as women's groups, agriculture groups, and livestock groups were excluded from the LAPA process. One key informant from Dungegadi VDC further highlighted these issues of exclusion, stating:

> Informal and interest-based groups like mothers group, eco-club and cooperatives were passive because they did not get support from government, NGOs and project. The bigger organisation, in this case community forestry user groups, monopolized the resources at the local level. This has raised questions about the nature of community-based projects and approaches which often rely on powerful and influential groups to deliver development and climate change adaptation projects and programmes (KIRN 4).

Although there were positive aspects of local level participation, it was also dominated by limited interest groups, such as the elites, males, and educated people. The majority of poor and vulnerable households and non-formal groups were excluded from the process. As discussed in Chapter Six, the issues around participation were more evident in the short-term and donor-driven project initiatives where only a few stakeholders benefited from the limited participatory processes. Mansuri and Rao (2012) also stress that there is far less evidence on the effectiveness of participatory projects in building sustainable participatory mechanisms at the local level. The findings imply that community-based approaches need to be revisited and redesigned to take into consideration the constraints of inclusion and sustainability. Clear mechanisms for downward accountability are critical in order to ensure the sustainability of community-based approaches (Mansuri and Rao, 2012).

The findings in this section reveal that the representation of the poor and women in the decision-making processes of community-based organisations, such as community forestry, is more rhetoric than reality, and the participation and inclusion is tokenistic because it is limited by practices that encourage elite influence and domination. The findings add to the literature discussed in Chapters Two and Five on the challenges of participatory approaches and, in particular, community-based adaptation approaches, in ensuring that adaptation interventions are focused on the vulnerable.

The findings further imply that there is a need to address the exclusion issues while mainstreaming CBA into the development process. One of the pre-requisites of successful

CBA mainstreaming is ensuring that local institutions and participatory processes are more accountable and inclusive. As argued in Chapter Two, there is a need for local participatory processes to be linked to higher-level institutions that are able to represent the views and interests of communities, and to be held to account for their work (Dodman and Mitlin, 2013).

7.2.3. Satisfaction of households and communities of the benefits received from mainstreaming initiatives

This section of the study assesses whether or not the households interviewed were satisfied with the targeting of the LAPA and the distribution of financial and technological benefits. The findings show that more than 80% of the respondents in both VDCs perceived that the climate change adaptation intervention (the LAPA) initially carried out activities to target poor and vulnerable households. There were positive lessons in terms of participatory approaches used by the LAPA in terms of targeting. It was revealed that the LAPA used different innovative participatory approaches to identify poor and vulnerable households for targeting.

Table 28. Use of the participatory well-being ranking and climate-sensitive participatory ranking in categorising of households

	Household category									
	Well-off		Medium		Poor		Very poor			
Ranking tools	No	%	No	%	No	%	No	%	Total	Mean Deviation
Participatory Well-Being Ranking	208	19.5	330	31	309	29	219	20.5	1066	266
Climate-Sensitive Participatory Well-Being Ranking	186	17.4	291	27.3	339	31.8	250	23.5	1066	200

Source: HTSPE, 2011

The participatory well-being ranking was redesigned during the LAPA piloting, in order to include climate change indicators. This was an attempt to include both climate risk and development indicators to identify the most vulnerable households at the community level. It was also found that in Dhungegadi, all nine Community Forestry User Groups revisited how they categorised their participatory well-being ranking by including climate risk and vulnerability indicators (Table 28). The inclusion of climate indicators showed a different categorisation and, in particular, helped communities to identify vulnerable households (HTSPE, 2011).

The increased availability of tangible and intangible resources is vital for adaptation in vulnerable communities (Reid et al., 2009; Boutrup and Nielsen, 2013). The majority of the respondents (84.4%) in both VDCs were satisfied with the implementation of the adaptation interventions (Table 29). Satisfaction with the activities that were implemented was slightly higher in Dhungegadi (53%) than in Bangesaal (40.6%). This might have been due to the time-span of the interventions, which mobilised more communities in Dhungegadi than in Bangesaal. These activities, as described by the respondents during the interviews, were related to awareness-raising, capacity-building, obtaining financial resources for the implementation of adaptation interventions, and revolving of funding support for some of the groups. The majority of the households interviewed felt that the targeted interventions, described above, were important for them to address climate change risk and to minimise the impacts of climate change on their livelihood.

Table 29. Satisfaction of respondents with the LAPA interventions and the specific adaptation activities

Village Development Committee (location)	Household level of satisfaction with LAPA interventions (n=128)						
	Not so satisfied		Satisfied		Very Satisfied		Total
	Number	%	Number	%	Number	%	Number
Dhungegadi	8	12.50%	45	70.31%	11	17.19%	64
Bangesaal	12	18.75%	48	75.00%	4	6.25%	64

However, the findings also showed that the interventions were mostly targeted at the general population rather than at vulnerable households. Dodman and Mitlin (2013) also argued that community-based and participatory approaches do not guarantee that, if decision-making is local, and the rules for access and distribution are fair, then vulnerable communities will

potentially be able to participate and benefit. The findings also show that although the majority of the participants were satisfied with the LAPA interventions in general, they also felt that the adaptation interventions were less effective in terms of providing specific services to poor and vulnerable households. One household respondent from Bangesaal VDC said:

> Projects and programmes come in the name of poor and disadvantaged groups, and households like us hardly get the full share of the support. The support is invested in activities or interventions that benefit mostly the powerful and influential people and communities. Those who cannot influence are always backward and underprivileged. We do not know how much money is there and where it is invested. I think in terms of projects, poor and disadvantaged groups are the losers (Household Respondent Number- HRN 88).

Table 30. Trends in resource investment to different groups, by local institutions (Source: LAPA of Dhungegadi)

	Targeting to different categories of users (n=128)			
Adaptation activities	Well off	Medium	Poor	Very poor
Water supply	X	X	x	x
Income generation	X	X	x	x
Fire equipment's	X	X	x	x
Health campaign	X	X	x	x
Forest conservation	X	X	x	x
Irrigation improvement	X	X		
Training and orientation	X	X		
Improve cook stoves	X	X		

The findings further showed that the benefits of the LAPA project were distributed unevenly and not specifically to poor and vulnerable households. The participants in the discussions stated that most of the allocations made in the name of poor and vulnerable households and communities were distributed to wealthier households. The evidence shows that out of the total investments in the two VDCs being analysed, less than 30% of the resources were allocated for poor and vulnerable households. The same situation was also evident in Sukrauli VDC of Nawalaparasi district. In contrast, more than 70% was distributed for the benefit of the general public, and again, mostly in favour of middle-income and rich households. . The analysis of adaptation activities implemented in Dhungegadi VDC shows that majority of the

interventions only satisfies the advantaged members of the community, particularly the elites (Table 30).

More than 70% of the focus group discussion participants revealed that the disparities in decision-making occurred due to the monopoly of the executive members of the Community Forestry Groups. Studies elsewhere in Nepal have also indicated that, in terms of economic gain, the poorest and most marginalised members of the communities received the fewest benefits, with some notable exceptions. A study on the distributional impact of community forestry concluded that poor users received negative benefit from the community forests (Thoms, 2008). The middle-income groups, however, received the highest net benefits, followed by the rich households, because of their higher degree of influence in decision-making (Bhattarai and Ojha, 2001).

Although the use of a decentralised targeting mechanism, often adopted in community-based development initiatives, can improve outcomes, such an approach does not automatically solve the problems due to the deep-rooted inequality that exists in the local system (Mansuri and Rao, 2004). The experience from development interventions in Nepal, as discussed in Chapter Three, suggest that most of the focus of resource allocation and intervention is not favorable to the poor and the disadvantaged (Ojha et al., 2009). The pattern of investment of the income from community forestry shows that an insignificant level of returns goes to supporting marginalised groups, because general development, such as the development of infrastructure, is the priority of the decision-makers (Kanel and Kandel, 2004).

As discussed in Chapter Two, access to resources, power relations, favouritism, and geographical location were identified as key equity dimensions of CBA (IIED and BCAS, 2013). Social barriers to the implementation of adaptation also include class, gender, and culture (Jones, 2012). There are also social barriers that influence the benefit-sharing from climate change adaptation resources at the local level, due mainly to ethnic marginalisation and local inequalities in power-sharing (Boutrup and Nielsen, 2013).

The findings in this research also show some disparity in terms of the investment made in climate change adaptation in the study sites. The information, derived from discussions with the community groups, shows that out of the total financial resources invested through the LAPA project, only 7-10% was invested in income-generating activities which were

specifically allocated for poor and vulnerable households. The analysis of expenditure of the Community Forestry User Groups in the study sites also showed disproportionate levels of investment. One of the key informants from Dhungegadi said:

> We generally allocate more than 30-40% to infrastructure development, 25% to forest-related activities, 12% to forest water, 15% to the management costs of community forestry, and the remainder to others. Our investment in pro-poor activities, which relate to livelihood activities that build the capacity of poor households, is not more than 10%. It is difficult to invest more in activities for livelihood because the resources are fewer and there are divergent interests among the executive members. Most of the executive members are in favour of investing in development-related activities. In the case of climate change, also we allocated less than 10% was invested in income generation activities (KIRN 6).

A case study by Jones and Boyd (2011) in the mid- and far-western regions of Nepal found that the hegemonic dominance of political authority, and the channels through which aid/resources were allocated by the upper-caste stratum, were identified as key barriers in responding to shock and stresses. Mansuri and Rao (2004) also found out that even in the most egalitarian societies, constructing and managing a public good is dominated by elites because they tend to be better educated, have fewer opportunity costs on their time, and therefore have the greatest net benefit from participation. However, the elites seem to act in the interests of the poor if they can gain from the action or support. The experience outlined in the literature and the findings of this chapter represent an important lesson for the up-scaling of community-based adaptation, because it addresses some of the core issues of governance at the local and community levels.

As argued in Chapter Two, vulnerable people do not always conform to popular ideas of vulnerability, such as women or people of low caste, because development interventions tend to treat communities as homogenous. The findings in this chapter also show that relying on community groups and geographical boundaries for LAPA interventions has resulted in households being overlooked. It was found that not all households were part of the existing community groups. As discussed earlier, out of the total population, only 80% are affiliated with community groups and organisations. Although the community forestry database within

the VDCs shows that the majority of households are affiliated with the group, 20% of households were excluded from the adaptation interventions in Bangesaal, while around 23% were excluded in Dhungegadi VDC. This implies that targeting through community-based organisations does not necessarily reach the poor and vulnerable.

The literature in Chapter Two revealed that given the exclusion of certain groups from the decision-making process, CBA strategies may end up benefiting the "less vulnerable" in the community. It was found in this research that most of the community institution investments do not go beyond their members, and often neglect the needs of poor and vulnerable households. Although the LAPA intended to pilot an innovative funding modality, as discussed earlier, the operational procedure for the mobilisation of the funds in the Bangesaal and Dhungegadi LAPAs, in fund investment section criteria number 3, says 'only the adaptation plans prepared and submitted by Community Forest User Groups within the VDC will be eligible for receiving the adaptation fund' (VFCC-Dhungegadi 2009; VFCC-Bangesaal 2010). The provisions at the community level described earlier excluded households which were not affiliated with the existing Community Forest User Groups. One practitioner elaborated further:

> Our development approach of using the already existing institutions and social networks is sometimes problematic. These local institutions are networks, which have worked well in some areas like community mobilisation, but have mostly remained exclusive. For example, although community forestry achieved a lot, there are issues of exclusion of the poor, and it has not covered all households. I think we are repeating the mistake of again relying on the same structure without reforming it. Sometimes we over-emphasise the relevance of community groups. But in reality, there are issues within the local institutions mostly on internal governance (PRRN 18).

The responses above indicate that the LAPA process did not incorporate any attempt to convince the Community Forest User Groups to include marginalised households to participate in the vulnerability mapping process. As discussed earlier, it was found that the LAPA process involved selected members of the communities who were mostly educated people and executive members of the Community Forestry User Groups. The poor

households and the non-group members had little say in the design of adaptation interventions.

The findings suggest that although existing approaches to community-based development are a means to reaching communities, it is not the most appropriate institutional mechanism to empower poor and vulnerable groups. This is because the socio-cultural dynamics in the rural context in Nepal are biased against poor and vulnerable households. Ireland (2012) shows that vulnerable communities stand to lose much more if adaptation is treated as business-as-usual in the development realm. Mansur and Rao (2004, p.179) also argue that unless management regimes are specifically designed to include poor people, community-based natural resource management may end up as little more than donor-supported control by elites.

This finding raises an important question around the appropriateness of community-based institutional mechanisms in dealing with climate change adaptation. The existing community-based institutions were interest-based and limited in terms of household affiliation. This consequently excluded many households from actively participating in the decision-making process at the local level. This means that inclusive targeting will continue to be difficult under the current institutional mechanisms and structure. The findings of this thesis challenge the assumption that community-based institutions and local community groups always work for the benefit of poor and vulnerable households. These findings provide a different perspective from those of many previous studies, which have argued that in managing common pool resources, local institutions can develop their own institutional arrangements to manage local resources and to distribute benefits in an equitable and sustainable way (Pretty and Ward 2001; Agrawal 2010; Andersson and Agrawal 2011).

The findings suggest that CBA mainstreaming approaches need to consider issues of marginalisation at the local level, to place the household at the centre and, at the same time, take care of intra-household inequalities, such as gender inequality. Dodman and Mitlin (2013) and Yates (2012) also suggest that CBA practitioners need to engage with issues of power and governance operating at various scales to create a more nuanced understanding of communities as networks that are structured by unequal power relations and which have unequal access to knowledge, resources, and decision-making structures. The discussion implies that CBA mainstreaming needs to overcome inequality and exclusion issues at the

local level in order to ensure that vulnerable households and communities have full access to technological and financial benefits.

7.2.4. Contribution of the LAPA to capacity-building and institutional strengthening

As argued in Chapter Three, the main focus of the LAPA was to build local capacity to deal with climate change. Activities to build capacity included orientation and training activities targeted at households and community-based institutions at the grassroots level. The project used community-based institutions as a means to implement climate change adaptation activities (HTSPE, 2011). In this section, the discussion includes an analysis of how the LAPA contributes to the building of the capacity of households and local institutions[40] in the study sites.

The findings show that the majority of the respondents (68.8%) in both VDCs felt that adaptation interventions were successful in building the capacity of communities (Table 31). According to the respondents, the capacity-building activities were related to training on specific income-generation activities, office management, and other climate change-related topics[41]. It was also found that the training and orientation activities were organised through the project in order to transfer skills and knowledge to selected members of community-based organisations, specifically in relation to climate change assessment and adaptation planning.

Table 31. Community perceptions of the effectiveness of the LAPA in capacity-building of households and communities

	Effectiveness of adaptation in capacity-building (n=128)				
Village Development Committee (location)	Not Effective at all (%)	Less Effective (%)	Effective (%)	Very Effective (%)	Total (no)
Dhungegadi	1	23	32	8	64
Bangesaal	2	15	43	4	64
Total (no)	3	38	75	12	128
Total (%)	2.3	29.7	58.6	9.4	100

[40] Local institutions here include both local government (VDC) and community-based organizations.
[41] This activity is related to training and orientation activities on climate change implemented in the study VDC.

The effectiveness of community-driven interventions at the local level is highly conditioned by local capacity, in particular, the capacity for collective action (Mansuri and Rao 2012, p.39). The information from the LAPA project shows that, out of total investment, 8-10% of the resources were invested in climate change-related capacity-building activities; for example, out of the total resources invested, only 10% were related to capacity-building in the Bangesaal VDC. It was also found in the group discussions, that some of the capacity-building activities, for example, the sharing of climate change information, were helpful for the local government and communities to gain insight into climate change scenarios at the national and international levels.

The findings show that local institutions were primarily targeted for capacity-building activities rather than individual vulnerable households. The Village Development Committees (VDCs), the Village Forest Coordination Committee (VFCC), community based organisations, and local NGOs were involved in the capacity-building events. The most preferred group was the Community Forest User Group. Altogether, there were 9 and 11 Community Forestry User Groups in Dhungegadi and Bangesaal VDCs, respectively. There were also agricultural cooperatives, farmers' groups, mothers' groups, and savings and credit groups in the VDCs.

Figure 25: Community Forestry User Group members trained in forest fire protection (Photo Credit: Author)

The use of existing community institutions looks relevant to the mainstreaming of CBA into the development process because it can immediately help in the implementation of adaptation interventions at the local level. Among the groups working in the study VDCs, it was found that the Community Forestry User Groups were larger in terms of household affiliation and geographical coverage. Almost 70-90% of households in the study areas were affiliated with the Community Forestry User Groups. These groups were economically strong due to their income and financial transactions. For example, almost all the Community Forestry User Groups in the study VDCs had their own offices (Figure 25). Legally, community forestry is well recognised and institutionally strong due to their experience and affiliations. As discussed in Chapter Three, Community Forestry User Groups were legally formed and have been given the responsibility of managing forest resources since 1980. In the study areas, the majorities of the Community Forestry Groups have been active over the last 10 years and have contributed significantly to protecting forests and managing resources in favour of the community. Khatri et al (2013) point out that the Community Forestry Groups also have experience of acquiring external financial and technical support and in mobilising these resources for forest management and community development.

In the comments which reflect the views of the majority of interviewees, in both VDCs (89.1%), the adaptation interventions had supported the strengthening of local institutions and the empowerment of local communities (Table 32). The review of the LAPA document for the Bangesaal VDC shows that there were only a few institution-strengthening activities included in the urgent and immediate adaptation priorities identified within the plan. These activities were related to improving the capacity to manage community-based organisations through improvements to account keeping, public hearings, documentation, self-monitoring and evaluation, and interaction with other stakeholders. In addition, the findings show that some of the financial resources were allocated to strengthening the Village Forest Coordination Committee (VFCC) at the VDC level through the establishment of a revolving fund. In both VDCs, a total of NPR 251,138 (the equivalent of USD$ 3,000) was invested in the revolving fund. This fund was established to build the capacity of vulnerable households and to provide support for their income-generating activities.

Table 32. Perceptions of respondents on the effectiveness of adaptation interventions in supporting institutional strengthening

	Effectiveness in terms supporting institutional strengthening (n=128)				
Village Development Committee (location)	Not Effective at all (%)	Less Effective (%)	Effective (%)	Very Effective (%)	Total (%)
Dhungegadi (n=64)	0.0	8.0	68.7	23.3	100
Bangesaal (n=64)	0.0	15.6	75.0	9.4	100

However, there were some limitations of the institution-strengthening activities promoted through the LAPA. The analysis in Table 31 shows that 23.6% of the respondents felt that the intervention was less effective in building institutional capacity to deliver adaptation interventions. Among the respondents, the amount of dissatisfaction was higher among the general members than those who held executive positions in the management committees of the community-based organisations. The focus group discussions with the communities in the study sites also revealed that the majority of the executive committee members attended workshops and training programmes related to climate change and adaptation planning. In contrast, only a few ordinary members attended any of the training. The variation in perceptions among members was related to access and influence issues, particularly at the local level. One of the key informants from Bangesaal said:

> The challenge of climate change adaptation is around knowledge and technology. Climate change impacts are massive and need technically feasible solutions. The knowledge of climate change is important for communities to better plan. There are limitations to community knowledge and the plan they prepare. It is also true that in most cases, due to limited capacity-building events, only few but influential people attend. It makes the general members disadvantaged (KIRN 7).

The perceptions of the key informants discussed above hinted that the community members feel overwhelmed by the global nature of climate change, and are looking for more tangible and impact-oriented livelihood and technological inputs, rather than training and awareness-raising activities. During the focus group discussions in Bangesaal VDC, the majority of the participants expressed their concerns about the nature of support that is currently provided,

and demanded more direct support for communities and vulnerable households that can make them more resilient to the impacts of climate change.

The review of the LAPA document for the Dhungegadi VDC shows that there were no activities at all to support institution-strengthening at the local level. The LAPA documents for both Dhungegadi and Bangesaal had no activities related to the building of capacity for smaller groups, and for local government and government line agencies operating at the VDC level. The findings also showed that capacity-building activities organised through the LAPA were primarily focused on only a small number of individuals from the Community Forestry User Groups. Government institutions benefited less from the capacity-building activities. One of the key informants from local government highlighted the implications of the lower participation of government institutions, and said:

> The LAPA seems to only pay attention to the community forestry and local groups. The capacity-building and institution-strengthening need of our government office is overlooked. There are key capacities and human resource issues within our VDCs. Our officials in the VDCs do not have that knowledge and capacity on how to integrate climate change. If the VDC is to play a facilitating and coordinating role, it should be well-equipped with adequate capacity and resources (KIRN 1).

The institutional strengthening of local government becomes crucial for promoting adaptation at the local level (Agrawal, 2008). Ireland (2012) also showed that local government in Nepal currently lacks the structures, capacity, and resources to facilitate significant vulnerability reduction and adaptation. The findings in this research show that there is an assumption among the LAPA piloting agencies that government institutions are well-equipped and have adequate capacity, and hence, do not need any support. This assumption, as described earlier, is problematic because there are several capacity issues within these institutions. For example, the current workload of the village secretary is over-stretched. One local government practitioner said:

> Our human resources problem is severe at the VDC level. Due to a lack of political representation over the last 15 years, our local bodies have been administered and run by government employees like me. There are instances

> where I have to work even 20 hours a day. We have to carry out multiple works including the work of elected officials. We need more human resources and capacity in order to effectively transfer technology and support to households (PRRN 16).

As mentioned earlier, there are implications of the low institutional capacity for climate change within local government. The findings show that due to the lack of capacity and motivation, most of the local government line agencies, particularly the agricultural service centre, the forest range post, the health post, and the veterinary office in the study VDCs were very passive in taking action on adaptation. The key informants from these institutions argued that they were ignorant about actions related to climate change issues. According to one of the key informants, this happened because the LAPA was overly-focused on community-based institutions and LAPA did not realise the significant role of grassroots-level government agencies (KIRN 2). Paudel et al (2013) also concluded that the current approach, characterised by institutional fragmentation and token involvement of local government in adaptation planning in Nepal, could paradoxically lead to unaccountable climate governance at the local level.

Table 33. Household perceptions about the strengths and weaknesses of existing local institutions (Community Forestry User Group) used in the LAPA

Strengths	Weaknesses
Community Forestry User Group are legally-mandated and recognised community institutions	Community Forest User Groups focus primarily on forest resources
Community forestry has comparative advantage in terms of resources from membership fees, the sale of forest products, grants, etc.	CFUG are not particularly inclusive and do not have a mandate to include communities that are situated at some distance from the forest
User groups have a democratic process for group functioning	Communities in areas without forests are not covered by the community forestry policy
User groups have improved their inclusive strategies and have clear goals and objectives, as donor-funded projects tend to focus on improving the internal government of the Community Forestry User Groups	The leadership of community forestry has been under elite control since its establishment

Source: Key Informant Interview Respondents from Dhungegadi and Bangesaal VDCs

The strengths and weaknesses of the Community Forestry User Groups analysed in Table 33, shows that there were also issues regarding the mobilisation of community-based institutions and their role in adaptation. Although the majority of the households interviewed expressed that Community Forestry User Groups were viable organisations in terms of leading local adaptation, there were issues of exclusion and governance as discussed earlier in this chapter. The inequality within community forestry was one of the major challenges to reaching vulnerable households.

According to the analysis in Table 33, it is evident that there are also larger issues with other interest groups such as farmers' groups and women's groups. These smaller groups had only very limited coverage and household affiliations. In addition, the smaller groups were less active and had limited recognition at the local level. However, according to the focus group discussions with the communities, it was revealed that the smaller specific interest groups had advantages in mobilising targeted households and building their capacity. The findings imply that the existing strength of community-based institutions needs to be used during the targeting of vulnerable households and communities.

The focus group discussions with the communities also revealed that the smaller specific interest groups had advantages for mobilising targeted households and building capacity. The smaller groups are interest-based, and targeting by these groups is far more feasible and effective. The findings show that the mainstreaming of CBA is restricted to a limited number of agencies and community groups. The process has also focused more attention on the building of the capacity of the Community Forestry User Groups, at the same time paying less attention to other smaller interest-based groups such as the agricultural groups, women's groups, the youth clubs, etc. However, some of the key informants argued that not all development and climate change adaptation activities could be implemented through Community Forestry User Groups due to their limited scope and inclination towards forestry. One key informant said:

> We have diversity of groups in our villages. They have specific expertise and interests. For example, the women's groups mobilise women in particular, and it is easier because most of them feel comfortable in joining their identity groups. Working with the smaller groups can easily target the specific-interest groups and households more efficiently and effectively than the general

> programme. I think interventions should target these smaller interest groups in order to reach specific vulnerable households (KIRN 9).

As discussed earlier, there are governance issues with local institutions such as community forestry and these are mostly related to power-sharing, decision-making, and accountability. According to the majority of the key informant interviewees, institutional strengthening, and particularly, capacity-building appeared to be important elements in making local institutions more accountable and responsive. The findings pointed out the need for local institutions to realise the importance of engaging households directly in the programme. Agrawal (2008) also argues that external interventions in the form of new information and technology, improved access, the inflow of finances, and support for local leadership, would be critical for the strengthening of local institutional capacities.

Apart from community institutions, it is equally important to strengthen the capacity of local government to manage climate change adaptation programmes at the local level. Local government bodies, civil society, and communities all need to be well-resourced to effectively drive the local adaptation agenda. Khatri et al (2013), in their review of the adaptation planning process in Nepal, also identified critical capacity issues, and suggested the development of the capacity of local government to coordinate the activities of community groups and to provide leadership in local adaptation planning.

The findings conclude that the existing institutional mechanisms at the local level, which are dominated by a few elite and powerful individuals, are a barrier to the building of the adaptive capacity of poor and vulnerable households. The exclusionary nature of institutional governance at the local level excludes poor and vulnerable households from participating in activities related to capacity-building. In addition, the larger and more powerful groups, such as community forestry in the case under analysis, received greater benefit than other smaller specific-interest groups. The findings imply that there is a need to decentralise and devolve capacity-building activities to the household level and to specific-interest groups, so that the poor and vulnerable households benefit from the capacity-building activities.

7.2.5. Contribution of the LAPA in enhancing collaboration and coordination among agencies

As argued in Chapter Two, climate change adaptation, due to its cross-cutting nature, requires engagement and collaboration among various agencies at the local level. Dumaru (2010) found that the development of networks and partnerships is critical for accessing information, technological expertise, and the resources necessary for CBA to be most beneficial. This section looks specifically at the contribution of the LAPA to the enhancement of collaboration and coordination among agencies in relation to the implementation of climate change adaptation activities in the study sites.

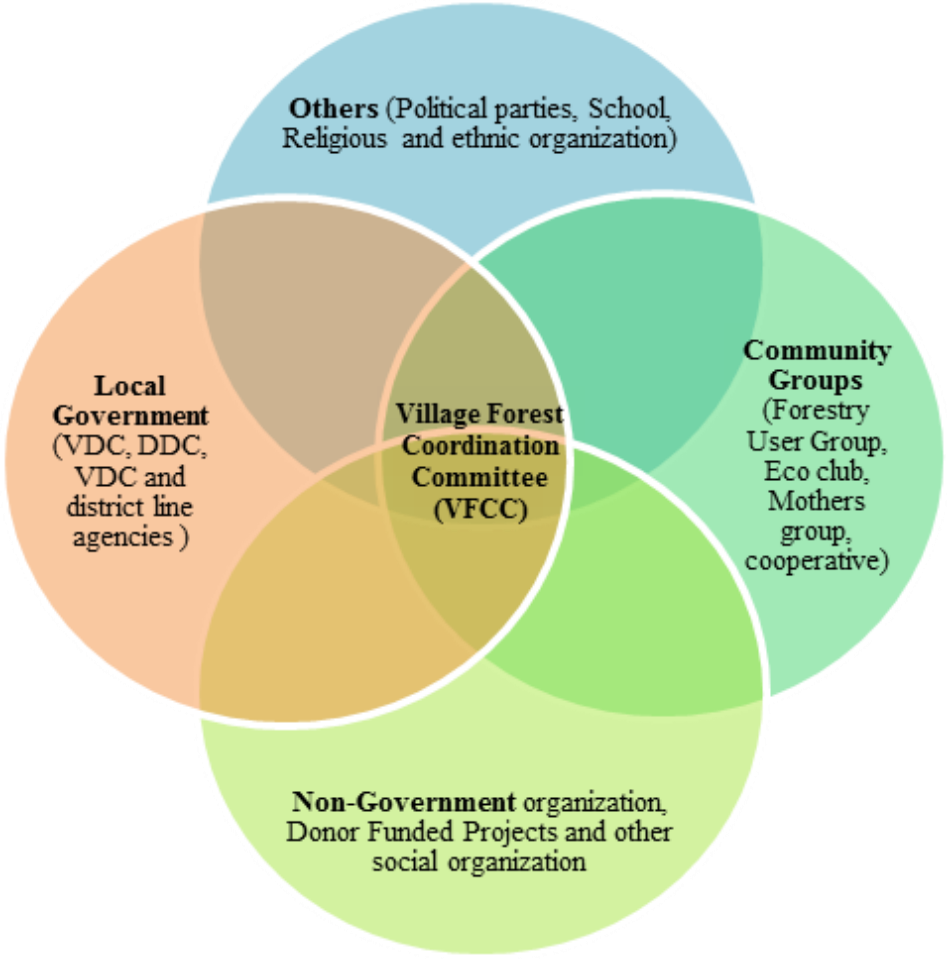


Figure 26: Showing collaboration among stakeholders in the LAPA (Source: VFCC-Bengesaal-2010)

A large number of stakeholders were part of the climate change adaptation activities in the study sites. The existing organisational structure in the VDCs under examination includes

government, political parties, non-government organisations, social and community groups, and donor-supported projects that operate in various areas of development. The LAPAs prepared in both VDCs had a major focus on networking and collaboration among agencies. For example, the LAPA in Bangesaal identified various layers of the government and non-government sectors as being useful for the implementation of adaptation programmes (Figure 26).

The findings show that the majority of respondents (71.9%) feel that adaptation interventions are effective for enhancing collaboration and coordination among agencies and stakeholders. They also feel that adaptation interventions have brought different agencies together. In Dhungegadi VDC, 8.6% of the respondents were very satisfied with the contribution of the LAPA in forging coordination among agencies (Table 34). In the focus group discussions, the majority of the participants in Dhungegadi VDC perceived that the level of collaboration for resource- and knowledge-sharing among the different agencies was high. The respondents further argued that local government and NGOs worked closely with community groups to implement adaptation priorities.

Table 34. Satisfaction of households with coordination and networking promoted through the LAPA

Village Development Committee (location)	Satisfaction with coordination aspect of adaptation interventions (n=128)					
	Not so Satisfied		Satisfied		Very Satisfied	
	Number	%	Number	%	Number	%
Dhungegadi	15	11.70%	38	29.70%	11	8.60%
Bangesaal	21	16.40%	43	33.60%	0	0.00%
Total	36	28.10%	81	63.30%	11	8.60%

The evidence shows that the participatory consultation process used in the LAPA helped to bring local stakeholders together. For example, it was found that the LAPA development process used a participatory approach and invested more than 18 months in both VDCs to bring different actors together and, more importantly, to engage them directly in 'learning-by-doing' activities. The local stakeholders were involved in climate change assessment and planning activities. The majority of the key informants and participants of the focus group discussion at the community level stated that the process of adaptation planning provides a good lesson for improving development. One local government practitioner said:

> Government planning steps should adopt a similar participatory planning process as that carried out in the LAPA. I am convinced that the process of adaptation planning is bottom-up and realistic. It provides an important venue for the local-level engagement of stakeholders. I see that there are opportunities for linking climate change in development, which can provide important reforms needed in the government planning process. We need to make our planning process more flexible and participatory (PRRN 17).

As discussed in Chapter Six, one of the advantages of engaging multiple stakeholders is that this allows for the sharing of knowledge and resources. The analysis of the contribution of different organisations to the implementation of adaptation priorities in Bangesaal and Dhungegadi VDCs shows the positive impact of resource collaboration among agencies. The data shows that the project, NGOs, VDCs, community groups, and individual households all financially contributed resources to implement the adaptation interventions. It was also observed that individual households had provided an in-kind contribution, in the form of labour, to implement the interventions (Table 35).

Table 35. Resource support by different institutions to implement climate change adaptation activities in Dhungegadi and Bangesaal VDCs

	Contribution from different organisations (amount in Nepalese Rupees)								
Study	Project		VDC		Community groups		Individual		Total
VDCs	Amount	%	Amount	%	Amount	%	Amount	%	
Dhungegadi	598690	68	109000	12	33000	4	136000	16	876790
Bangesaal	917352	67	38138	3	214466	16	191000	14	1361056

Collaboration can be enhanced if a local multi-stakeholder mechanism is established at the local level. The field evidence shows that the LAPA piloting formed a Village Forest Coordination Committee (VFCC) in order to coordinate climate change activities at the VDC level (Figure 27). The Village Forest Coordination Committee was composed of government officials, the non-government sector, political parties, local organisations, and social groups. The committee was chaired by the secretary of the VDC and housed within the VDC office. The main objective of this body was to act as a bridge between the community groups and the government and to mainstream climate change into development planning and processes.

The majority of the interviewed participants argued that the VFCC played an important role in coordination and in acting as a bridge between the communities and local government authorities. However, the participants also stated that such coordination mechanisms should be legally recognised and owned by government institutions. Table 36 shows that, in comparison to the weaknesses, the respondents perceived more strengths and benefits arising from the VFCC. There are many advantages of having a network including help with knowledge- and resource-sharing, avoiding duplication, and also harmonising adaptation interventions at the local level.

Table 36. Perceived strengths and weaknesses of the Village Forest Coordination Mechanism (VFCC)

Perceptions of stakeholders on the existing mechanism and its relevance in promoting CBA at the local level

Mechanism	Strength	Weaknesses
Village Forest Coordination Committee (VFCC)	- Includes all the Community Forestry User Groups of the VDC - The composition of the VFCC is inclusive (includes government, political parties, and user groups) - Strong leadership and management will - Linked with local government agencies - Strong local level ownership - Strong technical background and institutional support - Functional and effective in terms of coordination and delivery	- Not legally recognised - Mostly represents forest user groups - Excludes other groups at the community level. Does not represent non-forest community groups in the executive positions - Lacks support from local political parties and some district government agencies

Source: District-level brainstorming focus group, Pyuthan, 13th January 2012

However, short-term mainstreaming initiatives face difficulties in enhancing collaboration among a diverse range of institutions. Since the LAPA was more focused on local and grassroots institutions, the district-based institutions and political parties felt excluded. During the focus group discussions, the communities revealed that adaptation interventions failed to garner support from district-based government organisations and political parties. According to the communities, this happened because the district line agencies were not

involved directly in the LAPA piloting. The lack of support from district line agencies and political parties had a negative impact on investments in resources for climate change.

The findings in this research show that although collaboration among local groups and local government was happening, the links to political parties and district line agencies was missing. The majority of the planned activities in the two VDCs were not implemented, because there was less interest by political parties and government officials in the mainstreaming of climate change adaptation. One of the key informants from Dhungegadi VDC further argued:

> The lack of political interest of our political parties in climate change is having impact on supporting climate change adaptation at the local level. Our political parties are more interested in their political agenda of supporting their vote banks or cadres. Likewise the majority of our local government officials do not think climate change is their priority. I think they are not aware of the issue and sometimes they are reluctant to include new agendas like climate change (KIRN 4).

The above informant suggested that political parties and governments at the district level still consider climate change to be a low priority, because district agencies lack sufficient information and knowledge on climate change. This supports the findings from Chapter Six in which it was seen that mainstreaming was constrained by the limited information and capacity of local agencies. The findings conclude that the mainstreaming of CBA requires both political ownership as well as support at different levels.

The above findings suggest that although the interviewed participants were positive about the mechanism established by the government to forge collaborations among a wide range of agencies, the functioning of these mechanisms was not satisfactory. This was because the representation and decision-making in the forum/mechanisms were dominated by a government-established structure, and by donor projects/NGOs in the projects managed by them. The participation of other stakeholders in the government and project-managed structure was merely ceremonial. These findings indicate the limitations of short-duration project-based approaches to mainstreaming promoted through the LAPA.

As argued in Chapter Two, short-duration and stand-alone project approaches are a barrier to the up-scaling and sustenance of community-based adaptation. There were also clear limitations to the short-duration project mode of the LAPA. Due to resource and time constraints, the adaptation interventions were centered on NGOs and local community groups, and did not pay much attention to bringing district stakeholders on board. It was observed in the study VDCs that the NGOs have worked more effectively than local or district governments in terms of mobilising local communities and building awareness. The nexus between NGOs and grassroots institutions worked well for certain project durations (short-term) but could not move beyond them. An NGO practitioner stated:

> We have been successful in promoting community-based activities like adaptation very effectively, because of our capacity to reach the targeted households. We have good rapport and working relationships with communities directly. However, time and resources limit our work. We cannot operate with our own budget and resources if there is not funding available. Government institutions have to take over the outcomes of the LAPA piloting and disseminate in other areas. We need to promote partnerships between NGOs and government in real practice, not just in policies (PRRN 12).

As stated by the above respondent, the short-duration project approach to the implementation of climate change adaptation activities at the local level also had implications for up-scaling and the continuance of the adaptation interventions in the research sites and other areas in the district. Besides constraints in the technical and financial resources, there were also limitations to the community-based approaches as they failed to address the structural inequalities that are perpetuated (inclusion and exclusion issues) due to social and cultural barriers. It is also true that many of the processes that affect the lives of households and communities are not readily tackled at the local level, and if so, only through the efforts of local institutions (Mohan cited in Dodman and Mitlin, 2013). In the national brainstorming focus group discussion, one of the participants argued that:

> Communities do not manage all adaptation interventions because there are national and broad adaptation issues that also require the role of the state and the international community. If we leave everything to communities to handle, this might create problems, particularly in dealing with adaptation

> that requires new knowledge and technology, including financial resources (Outcome of national-level brainstorming focus group discussion, March 6 2012).

As discussed in Chapter Two, new incentives are needed to promote the involvement of a wide range of organisations and institutions in facilitating climate change adaptation. The findings in this chapter also support the findings of the earlier chapters, which argue that collaboration should happen at different levels and that there should be a strong linkage between local institutions and district and national level agencies to effectively mainstream CBA into the development process in Nepal.

Based on the interaction with informants at the local, district, and national levels, this chapter argues that the CBA community of practice should now be extended from the communities and projects towards a broader sphere of stakeholders including local and national governments, civil society, donors, academia, the private sector, and international communities. As argued in Chapter Two, the social learning and adaptive co-management approach, which emphasises joint action by government, communities, and other stakeholders, can overcome the issues involved in the up-scaling of CBA, and reaching out to a wider geographic region and their communities.

7.2.6. Contribution of the LAPA in increased access to information, and awareness and knowledge on climate change

The LAPA project document mentions that one of the major objectives of the LAPA piloting was to generate information and knowledge that could then be fed into policy-making and practice to mainstream climate change into the development process. The LAPA report mentioned that several activities were initiated to fill the information and knowledge gaps (HTSPE, 2011). This section will now discuss the extent to which the LAPA has managed to widen access to scientific and technical information, awareness, and knowledge about climate change among communities and households.

The findings show that the majority (80.5%) of the respondents interviewed in both VDCs were satisfied with the support and their access to information about the interventions (Table

36). It was evident from the focus group discussions and the Key Informant Interviews that the LAPA organised a number of awareness- and capacity-building events, such as awareness campaign training, for the communities at which information about climate change was also provided. Out of the respondents, those who were on the executive committees of the community groups were more satisfied with their access to information and knowledge on climate change.

The findings show that local NGO and project staff provided facilitation support to communities during the assessment and planning of the adaptation interventions. The skills and knowledge of how to conduct a climate change impact assessment and to develop adaptation plans, was shared with selected members of the communities during the LAPA process. The majority of the households interviewed stated that the facilitation support from the NGOs and project staff was useful. The key informant from Dhungegadi VDC said:

> The facilitation support provided by NGOs and project staff helped us to understand the climate change context and the significance of climate change in our local development. We are now aware about what is happening and how this is impacting our lives and resources we depend on. We felt the impact in the past, but we were not much aware about what is causing and what implications it might have in future (KIRN 5).

Table 37. Satisfaction of households over their access to information on climate change

	Dhungegadi (n=64)			Bangesaal (n=64)		
Response	Overall	Male	Female	Overall	Male	Female
Not so satisfied	19.00%	1.00%	18.00%	20.00%	2.00%	18.00%
Satisfied	65.00%	35.00%	30.00%	72.00%	41.00%	31.00%
Very satisfied	16.00%	14.00%	2.00%	8.00%	7.00%	1.00%

However, there were differences in the levels of perception among the different categories of households interviewed. Around 19.5% of the respondents in both VDCs were not satisfied with their access to information. The majority of the people who were not satisfied were general members of the organisations and mostly female members (Table 37). The LAPA documents from Bangesaal and Dhungegadi show that the majority of the people who participated in the training and other events were actually affiliated to the groups, and were

selected based on their education status and leadership capacity. This selection process, according to some of the key informants, actually hindered the participation of those households who were busy, had low education status, and held general member status in the groups. One of the respondents said:

> I was informed about the training, but late, so I could not manage the time. The organisers also said that I have to commit for voluntary work after the training. Another thing is that farmers like me have many farm-related activities which demand our daily time and labor. If we do not work one day, we do not have anything to eat for lunch or dinner. If we participate the whole day, our family will suffer from our work absence. I was interested to participate but the timing was not appropriate (HRN 44).

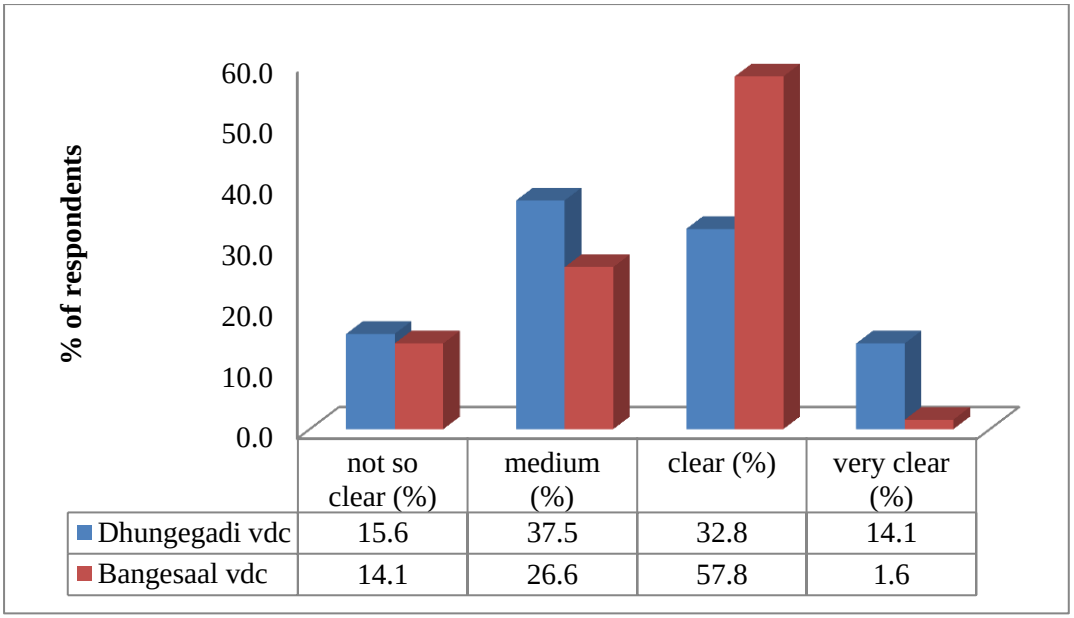
As argued by the above respondent, the socio-economic condition of the household plays an important role in determining household commitments in community activities. The vulnerable community members faced pre-existing time constraints that limited their ability to participate in group activities. It was revealed from the field observations that farmers who are busy with their household activities find it difficult to make the time to participate in the events organised as part of the projects and programmes. It was also found that the households that were not part of any group had fewer opportunities to become involved in the project activities. The findings show that there was a problem in the design of the information- and knowledge-sharing mechanism, because it was biased against poor households as it failed to address and accommodate their needs, which is common in these types of interventions.

Although households were satisfied with the information about the project, as discussed earlier, the majority of the respondents raised the issue of limited access to scientific knowledge and technology about climate change. They mentioned that in order to deal with extreme disasters and the impacts of climate change, sound knowledge of the topic and appropriate technologies would be needed. Local government service providers and political party representatives also raised the issue of scientific information and knowledge. One local government key informant said:

> Our access to knowledge and technology on climate change is very limited. We have very little idea about which technology or practices are best to address the type of disasters that are observed at local level. We have not received any guidance or training from our local and central government regarding the technology relevant for agriculture or forestry. Farmers and villagers come to us for advice and we feel uncomfortable since we could not offer them the services they need (KIRN 2).

During the focus group discussions, the majority of the community participants stated that their limited access to scientific information on climate change had made their efforts less effective. Several examples were provided by the participants in relation to the constraints caused by the lack of access to scientific information. For example, in one of the focus group discussions in Dhungegadi, the communities shared that due to a lack of information about the scale of the impact of disasters, such as landslides and droughts, their plantation activities were ineffective. The planted crops in Dhungegadi were washed away by massive landslides in the absence of local level forecasting and risk-management strategies.

Knowledge and information are the main determinants of the differences in adaptive capacity among households (Boutrup and Nielsen, 2013). The communities were asked to express their perceptions about climate change. The findings show that climate change awareness was slightly higher in the Bangesaal VDCs (59.4%) where the adaptation interventions were recently initiated, compared to the Dhungegadi VDCs (46.9%), which were established earlier (Figure 27). This might be due to the impact of awareness-raising activities, which were very recent in Bangesaal, and therefore community members could better recall what was shared. Among the other categories of respondents, one of the executive committee members appeared to be more aware than the general members. The data shows that 10.9% of the general members of CFUGs were not aware of climate change issues. The results suggest that climate change awareness should be carried out at different levels and be updated on a regular basis.



	not so clear (%)	medium (%)	clear (%)	very clear (%)
Dhungegadi vdc	15.6	37.5	32.8	14.1
Bangesaal vdc	14.1	26.6	57.8	1.6

Figure 27: Household awareness of climate change through the LAPA interventions

The findings show that the majority of the respondents were aware of the implications of the impacts of climate change, and that they have strong local knowledge. Approximately 59% of the respondents said that they had 'clear' to 'very clear' knowledge about the impacts of climate change (Figure 28). The majority of the respondents provided examples about the impacts of climate change and shared their experiences. This means that the experience of the impacts of climate change was higher among the respondents who also had a higher relative awareness about its consequences. However, a large number of the respondents shared that their existing knowledge about climate change was not sufficient to deal with climate risks and hazards. One key informant from Bangesaal VDC said:

> Weather and climate is very uncertain. Every year, we have experienced changes in our local weather and climate system. The scale of disasters and impacts is also getting bigger. The devastation and the losses are high. But we lack sufficient knowledge to deal with uncertainties at the local level. For ordinary farmers like us, uncertainty makes it difficult to plan. For example, we don't have solutions to deal with extreme drought conditions and which crops to plant and when (KIRN 7).

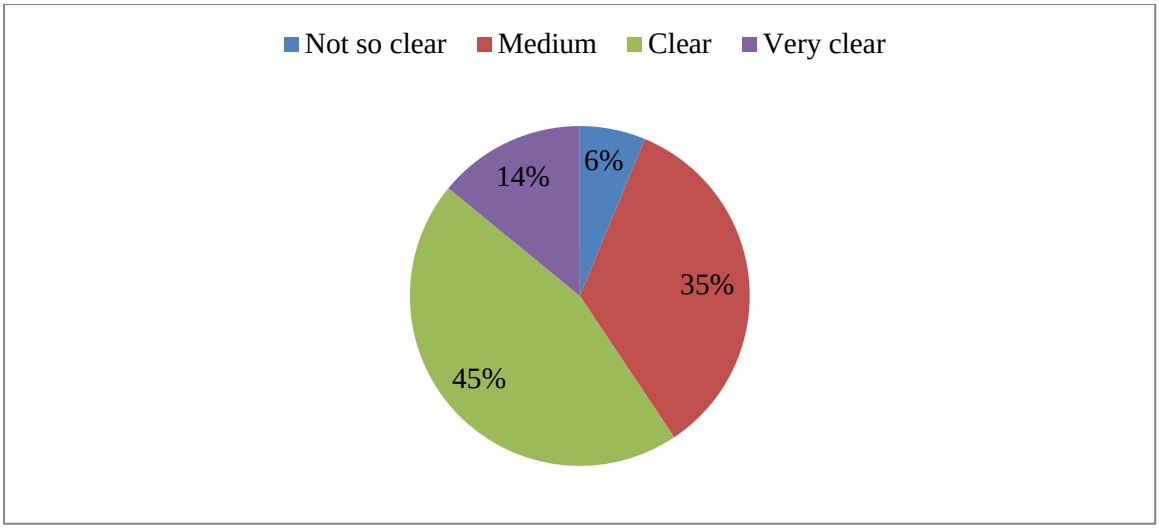


Figure 28: Perceptions of respondents with regards to knowledge on the impacts of climate change

The majority of the key informants argued that the knowledge-generation and sharing mechanism between government and the communities was lacking due to the weak service delivery and extension system at the local level. There was hardly any practices associated with the learning and sharing mechanism that were promoted by the government at the local level. According to the respondents, the extension and service support mechanism of the government at the local level was inadequate. It was also revealed that the NGO staff who supported the communities at the local level, held most of the technical knowledge about climate change assessment and planning, but did not transfer this knowledge to the communities. There is a general tendency in development projects that once a project has been completed, there is very little knowledge transfer. This is because most of the staff involved in the projects hold this knowledge and these skills, and when they leave, a knowledge vacuum is created.

As discussed in Chapter Five, the non-participation of communities in the policy design process has resulted in a lower level of awareness about the policies. The findings show that policy awareness among community members appears to be very low. The majority of the respondents from both VDCs (84.4%) were not aware of the climate change policies and programmes developed at the centre (Table 38). The lack of awareness about the climate change policies was similar across the two VDCs, and also similar between male and female respondents.

Table 38. Perceptions of households on their level of awareness on climate change policies and programmes

Organisational Affiliation of Respondent	Awareness of Climate Change Policies and Programmes (n=128)				
	Not aware	Low awareness	High awareness	Very much aware	
	Number and %	Number and %	Number and %	Number and %	Total (No)
Member	34 (44%)	37 (48%)	4 (5%)	2 (3%)	77
Executive committee	13 (25%)	27 (52 %)	5 (10%)	6 (12%)	51

The analysis shows that there is a significant difference between the awareness of the general members and the executive members. Although compared to the general members, the executive members were more aware about the climate change policies, their awareness was still low. The low levels of awareness could be due to the nature of the climate change policy, as discussed in Chapter Five, as it is quite broad and vague, and somewhat unmemorable. One key informant from Dhungegadi VDC added:

> Our role in the design of policies and programmes is not ensured. If any project or policy is prepared to help poor farmers like us, we should have a role in providing input into the policy process. The trend in policy- or project-making is highly centralised in Kathmandu. We are only the recipients of whatever comes from the central government in terms of policy and implementation support. Policy-making is far from the reach of the general public and mostly people living in remote rural areas like us (KIRN 5).

The affiliation and power of the households in community organisations plays a crucial role in their levels of awareness. The analysis shows that the majority of the individuals, and particularly the male members, who were exposed to, and oriented on, the issues, were more aware and knowledgeable on climate change compared to female-headed households and others who did not take part in any of the events.

The findings clearly showed that the male and executive members were more privileged in gaining access to information and knowledge about climate change. A gender and class-based bias seems to be prevalent in rural areas, where males are primarily involved in making decisions that favour their own interests. In line with the findings of the household survey, the LAPA document also shows that more than 80% of the individuals involved in adaptation planning were male, and 70% of the men who participated were executive committee members (VFCC-Dhungegadi 2009; VFCC-Bangesaal 2010).

The findings imply that although the communities are at the forefront of the impacts of climate change, their stake in decision-making is very low. The lower awareness about the policies clearly indicates that policy-makers treat communities as passive recipients of the process. The findings in Chapter Five also showed that local communities were not involved in policy-making. This passive treatment of communities is problematic as it has negative implications in terms of community ownership, and ultimately, for the success of policy implementation.

The findings in this section argue that the mainstreaming of CBA at the local level can benefit communities if it is supported by an informed decision-making process. However, in the absence of a sufficient focus on information- and knowledge-sharing, there is a lower level of community acceptance and ownership of policies and programmes. The lack of information and knowledge also has negative implications for household and community responses to the impacts of climate change. Scott and Huq (2014) also argue that mobilising appropriate knowledge can enable the mainstreaming of CCA, and can ensure that the resulting actions are beneficial for vulnerable households at the local level.

Finally, these findings imply that efforts need to be concentrated on enhancing the knowledge-base of communities to take action on adaptation. This means that the extension services, and the technology- and information-sharing mechanism, need to be improved in order to bridge the information and knowledge gaps on climate change at the local level. As argued in Chapter Six, knowledge and information can be improved if the practitioners, or the implementing agencies, have greater capacity and are knowledgeable about climate change adaptation issues.

7.3. Conclusion

This chapter has examined the effectiveness of a local-level mainstreaming initiative, and provides lessons from the pilot which can be used for up-scaling, if indeed the government is planning to implement the LAPA across the nation. The findings show that there are both opportunities and challenges to the implementation of mainstreaming initiatives in Nepal. The LAPA case study analysed in this chapter shows that climate change has to be built-in to the local development process and delivery mechanism because of the associated nature of risk and vulnerability at the household and community levels. This chapter argues that addressing both climate change and development together builds local level resilience because it addresses both the climate risks as well as the development challenges.

The findings however have raised issues about the current approach to mainstreaming and its implications for the community level. The project-based approach to mainstreaming, as evident in the LAPA to some extent, mobilised local institutions and facilitated the bottom-up planning process, but failed to provide long-term benefits to the most vulnerable households. Due to the poor governance structure at the local level, for example, the weak institutional structure of community institutions, the adaptation activities were inadequate and ineffective for providing benefits to vulnerable households. It was also evident that due to the lack of collaboration among local institutions and government agencies, there was not enough funding to implement the priority actions, and most of the local adaptation plans could not be sustained beyond the duration of the project.

The evidence presented in this chapter has revealed that the ideal enabling conditions for effective CBA mainstreaming is to have an inclusive local structure and supportive policies and governance mechanisms. At the household and community levels, there is a need to develop approaches and mechanisms that enable a more explicit transfer of power to vulnerable households and place them at the forefront of decision-making and benefit-sharing. One possible avenue to address the governance challenges at the local level, in the case of Nepal, is to involve meso level institutions (NGOs, and local and district government) and higher levels of government more effectively, in order to catalyse institutional change to improve service delivery and inclusiveness at the local level.

The findings in this chapter further support the argument made in Chapters Five and Six about the relevance of having an overarching climate change and development policy and a supportive governance structure that creates strong and inclusive local institutions in order to link bottom-up with top-down approaches, and to address the issues of exclusion. The following chapter consolidates the findings and arguments discussed in Chapters 1-7, and highlight the implications of this thesis for the theory and practice of CBA mainstreaming.

8 CHAPTER EIGHT: SUMMARY AND CONCLUSION

This chapter provides a summary of, and conclusion to, the thesis. Building on the findings from the earlier chapters, this chapter suggests an operational framework for effectively mainstreaming CBA in Nepal. The framework put forward in this chapter proposes that Nepal should have integrated and inclusive policies and a multi-stakeholder led governance mechanism that links community needs with local- and national-level policies and plans.

The summary section of the chapter synthesises the evidence discussed in the previous chapters to answer the research questions. The conclusion section then outlines both the theoretical as well as the practical implications of the research findings, and the contribution of the thesis to the knowledge and practices of CBA mainstreaming in Nepal. In addition, the chapter also discusses the scope for future research.

8.1. Summary

As such an in-depth study on CBA mainstreaming has been previously lacking, this thesis fills a gap in CBA theory and practice. The purpose of this research is to identify appropriate and effective mechanisms through which communities can benefit from the mainstreaming of climate change adaptation in Nepal. The research questions examined in this thesis were: How can we achieve synergy between adaptation and development policy? How is climate change adaptation mainstreamed into development planning in Nepal? And what are the implications of integrating CBA (e.g. community-based adaptation planning) into the development process at the local level?

Chapter One provided the background context to the research problem and outlined the significance of the research for improving the policies and practices of CBA mainstreaming in Nepal. Chapters Two and Three provided the background and rationale for the problem identified in Chapter One. Chapter Two presented a detailed analysis of the literature around the mainstreaming of CBA. This literature review provided an overview of the key concepts

of adaptation, the emergence of community-based adaptation, and the linkages between community-based adaptation and development. The literature discussed in Chapter Two suggests that there are advantages to the mainstreaming of community-based adaptation into the development process because of the close link between climate change adaptation and development. The development goal of reducing poverty and the climate change adaptation goal to address the vulnerability of poor households and communities are similar in terms of focus and target populations.

However, the literature also highlighted some ambiguity and lack of clarity on how mainstreaming should happen both at the local and national levels. Thus, a major challenge highlighted identified the lack of an effective roadmap and governance architecture to address the impacts of climate change, particularly at the local level. This chapter concluded that it is necessary to have practical and workable policies, strategies, and frameworks both at the local and national levels in order to effectively mainstream CBA into the development process. This thesis fills this gap by analysing what actually happened, and through identifying the issues associated with mainstreaming.

Chapter Three explored why Nepal is an ideal case study for studying climate change adaptation; this is because of the country's relatively high vulnerability to climate change events and their impacts. The impacts are likely to be higher and more damaging if a country is poor. Secondly, the chapter provided a context for the case studies of climate change adaptation that are discussed in the later findings chapters. To provide a context for this, the chapter provided a potted history of Nepal's development experience, which has been more geared towards aid dependency and often in line with the interests. This has led to the neglect of rural and poverty-based issues. It is also troubled political history that has left Nepal with weak institutions and governance. This means that at the local level, people had to govern themselves, to an extent, for example through local institutions, but this has led to a disconnect between national policies and local action.

Chapter Four provided the methodological framework of the study. The thesis used a three-tier assessment model, which included the analysis of policy, practice, and outcome of the mainstreaming of community-based adaptation in Nepal. In order to support the assessment, the study used policy analysis, case studies, and qualitative approaches to specifically look into various approaches to the mainstreaming of climate change adaptation in Nepal. A new

set of data was collected on the existing policy provisions, as well as the perceptions of key stakeholders in Nepal on CBA mainstreaming practices which formed the basis of the answers to the research questions.

Different methods were used in this thesis to capture the insights of the different types of participants. Structured interviews were used to gather information from communities at the local level, and more specifically, their perceptions of the benefits of mainstreaming. Semi-structured interviews were used to gain the perspective of stakeholders at the policy and practitioner levels, and more importantly, to study the policy-making process and the policies affecting CBA mainstreaming. The interviews with key informants were carried out to seek the views of the key experienced people in the selected villages about the effectiveness of mainstreaming initiatives. Two half-day multi-stakeholder focus group discussions were organised at the district and national levels to facilitate discussion among concerned stakeholders to identify early lessons and a future roadmap for effectively mainstreaming CBA into the development process.

Chapters Five, Six, and Seven provided empirical evidence to answer the research questions. Chapter Five analysed the national development and climate change policies in order to identify favourable and supportive policy provisions and mechanisms to mainstream CBA into the development process. The analysis shows that most of Nepal's development policies prior to 2007 were silent on climate change, despite Nepal being a signatory to the United Nations Convention on Climate Change and the Kyoto Protocol in the 1990s. The findings show that a lack of discussion about climate change within the development policies in the past were due to the centralised policy-design process; a lack of political interest; low government awareness about climate change; the lack of development partners' interest; and uncertainties about climate change financing both at the national and international levels.

The findings in the policy chapter have also shown that, even with the recent climate change policy, there have been issues around how climate change adaptation is conceptualised. The findings further show that climate change policy has been oriented towards technology and risk/impact reduction, as well as a more generalised approach. In contrast, the policy chapter shows that the National Adaptation Programme of Action (NAPA) and the Local Adaptation Plan of Action (LAPA) frameworks include very specific provisions to mainstream climate change adaptation into the development process. Both documents have specifically included

provisions to link climate change adaptation with development goals and priorities, such as the PRSP and the MDGs. The findings also show that within the NAPA and the LAPA, a need was recognised to decentralise technical support and financial resources to vulnerable communities.

The policy chapter also identified the potential and scope within the existing development policies that could build synergies with the climate change policies, even in a 'business-as-usual' development scenario where no additional climate-related actions are taken. The findings show that despite the absence of climate change in past sectoral development policies, the successes of implementing decentralised policies within the agriculture and forestry sectors could provide good lessons for the integration of climate change adaptation into the development process. However, the findings suggest that it is necessary to have an integrated and overarching climate change and development policy in order to avoid duplication, and to harmonise the policies.

The findings in the policy chapter show that policies that favour only decentralisation are not sufficient for the mainstreaming of CBA, because the decision-making, as practiced, is often controlled and influenced by the central government. This means that the policies should have a provision for absolute and inclusive devolution, so that vulnerable households and communities, and their institutions at the local level, are at the forefront in making their own decisions. Inclusive devolution, as argued in this thesis, is a necessary policy provision for effectively mainstreaming CBA into the development process, because it allows local institutions and individuals to have the power and authority to make decisions about their own well-being, particularly in relation to community activities and local resource management.

Chapter Six looked into the operational perspective on the mainstreaming of CBA into the development process. The chapter looked specifically into how climate change adaptation was mainstreamed into development planning in Nepal by analysing the Poverty Environment Initiatives (PEI) and the Local Adaptation Plan of Action (LAPA). The two case studies provided evidence on the effectiveness of top-down and bottom-up approaches for the mainstreaming of CBA into the development process. The findings show that there are both opportunities and constraints of the top-down and bottom-up approaches to the mainstreaming of CBA, as currently promoted in Nepal.

The top-down approaches, in the case of the PEI, demonstrated that the centralised process, and working with key ministries, influenced the policy process, as this made it easier to endorse the policy and regulatory measures. The top-down process was successful in making necessary changes in the regulations related to development planning and the budgetary system at the centre. However, the top-down approach failed to implement the policies. Although attempts were made to work with local government and to influence the local planning process, the interventions looked ad-hoc, isolated, short-term, and exclusive because the central level agency primarily controlled the decision-making process and the resources. As well, the piloting carried out at the operational level could not build local level capacity, a knowledge system, and ownership among the local stakeholders. This happened because the mainstreaming initiative was driven by the central government without delegation to the local government and the local stakeholders.

On the contrary, the bottom-up approaches used in the LAPA were partly successful, because they mobilised local institutions and communities in the adaptation process and also influenced the policy-making process. Local-level mobilisation was easier with the LAPA because the local NGOs and community-based organisations were involved in the implementation process. There were a number of visible impacts of the LAPA initiative which had some influence on the local government planning process, and which generated some financial resources at the local level for implementing the adaptation priorities identified by the communities. However, the bottom-up approach promoted by the LAPA was limited to specific project locations and to very few households and communities in those areas. As well, the activities of the LAPA could not be sustained beyond the piloting project phase because the district and central level government agencies were not actively involved, and hence, had no ownership of the LAPA process.

Chapter Seven looked into the effectiveness of mainstreaming by examining the perceptions of vulnerable households and communities in relation to the benefits they received from the implementation of the adaptation interventions. The LAPA pilot case study was used to assess the effectiveness of mainstreaming initiatives at the local level. The findings show that a majority of the households perceived that the LAPA intervention was partly successful for addressing household risk; enhancing their skills; supporting community-based institutions; and providing technological and financial resources to implement urgent and immediate adaptation priorities.

However, this study found that there were concerns at the community level with regards to how decisions were made and how the benefits were distributed. The findings show that community institutions were used as the only means to deliver adaptation goods and services. These community institutions had internal governance problems, particularly in relation to control over power and authority in decision-making, primarily by the elites, the political cadre, and educated people. Many vulnerable and poor households, who should be the real beneficiaries of CBA mainstreaming, were excluded from the decision-making and benefit-sharing processes because the rules of community institutions overlooked their stake in decision-making.

There were other issues that hindered the sustainability of the adaptation interventions at the local level. It was found that there was a gap in capacity, technology, and financial resources at the community level, which made the good practices and initiatives of CBA mainstreaming unsustainable. In addition, due to a lack of government ownership, and the lower levels of involvement of the district line agencies, this hindered attempts to sustain the CBA initiatives and to up-scale these to other geographical areas and communities. The findings thus suggest that in order to achieve climate change adaptation for the most vulnerable, an inclusive local-level institutional mechanism at the grassroots level, and a more coordinated and integrated policy and support mechanism at the district and central levels are required.

8.2. Implications and contributions to the field

8.2.1. Implications of the study

The analysis of all three major aspects of mainstreaming, i.e. policy, practice, and impact, revealed that there are basic conditions that need to be addressed/met in order to mainstream CBA into the development process in Nepal. It was found that the existence of policies on climate change adaptation alone does not necessarily benefit vulnerable households and communities because most of the policies lack coherence and are often not even implemented. It was found that neither the top-down nor the bottom-up approaches to mainstreaming alone are ideal for operationalising and sustaining CBA. Isolated mainstreaming strategies, as practiced in Nepal, are often faced with issues around ownership and governance. Therefore, the findings suggest that in order to effectively mainstream CBA

into the development process, and to benefit poor and vulnerable households, we need both integrated policies and inclusive local governance which promotes wider citizen participation in policy-making, as well as ensuring efficient institutional, financial, and knowledge mechanisms at the operational level.

In terms of the policy implications for Nepal, the policy chapter argued that the mainstreaming of Community-Based Adaptation can be facilitated with policies that: a) have clear provisions and content for linking climate change and development; b) have decentralised and devolved policy provisions that allow more authority and decision-making power for local institutions; c) adapt more of a development and vulnerability-reduction perspective; and d) ensure multi-stakeholder, inclusive, and participatory approaches to both policy design and implementation. An implication of this is that Nepal should have an overarching, integrated, and locally-accountable climate change and development policy that can achieve both development and climate change goals. This further means that harmonisation of the current development and climate change policies is needed, and this can be achieved by revisiting or even formulating a new integrated climate change and development policy for Nepal.

The lessons from the analysis of the operational perspective of mainstreaming suggest that CBA mainstreaming cannot be operated and maintained in isolation by a single actor or at a single level because climate change responses require support from local, national, and international actors. Taken together, these results suggest that it is therefore necessary for Nepali stakeholders and agencies to move out of top-down/bottom-up, projectised, donor-driven, and short-term mainstreaming approaches, and shift towards a nationally-owned, multi-stakeholder based, integrated, and long-term approach to mainstreaming. The evidence further suggests that a governance structure that is inclusive and multi-stakeholder owned at the local and national levels has the potential to overcome institutional, technological, and financial barriers. This means that the Government of Nepal and Nepali stakeholders should establish and promote a functional multi-stakeholder mechanism at different levels to facilitate effective climate change responses.

In terms of the significance of CBA mainstreaming at the community level, the findings conclude that although local level institutional mechanisms, such as the community-based mechanisms promoted through the LAPA, offer opportunities, they are not a panacea for

addressing local issues. The findings suggest that in order to make the local institutions and mechanisms more accountable, it is necessary to address the existing socio-structural barriers that prevent poor and marginalised households from having access to decision-making and gaining benefits from the adaptation interventions. This further suggests that the CBA approaches, such as the LAPA, in the future should address the issues of exclusion within communities and their institutions, and establish inclusive mechanisms to directly empower and benefit the most vulnerable households.

The findings conclude that localised CBA mainstreaming cannot operate in isolation because climate change adaptation is complex and multi-sectoral. This means that local level institutions (district, VDC, community, and household) need to have their capacity built and made resourceful to take collective decisions on climate change. The outcome of the findings suggest that ultimately the meso level, VDC, and district level institutions in Nepal, and the national systems need to take collective ownership and responsibility to support local CBA initiatives, up-scale them, and mainstream good practices in other parts of Nepal.

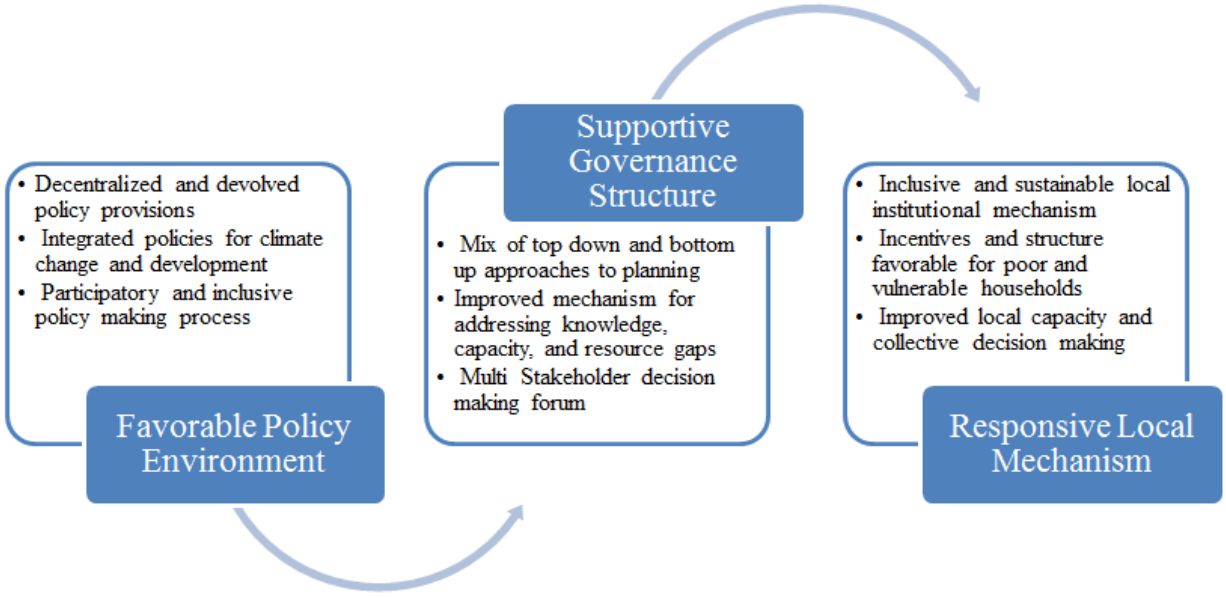


Figure 29: Proposed framework for mainstreaming of CBA in development process (Source: Author)

In summary, the findings of this thesis suggest that if long-term climate change resilience is to be built within vulnerable households and communities then Community-Based Adaptation (CBA) has to be supported with integrated policies and efficient governance mechanisms that integrate top-down and bottom-up approaches and address the existing overlaps and issues in planning and delivery. The findings further argue that it is necessary for Nepal to have a nationally-owned but locally-accountable strategy to mainstream CBA into the development process. The ideal operational mechanism/framework for the mainstreaming of CBA, as evident from this thesis, is to have a locally-inclusive and responsive structure and nationally-supported, integrated, and multi-stakeholder owned policy, governance, and institutional and financial mechanisms (Figure 29).

The framework suggested in this thesis is applicable for government, donors, and civil society in Nepal. This framework guides the national level stakeholders to revisit the current project-based and isolated sectoral approach to mainstreaming in order to develop a national level coherent strategy and a multi-stakeholder approach that can help to sustain climate change adaptation and to help the communities to better respond to the adverse impacts of climate change. The framework is also applicable for other LDCs to develop a more coordinated and harmonised approach to addressing climate change adaptation and development issues.

8.2.2. Contributions to the theory and practice of CBA

The findings of this research have contributed to an understanding of the relevance of community-based adaptation and mainstreaming approaches from a theoretical perspective. This understanding is a crucial contribution to shaping the theoretical base to broaden the community-based adaptation perspective. The findings of the thesis also contribute to an enriched understanding of how the mainstreaming of CBA should work in practice. The findings discussed the enabling policies and governance conditions required to effectively mainstream CBA into the development process.

Participatory and Inclusive Policy-Making

Fischer (2007) and Hajer and Wagenaar (2003) argued that the participatory process of policy-making is not enough as it may focus on only a few institutions and overlook the wider citizen's voices. In the context of cross-cutting issues such as climate change, the active engagement of a wide range of actors is necessary. However, there is ambiguity about the kind of participatory approaches and processes in policy-making which are suitable for deal with climate change issues. A wide coverage of the literature, discussed in Chapter Five, suggests the limitations of participation, primarily the practical and conceptual difficulties for securing broad-based public engagement in the process, including defining who participates and on what basis.

With the failure to ensure the meaningful participation of users, a more radical version of people's participation increasingly came to be seen as a third option for social policy - one that would go beyond the more paternalistic versions of the welfare state and narrow consumerist approaches to user involvement (Croft and Beresford, 1996). Policy processes are conceptualised by the proponents of participatory governance and deeper democracy in terms of governance spaces. Authors such as Gaventa (2006) and Cornwall (2002) introduced the concept of spaces for citizen engagement and change in public policy-making arguing that meaningful participation can be created when spaces are more open and inclusive. These approaches to policy analysis were used to examine the case studies in this thesis.

This thesis aimed to fill the knowledge gap in the climate change policy arena by investigating the process of climate change and development policy-making in Nepal, and why stakeholders are important in policy-making. The findings show that policies prepared through the involvement of a wider range of actors and citizens have included specific provisions for the mainstreaming of CBA compared to policies prepared by a set of limited actors. For example, the NAPA and the LAPA were prepared by government and non-government stakeholders and had specific provisions for the mainstreaming of adaptation into the development process.

The findings also show that the ownership of policy-making was high within the NAPA and the LAPA compared to the climate change and development policy-making processes, thus making the NAPA and the LAPA successful in terms of policy outcomes. The findings of this

thesis conclude that invited spaces in policy-making, which include different multi-stakeholder mechanisms, creates new spaces and meaningful stakeholder participation in the policy-making process. This newly created space, according to Cornwall (2004), is important for redefining the relationship between the citizens and the state, and will lead to more effective and efficient policy.

However, there are also limitations to the participatory spaces created in the policy-making process in Nepal because of the exclusion of major actors. Although space for participation was created in the NAPA and the LAPA, it was still confined to invited, but hand-picked, individuals and organisations. According to Fung (2003), there clearly remains much to be done before these kinds of "invited spaces" can become genuinely inclusive and equitable institutions. Participation as explained in Chapter Two has been wrongly practiced in the policy-making process in Nepal. The findings show that, in the policy-making process, there is a general tendency to use a participatory approach, but to limit the process to a few hand-picked individuals and institutions. The policy context in Nepal supports the literature on the debates around participation, which argue that simply 'doing' participation does not automatically generate meaningful stakeholder inclusion in policy problems, and greater attention is thus needed on the politics of participatory spaces (Cornwall 2000; Cooke and Kothari 2001; Cornwall 2004). Likewise, Gaventa (2002) argued that consultation without attention to power and politics will lead to 'voices without influence'.

The findings also suggest that if policies are to be effective, the policy-making process in Nepal has to be revisited and the process needs to be reformed. This research supports the argument made in Chapter Five that inclusivity in participatory policy-making needs to be considered when formulating complex policy. According to Cornwall and Gaventa (2000), approaches such as placing an emphasis on inclusive participation as the very foundation of democratic practice, suggest a more active notion of citizenship, one which recognises the agency of citizens as 'makers and shapers' rather than as 'users and choosers' of interventions or services designed by others. The literature also outlined that citizen participation should consider the realities of power and differences in society and within institutions (Taylor 1998; Cornwall and Gaventa 2000).

There are limited cases of inclusive policy-making. Holmes and Scoones (2001) show that creating a space for more inclusive deliberation of policy-making is one method of building

more informed and effective decision-making. Mohammed (2013) examined the policy-making process in Ghana and argued that involving ordinary citizens in the formulation of policy has the advantage of democratising traditional authority-state relations and also enhancing public support for government policies. However, each policy-making process needs to consider a country's context, culture, and history. Since people in Nepal are more interested in civic democracy and localised participation, CBA can be a driver for creating such democratic spaces in Nepal.

The findings contribute to the on-going debate about the kind of policy process and framework required to mainstream climate change adaptation in Nepal. The findings reveal that the sectoral and isolated approach (top-down or bottom-up) to climate change policy design, as is currently practiced in Nepal, fails to mainstream climate change because the policy contents are fragmented, the process of policy-making is exclusive, and there is a lack of ownership by major stakeholders, including the communities. Therefore, the findings suggest that an integrated and overarching climate change and development policy and framework is needed for Nepal in order to connect and align local, national, and international priorities and goals. An integrated policy framework, as argued in this thesis, should be prepared through: a) creating meaningful spaces for inclusive citizen participation; and b) reflecting the spirit of decentralising and devolving power and authority to local institutions. The findings provide a useful lesson for other LDCs who are in the process of devising their policy and legal instruments to mainstream climate change adaptation into the development process.

In-Country Mainstreaming of Climate Change Adaptation

The concept of mainstreaming within the climate change adaptation field has recently emerged in discussion and practice. The literature review chapter highlighted both the opportunities (Klein 2003; Huq and Ayers 2008a; Ayers et al., 2013) and the constraints (Gupa and Grijp 2010; Oates et al., 2011; Ayers et al., 2014) of the mainstreaming of climate change into the development process, but primarily from the Overseas Development Assistance (ODA) perspective. A critical gap in mainstreaming exists, particularly in terms of the lack of understanding of the approach to the mainstreaming of CBA into the development process, mostly at the local and national levels. This research has thus intended to explore the

effectiveness of the mainstreaming of CBA into the development process at both the policy and practice levels in order to draw theoretical and practical lessons for Nepal and other LDCs.

The findings of this thesis add substantially to an understanding of the dilemmas of the mainstreaming of climate change adaptation, both at the local and national levels, arguing that isolated and project-based approaches to mainstreaming are bound to fail. The mainstreaming of climate change adaptation is considered either as a policy response at the national level, or as a project and localised response at the community level. The case study of the Poverty Environment Initiatives (PEI) is an example of a mainstreaming initiative that aims to influence policy change by involving only a few key government institutions. The PEI however failed to pay attention to the implementation of the policies. Meanwhile, the case of the LAPA shows that mainstreaming at the local level focuses on carrying out the bottom-up planning process by engaging only local community institutions. However, this bottom-up approach to mainstreaming does not recognise the crucial role of government institutions in sustaining and supporting such activities, and thus fails to institutionalise them within the government system.

The findings in this thesis confirm the previous research on the mainstreaming of climate change adaptation into the development process (Gupta et al., 2010; Ayers et al., 2013; IIED, 2013), discussed in Chapter Two, which highlighted the failure of donor-driven and fragmented approaches to mainstreaming designed and promoted in countries such as Nepal. One of the major issues that emerged from this study is that mainstreaming, in both the PEI and the LAPA, was introduced and designed by donors, funded externally, and adopted a tick-box approach[42]. There was a lack of national demand for, and ownership of, the mainstreaming initiatives[43]. The lack of national ownership of mainstreaming is one of the reasons why the majority of the activities, for example in the PEI and the LAPA, lagged in terms of implementation, and faced the challenge of continuity. The limitation of externally-driven mainstreaming is also highlighted in the literature on environmental mainstreaming (Dalal-Clayton and Bys 2009; Persson 2009), gender (Beveridge and Nott 2002; Standing

[42] An approach that relies on set norms and guidelines for including some elements of climate change in development plans and policies.
[43] National Demand here refers to the demand both from the central and local government, including people.

2004; Swaminathan and Jeyaranjan 2008), and climate change (Huq et al., 2003; Klein, 2003; Walby, 2005; Tearful, 2006; Michaelowa and Michaelowa, 2007; Persson, 2009; Gupta et al., 2010; UNDP, 2010).

In addition, the findings have pointed out the deficiencies in the mainstreaming approach, as is evident in the two case studies, which responded to long-standing critiques that the donors drove the mainstreaming agenda which often did not fit with the recipient countries' conditions and needs. It is evident that the donors have piloted mainstreaming approaches in Nepal without understanding the local and national level development contexts. The development aid literature has also highlighted the issues around aid politics and practices. The results suggest that aid fragmentation persisted after the Paris Declaration, and the harmonisation of aid among donors has even weakened (Nunnenkamp et al., 2013). The proliferation of donors and projects has made the governance of aid even more problematic. For example, according to Martini (2012), implementation has been undermined by the persistent demands made by some donors to attribute short-term results to their specific interventions, rather than considering their support as contributing to, or being part of, a comprehensive national policy.

The findings of this thesis, as backed by the literature in Chapter Two, suggest that it is therefore necessary to move from an externally-driven mainstreaming agenda to nationally-owned mainstreaming in order to promote national ownership and leadership in Nepal. The paradigm shift from an externally-driven approach towards a national approach to mainstreaming is significant in the contemporary and changing global context of both development and climate change financing. In recent years, there have been international attempts to move towards a global post-aid paradigm in foreign aid and development cooperation. For example, according to Eyben and Savage (2013) and Mawdsley, Savage et al (2013), the Busan Fourth High Level Forum established a new discourse of international cooperation in which the old donor-recipient relationship is replaced by a multi-stakeholder global partnership. This could open avenues for China and India as BRICs to enter into partnership with Nepal to fund or collaborate on CCA. Although it remains to be seen how the new agreement will be translated in practice, national ownership is a significant issue in the mainstreaming agenda in countries such as Nepal.

However, Sjöstedt (2013) argued that although the new aid architecture ensures greater effectiveness and accountability, it may also lead to stricter prioritisations on behalf of donors to the recipient governments. This is evident in Nepal where the Special Programme on Climate Resilience (SPCR) forced the Government of Nepal to accept a loan because the donors imposed conditions for releasing grants (Oxfam, 2011). Reports indicate that there is serious concern within the LDCs that developed countries are recycling their ODA towards climate finance, or renaming past financial pledges as commitments to Fast Start Finance (Oxfam, 2011). According to Deutscher and Fyson (2008), one of the major reasons why donors are dominant is that there is often a lack of clearly-stated demands from recipient countries on the alignment and harmonisation of aid, which applies also to Nepal. Another reason for this is due to the lack of trust of the donor agencies towards the recipient countries' governance systems, and the recipient countries' lack of faith in the developed countries' commitments to incremental aid. However, experiences in Nepal show that the fragmented and parallel aid flows have weakened the national system and increased donor-dependency.

The early lessons in Nepal suggest that enabling conditions for the effective mainstreaming of CBA depends on a number of different factors, involving a blend of approaches, sufficient information and knowledge, capacity-building, internal capacity and resource mobilisation, and governance changes, underpinned by strong political will (Figure 30). The findings also argue that mainstreaming needs to be supported by well-governed in-country institutional and financial mechanisms that address the key governance challenges. According to the findings, the institutional mechanism to effectively operationalise CBA at the local level is to build strong, vibrant, and inclusive local level institutional mechanisms, such as district and VDC level multi-stakeholder coordination committees that efficiently channel financing (80% of available climate change finance) and technology to the most vulnerable communities and their institutions. These local mechanisms should be supported by joint national level strategies and action plans to bring donors, government line agencies, and civil society together.

The findings of this thesis provide a critical reflection on current approaches to the mainstreaming of climate change adaptation practiced in Nepal. The evidence shows that externally-driven mainstreaming has failed to build synergies between climate change and development. The findings suggest that a nationally-owned and multi-stakeholder led mainstreaming approach has the potential to overcome some of the barriers identified at the

local, national, and international levels. This type of in-country mainstreaming, as argued in Chapter Two, has also been advocated recently within government as "main streamlining" (IIED, 2013). This approach intends to build the response to climate change into the government's policies and governance structure by recognising the existing capacities and entry points within the policies and practices.

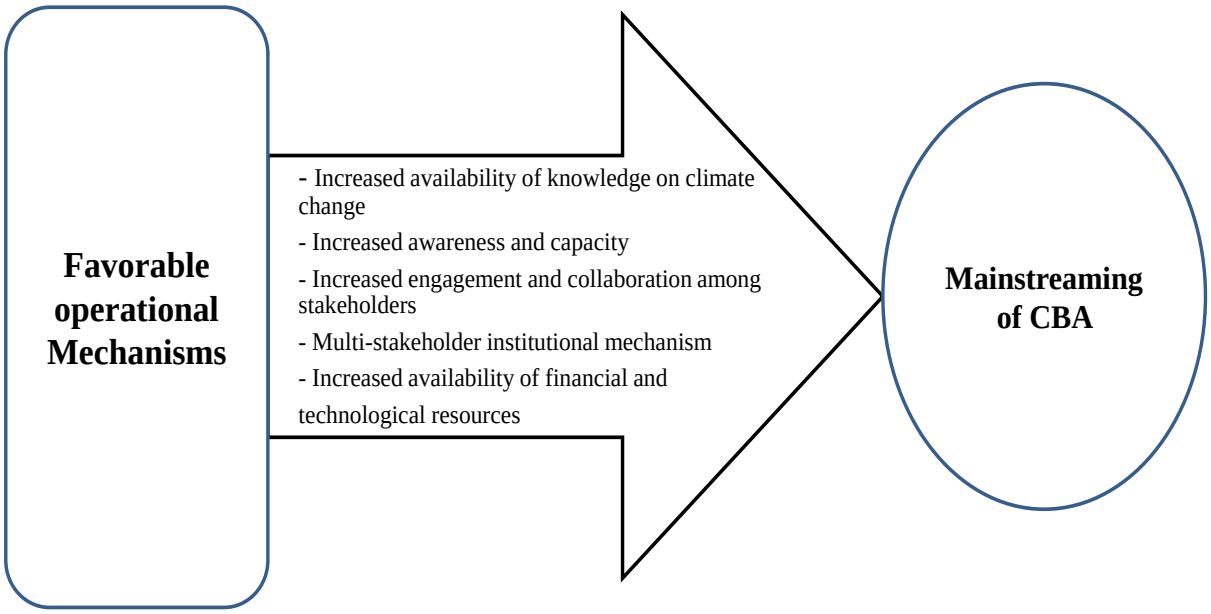


Figure 30: Operational mechanism for mainstreaming CBA in development

In-country mainstreaming is also in the spirit of the Paris Declaration, the Accra Agenda of Action (AAA), and the recent Busan Fourth High Level Forum on Aid Effectiveness and Donor Harmonisation. In-country mainstreaming looks significant in the Nepalese context in order to harmonise climate change responses at the local and national levels to avoid existing governance challenges related to technology and financing.

Inclusiveness in CBA approach to mainstreaming

Community-based adaptation practices in the least developed countries, such as Nepal, are expanding. The literature, as discussed in Chapter Two, has outlined the advantages of CBA. Dodman and Mitlin (2013) and Forsyth (2013) argued that in comparison to centralised projects and initiatives, which take much time to reach the communities, local and community based approaches save time and resources and can deliver quickly. CBA is also

recognised as an important strategy for the mainstreaming of local level adaptation responses into national level development processes and plans (Reid et al., 2010). In contrast, some of the recent literature has identified the constraints of CBA in terms of its limited scope in only focusing on small-scale community projects and limited project coverage (Ayers and Forsyth 2009; Dodmand and Mitlin 2013). However, little is known about the relevance of CBA to facilitate the mainstreaming of climate change adaptation into the development process at the grassroots level (Ayers and Forsyth, 2009). This thesis has provided a diagnosis on the relevance of CBA approaches to the mainstreaming of climate change into the development process through an investigation of the LAPA case studies in Nepal.

The evidence from this thesis reveals that although the CBA is a useful means to mainstream climate change into the development process, and to benefit rural households, it is not the sole solution because the CBA approach does not necessarily address the risks and vulnerability of very poor and marginalised households. The findings show that the existing institutional mechanisms and social structure at the local level have acted as barriers for poor and vulnerable households to benefit from adaptation interventions. It was found that the CBA approach, which relies heavily on existing community-based institutions, and power and social structure at the local level, has created new powerful groups comprised of elites and political parties, and has reinforced an existing layer of exclusion in the programme. The findings show that poor and vulnerable households are dependent on the elites and powerful individuals within the community groups for receiving benefits from the projects or programmes. This is a new form of dependency observed in the local context in Nepal.

In accordance with the previous research findings, for example Forsyth (2013), this thesis has also raised questions about whether CBA can really connect with the felt priorities of vulnerable people, and whether it can realistically link the bottom-up priorities with policy-making. This study also confirms that current CBA approaches are not an ideal means for addressing the vulnerability of households and communities. The evidence in this research confirms the earlier critiques of some researchers (Dodman and Mitlin 2013; Forsyth2013), discussed in more detail in Chapter Two, that CBA approaches overlook the power dynamics and the complex socio-political structures at the local level, and thus may fail to benefit poor and vulnerable households.

The evidence shows that not all the households in the study areas were affiliated to the community groups. This lack of affiliation has contributed to considerable disadvantage for large numbers of vulnerable households because they are left out of the decision-making process. The existing exclusionary structure of the community groups, for example community forestry in this study, acts as a constraint to the effectiveness of CBA mainstreaming. For example, the existing groups in the research areas are dominated by elite powerful males who hold the positions and power in executive decision-making, rather than poor and vulnerable people including women. The creation of inclusive and democratic spaces created for citizen participation, as discussed earlier, has the potential to respond to this problem.

The findings of this research have also contributed to the ongoing debate on the significance of community groups in rural development in Nepal and elsewhere. The development literature outlines the issues around power and exclusion at the local level. A number of cases exist in which the devolving of control to 'the community' has undermined the existing rights of the more marginal actors (Agarwal 1999). Fritzen (2007) found that, in the case of Indonesia, while community-driven development projects can help to create spaces for a broader range of elite and non-elite participation, elite control of project decision-making remains pervasive. Dill (2009) further argues that by promoting community-based organisations, development projects have legitimised approaches that disempower local citizens and which contribute to the exclusion of the majority of community actors.

This research has also complemented the existing discussion around the concept of community-based or local adaptation, and how it is relevant to addressing the needs of the most vulnerable. The emerging literature on Community-Based Adaptation, discussed in Chapter Two, highlights the constraints of the concept and the approach (Dodman and Mitlin, 2013). Ayers et al (2011) identified these issues as being around the capacity of local institutions, enabling the inclusion of the most vulnerable and marginalised households and communities, the lack of cohesiveness within the community (contradictory priorities), and the politics of aggregation. Mansuri and Rao (2012, p.181) argued that the existence of viable local institutions cannot be assumed and such institutions need to be created through deliberate effort. Mansuri and Rao (2012, p.291) further suggest fundamentally a different approach to development - which is flexible, long-term, self-critical, and strongly infused with the spirit of 'learning by doing'.

According to Cannon (2013), there is no such entity as a unified community, and communities should not be thought of as being "warm and cuddly". Anything that is "community-based" relies on using forms of participation. The findings in this research also suggest that the assumption that communities are homogeneous entities in which all members are equals, and are well-represented and governed, is fundamentally flawed. It is therefore necessary to redefine the concept of a community, and to re-evaluate their scope and role in formulating and implementing policies. This further outlines the need to create strategies to deal with governance issues within community groups, so that households remain the focus of the interventions or targeting.

The findings in this research provide additional evidence to show that CBA approaches should move away from the confined, projectised, and NGO-branded boundaries toward mainstream development. It was also shown that there are limitations of CBA for sustaining local level adaptation, expanding it to the national level, and promoting government ownership. The confinement of CBA to the community realm has even created problems for addressing the needs of vulnerable households, as it has created a situation in which the elites and other powerful individuals dominate the benefits that flow from the resources. As discussed in Chapter Two, the recent literature has also outlined the limitations of CBA and its confinement to only NGOs and the donor communities (Ayers and Forsyth 2009; Dodman and Mitlin 2013; Forsyth 2013).

The findings imply that the scope of CBA needs to be broadened and expanded in order to make it more national and inclusive. The findings show that one possible avenue for addressing the governance challenges at the local level, in the case of Nepal and other LDCs, is to involve higher levels of government in order to catalyse institutional change to improve service delivery and inclusiveness at the local level. The government and external agencies can fulfill this brief through policy provisioning, improved service delivery, and monitoring of group activities. On the other hand, the community-based organisations can improve their internal governance by devolving decision-making power to vulnerable households so that they can decide how to implement their own climate change priorities and ensure inclusive provisions within the organisations which would encourage the equitable sharing of benefits.

Fixing the problem of the governance of CBA mainstreaming

The literature highlights the critical disconnect between policy and practice in countries such as Nepal. Most of the policies in developing countries are often not implemented because of barriers related to governance. Mosse (2004) argued that the current approach to mainstreaming, as promoted in developing countries, merely reinforces existing hierarchies, knowledge, and power, and often operates in isolation. The policies often adopt a linear process of discreet steps of policy formulation and implementation, without considering the governance challenges that exist in these countries (Friend et al., 2013). However, there has been a recent shift from policy formulation as a response to mainstreaming, towards the implementation of policies through the enhancement of the practice of integrating climate change into development plans and programmes. This shift is significant for operationalising the policies and to make them more effective.

As argued in Chapter Two, studies on mainstreaming have been focused on examining the implications of integrating climate change into development plans and policies at the central level, and mostly within overseas development assistance (Klein 2003; Sietz et al., 2008; Gupta et al., 2010). However, there have been very few studies conducted to explore mainstreaming opportunities and challenges across various tiers of governance, particularly at the local and grassroots levels. This thesis has filled this research gap by taking an operational perspective to the analysis of the mainstreaming of climate change adaptation at the local and sub-national levels.

The findings suggest that one of the governance challenges for the mainstreaming of CBA into the development process is to address the gaps in the approaches used in implementation. The central government has led the top-down approaches, and created a number of positive policy changes, but they have failed to operationalise the programmes. The approach failed because the process of design and implementation was highly centralised (centrally controlled), limited to too few stakeholders (only government), short-term (time-limited), and often fragmented (few activities, but scattered). The findings show that the bottom-up approaches, for example the LAPA, were successful in mobilising local community groups and increasing their awareness. However, the bottom-up approaches to mainstreaming also failed to influence government institutions, which resulted in a lack of support and continuity from the centre. The literature has also outlined the opportunities and constraints of the top-

down and bottom-up approaches used in mainstreaming (Mataki et al., 2007; Urwin and Jordan, 2008; Amaru and Chhetri, 2013).

The findings support the argument that the separate integration of top-down and bottom-up approaches to the mainstreaming of climate change into the development process cannot address issues related to the multi-scale governance of climate change mainstreaming in Nepal, because of the complexity of the issue. The findings indicate that the current climate change policies need to be revisited. The findings imply that there is a need to have a multi-institutional mechanism that facilitates the strong linkages between, and the coordination of, the top-down and bottom-up approaches, and to help to negotiate the competing and conflicting interests among the stakeholders in a transparent manner.

The evidence presented in this chapter clearly demonstrates a need to blend the top-down and bottom-up approaches in Nepal. The advantage of doing so is greater within climate change adaptation because of its multi-scale and multi-sectoral nature. This combining of approaches, in the case of Nepal, would provide opportunities for meso level institutions, such as sectoral ministries, VDCs, and district line agencies to play an active role in supporting local level adaptation. Urwin and Jordan (2008) revealed that neither approach (top-down or bottom-up) offers a complete picture of the potentially enabling or constraining effects of different policies on future adaptive planning, but together, they offer new perspectives on climate policy integration (Urwin and Jordan 2008, p.180).

The advantage of this blending of approaches is evident in the literature. Amaru and Chhetri (2013, p.135) argued that 'integrating top-down and bottom-up actors helps to communicate and deliver the benefits of science and technology to communities with adaptation measures rooted in bottom-up action'. The experience of the REDD+[44] process in Nepal shows that a multi-stakeholder, multi-level, and multi-tier approach has ensured that all major stakeholder groups have had the opportunity to identify what they felt is needed to ensure good governance (Casero et al., 2013). The experiences of Thailand on mainstreaming also suggest that a top-down adaptation approach that frames sectoral strategies and plans, and a bottom-

[44] Reducing Emissions from Deforestation and Forest Degradation and conservation, sustainable management of forests, and the enhancement of forest carbon stocks in developing countries.

up approach that builds community resilience, can strongly support each other (Chinvanno and Kerdusk, 2011).

The second challenge for putting mainstreaming into practice is related to access to resources and capacity issues. In accordance with many of the previous findings discussed in Chapter Two (for example, Tearfund, 2006; Srinivasan and Uchida, 2008; Saito, 2012; Ayers et al., 2013), this study has also confirmed that mainstreaming is not a panacea to ensure greater linkages between adaptation and development because of the existing complex governance structure at the local and sub-national levels. The findings in this research show that the mainstreaming of climate change adaptation into the development process at the operational level was constrained by limited scientific information on climate change; limited knowledge on technology and practices of adaptation; limited awareness among practitioners and communities; a rigid planning structure; and limited financial resources.

This study confirms a number of previous studies (Wiggins, 2011; Lebel et al., 2012; Ayers et al., 2013), and contributes additional evidence to highlight the difficulties in putting mainstreaming into practice primarily at the local and sub-national levels. The findings show that the ambiguity and uncertainties in climate change information has often led to failures in technology and practice promoted in the name of development. Local communities were also deprived from receiving services from the government and other agencies. There was low capacity, inadequate human resources, and a lack of long-term strategy from the service providers (the government and the NGO sector) to meet the demand from the community.

Adhikari and Taylor (2012) also confirmed that the ability to undertake adaptation at the local level is influenced by access and the availability of informational, technological, and financial resources. The findings in this chapter suggest that in order to make adaptation interventions effective at the local level, CBA mainstreaming needs to be complemented by institutional reform (allowing for more multi-stakeholder participation in decision-making mechanisms), human resource development, and a mechanism for learning and sharing (Figure 31).

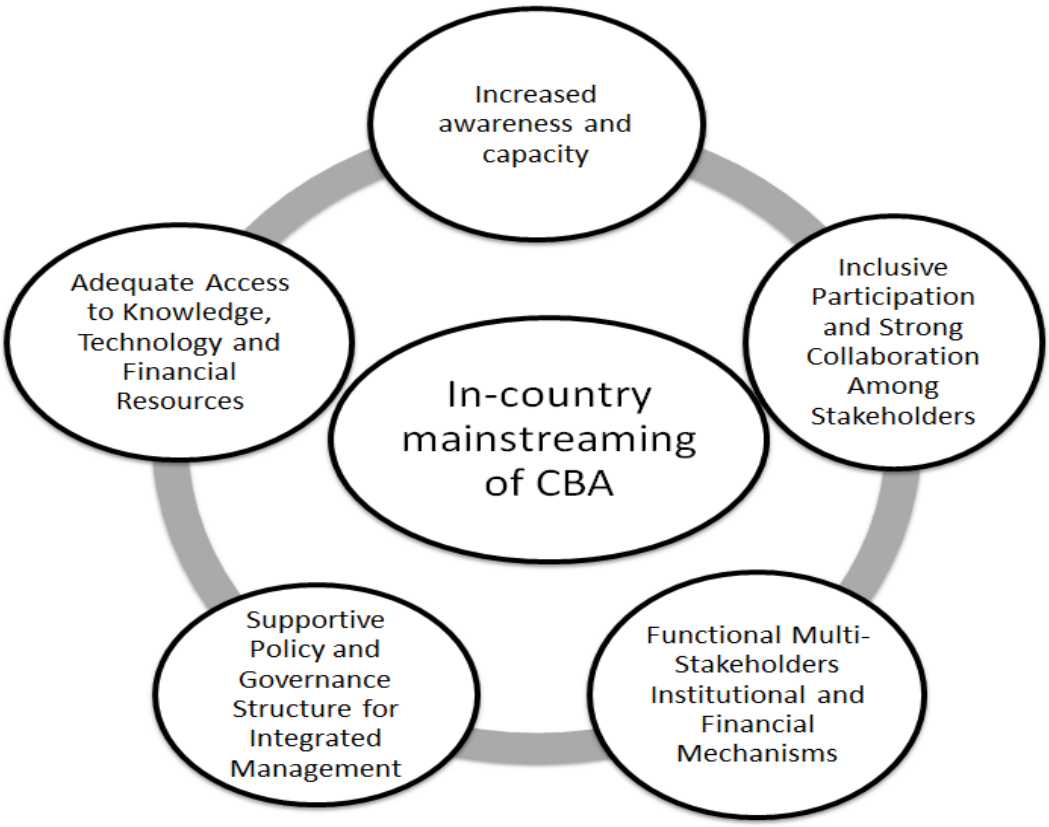


Figure 31: Major components of the mainstreaming of community-based adaptation

The findings of this research contribute to reshaping our thinking about how mainstreaming can be operationalised at the local and national levels in Nepal. The evidence clearly demonstrates that the current governance structure, consisting of the approaches and institutional and financial mechanisms in place in Nepal, is not favourable for the mainstreaming of climate change adaptation into the development process. It is therefore necessary to fix the governance structures and approaches by revisiting the policy-making approach and the implementation mechanisms in order to effectively mainstream CBA into the development process. According to Fröhlich and Knieling (2013), the governance of climate change includes a wide range of steering mechanisms ranging from informal cooperation between different institutions and actors to hierarchical forms of regulation and the cooperation of different actors. One of the potential options for improving local governance in Nepal is to form multi-institutional mechanisms at different levels, and to decentralise and devolve authority to make these local institutions and mechanisms more powerful and accountable.

To date, the ownership of CBA tends to be shared between the community, the donors, and civil society (Huq and Reid 2014). The findings also suggest dispensing with smaller,

isolated, and single agency-led project initiatives on mainstreaming towards more multi-stakeholder and nationally-owned approaches. The evidence clearly shows the constraints of fragmented and isolated institutional approaches in dealing with the issues of the knowledge, technology, and resource gaps at the local level. This leads to the need to revisit development assistance and the role of donor agencies in local and national development. The discussion reveals that the ownership of community-based adaptation needs to be shared among the community, political parties, civil society, and the government sector.

Increasingly, the climate change adaptation literature has taken on the notion that climate change adaptation requires multi-layered governance between the state, the market, and the citizens, as well as the need for adaptive and flexible learning-oriented institutions and organisations (Agrawal and Perrin, 2009). As argued in Chapter Two, the literature emphasises the importance of adaptive co-management and joint action to address climate change and development issues. According to Berkes (2009), co-management can be considered as a knowledge partnership where different levels of an organisation, from local to international, have comparative advantages for generating and mobilising knowledge. The relevance of co-management is high in countries such as Nepal where single institutions and organisations do not have the capacity and resources to individually deal with complex issues such as climate change.

As argued by Tompkins and Adger (2004), co-management between local and higher a level institution is particularly important for tackling climate change that extends beyond the local scale (Bryan and Behrman 2012; Schipper 2013). There is now a supportive environment for this to happen with the recent political changes in Nepal. In addition, the literature has outlined that a joint-working government strategy is useful for bringing together a number of public, private, and voluntary sector bodies to work across organisational boundaries towards a common goal (Kavanagh and Richards 2001; Ling 2002; Wilkins 2002).

A suitable governance strategy specific to Nepal and other LDCs, as argued in this thesis, is to adopt an adaptive co-management approach in which the government and the stakeholders identify common local and national level mainstreaming strategies for knowledge management, resource mobilisation, and institutional development. Specifically, the findings suggest that governments in Nepal and other LDCs should adopt a multi-stakeholder

decision-making process and a mutually agreed accountability structure and mechanism in order to identify common local and national level modes of engagement and collaboration.

8.3. Avenues for future research

This study has implications for future research work. The mainstreaming of CBA into the development process is now firmly on the agenda of most of the Least Developed Countries (LDCs). While the analysis in this thesis was only focused on Nepal, there is scope to prospectively test the assessment methodology and research approaches against climate change initiatives and programmes in other Least Developed Countries. In addition, the analysis approach is relevant as well for developed countries to design effective mechanisms to support climate change adaptation in their respective countries.

One of the major lessons from this research is that there is a need to find suitable methods for blending the top-down and bottom-up approaches, and to address the current governance challenges at the local and national levels. There remains a lack of clarity on the type of local and national governance arrangements needed to effectively mainstream climate change adaptation into the development process. The gap identified in this research thus indicates that there remains a need to generate more evidence on the operational mechanisms that appear in various other countries, and how to replicate or initiate these.

The second major lesson is that there is a need to move away from external donor-driven short-term project approaches towards a more strategic and nationally-driven long-term programmatic approach to mainstreaming. Although there is strong evidence to suggest that a nationally-driven mainstreaming approach is suitable for Nepal, little is known about the practical side of such an approach. The gap identified in this research thus indicates that there is still a need to generate more evidence to explore how LDCs can move from donor- and project-driven approaches to more programmatic and nationally-owned approaches to mainstreaming which are acceptable for both the national government and the donors.

Most importantly, further research is required to explore the opportunities and constraints of participatory community development approaches in the context of CBA. The preliminary analysis of the Local Adaptation Plan of Action (LAPA) in this thesis serves as a strong

evidence-base from which to re-examine future perspectives of climate change adaptation. This thesis has indicated that, in order to make CBA mainstreaming successful, scholars need to pay attention to inclusion and sustainability issues. Avenues for future research could be to examine effective ways of reaching the most vulnerable households and communities, and to find ways to ensure that the resources committed in the name of the poor actually reaches them.

9 REFERENCES

Acharya, B. R. 2008. 'Dimension of Rural Development in Nepal'. *Dhaulagiri Journal of Sociology and Anthropology* 2(1):181-192.

Acharya, K. 2002. 'Twenty Four Years of Community Forestry in Nepal'. *International Forestry Review* 4(2):149-156.

Acharya, P. C. and R. Leon-Gonzalez .2012. *The Impact of Remittance on Poverty and Inequality: A Micro-Simulation Study for Nepal.* Kathmandu: National Graduate Institute for Policy Studies.

Adger, W., and D. Nelson. 2010. *Fair decision making in a new climate of risk. Climate Change, Ethics and Human Security*. New York:Cambridge University Press.

Adger, W. N. 2003. 'Social capital, collective action, and adaptation to climate change'. *Economic Geography* 79(4):387-404.

Adger, W. N. 2000. 'Social and ecological resilience: are they related'? *Progress in Human Geography* 24(3):347.

Adger, W. N., J. Paavola, S. Huq, and MJ. Mace. eds. 2006. *Fairness in adaptation to climate change*.Cambridge: Massachhusets Institute of Technology press.

Adger, W. N., N. Brooks, G. Benthan, M. Agnew, and S. Eriksen. 2004. *New indicators of vulnerability and adaptive capacity*. Technical Report 7:1-122. London: Tyndall Centre for Climate Change Research.

Adger, W. N., N. W. Arnell, and E, Tompkins. 2005. 'Successful adaptation across scales'. *Global Environmental Change* 15(2):77-86.

Adger, W. N., S. Huq, K. Brown, D. Conway, and M. Hulme. 2003. 'Adaptation to climate change in the developing world'. *Progress in Development Studies* 3(3):179-195.

Adger W.N. and Vincent, K. 2005. 'Uncetainity in Adaptive Capacity'. *Comptes Rendus Geoscience* 337 (4): 399-410.

Adhikari, S. 2012. *Incentives for community participation in the governance and management of common property resources: the case of community forestry in Nepal: a thesis presented in partial fulfilment of the requirements for the degree of Doctor of Philosophy (PhD).* Palmerston North New Zealand: Faculty of International Rural Development, Massey University.

Adhikari, B. and K. Taylor. 2012. 'Vulnerability and adaptation to climate change: A review of local actions and national policy response. *Climate and Development* 4(1):54-65.

Agrawal, A., N., P. Nicolas, C. Ashwini, SB. Catherine, and K. Minna. 2012. 'Climate policy processes, local institutions, and adaptation actions: mechanisms of translation and influence'. *Wiley interdisciplinary reviews: climate change* 3(6):565-579.

Agrawal, A. 1999. 'Accountability in decentralization: A framework with South Asian and West African cases'. *The Journal of Developing Areas* 33 (4), 473-502.

Agrawal, A. 2008. *The role of local institutions in adaptation to climate change*. Working Paper (W08I-3). Washington DC: International Forestry Research and Institutions Program (IFRI).

Agrawal, A. 2010. *Local institutions and adaptation to climate change: Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*. Washington DC: World Bank:173-198.

Agrawal, A. and N. Perrin. 2009. 'Climate adaptation, local institutions and rural livelihoods'. *In Adapting to climate change: thresholds, values, governance,* eds. W.N.Adgar et al. Cambridge:Cambridge University Press: 350–367.

Agrawal, A., N. Perrin, A. Chhatre, C. Benson, and M. Kononen. 2013. 'Climate policy processes, local institutions, and adaptation actions: mechanisms of translation and influence', *Wiley Interdisciplinary Reviews: Climate Change* 4(1):72-72.

Agrawala, S. and M. V. Aalst. 2008. 'Adapting development cooperation to adapt to climate change'. *Climate policy* 8(2):183.

Agrawala, S. and M. V. Aalst. 2005. *Bridge Over Troubled Waters: Linking Climate Change and Development*. Paris: Organization for Economic Cooperation and Developemnt (OECD).

Agrawala, S., V. Raksakulthai., M. van Aalst., P. Larsen, J. Smith, and J. Reynolds. 2003. *Development and climate change in Nepal: Focus on water resources and hydropower*. Paris: Organisation for Economic Cooperation and Development (OECD).

Alam, M. and B. R. Regmi. 2004. *Adverse impacts of climate change on development of Nepal: Integrating adaptation into policies and activities*. CLACC Working Paper. Dhaka: Bangladesh Centre for Advanced Studies (BCAS).

Amaru, S. and N. B. Chhetri. 2013. 'Climate adaptation: Institutional response to environmental constraints, and the need for increased flexibility, participation, and integration of approaches'. *Applied Geography* 39(1):128-139.

Andersson, K. and A. Agrawal. 2011. 'Inequalities, institutions, and forest commons'. *Global Environmental Change* 21(3):866-875.

Archer, D., Almansi, F., Digregori, M., Roberts, D., Sharma, D., and Syam, D. 2014. 'Moving towards inclusive urban adaptation: approaches to integrating community-based adaptation to climate change at city and national scale' *Climate and Development*, 6(4): 345-356, DOI: 10.1080/17565529.2014.918868

Armitage, D. and R. Plummer. 2010. *Adapting and Transforming: Governance for Navigating Change*. In Adaptive Capacity and Environmental Governance. Berlin: Springer-Verlag Berlin Heidelberg. 287-302.

Armitage, D. R., F. Berkes, and D. Nancy. eds. 2007. *Adaptive co-management: collaboration, learning, and multi-level governance*. Vancouver: University of British Columbia (UBC) Press.

Arnstein, S. R. 1969. 'A ladder of citizen participation'. *Journal of the American Institute of planners* 35(4):216-224.

Aronson, J. 1994. 'A pragmatic view of thematic analysis'. *The qualitative report* 2(1):1-3.

Ayer, J. and S. Huq, A. Faisal, and S. Hussain. 2014. Mainstreaming climate change adaptation into development: a case study of Bangladesh. *Wiley interdisciplinary reviews: climate change:* 5: 37–51. doi: 10.1002/wcc.226.

Ayers, J. 2011. 'Resolving the Adaptation Paradox: Exploring the Potential for Deliberative Adaptation Policy-Making in Bangladesh'. *Global Environmental Politics* 11(1):62-88.

Ayers, J. 2011. *Understanding the Adaptation Paradox: Can Global Climate Change Adaptation Policy be Locally Inclusive?*. PhD Thesis. London: London school of Economics and political science.

Ayers, J. and D. Dodman. 2010. 'Climate change adaptation and development : the state of the debate'. *Progress in Development Studies* 10(2):161-168.

Ayers, J. and S. Huq. 2009. 'Supporting Adaptation to Climate Change: What Role for Official Development Assistance?'. *Development policy review* 27(6):675-692.

Ayers, J. and T. Forsyth. 2009. 'Community-Based Adaptation to Climate Change'. *Environment: science and policy for sustainable development* 51(4):22-31.

Ayers, J., M. Alam, and S. Huq. 2010. *Global Adaptation Governance Beyond 2012. Developing Country Perspectives*. In Global Climate Governance beyond 2012: Architecture, Agency and Adaptation, eds. F. Biermaan et al. Cambridge:Cambridge University Press. 270-285.

Ayers, J., N. Kaur, and S. Andersson. 2011. 'Negotiating Climate Resilience in Nepal'. *IDS Bulletin* 42(3):70-79.

Babbie, E. R. 2007. *The practice of social research.* United States of America: Wadsworth Publication.

Baidya, S. K. 2007. *Climate research in the Nepal Himalaya*. In Developments in Earth Surface Processes, eds. R. Baudo et al. Oxford: Elsevier. 10:291-299.

Baidya, S., M. Shrestha, and MM. Sheikh. 2008. 'Trends in daily climatic extremes of temperature and precipitation in Nepal'. *Journal of Hydrology and Meteorology* 5(1):38-53.

Baidya, S.K, R.K. Regmi, and M.L. Shrestha. 2007. *Climate Profile and Observed Climate Change and Climate Varibility In Nepal*. Kathmandu: Department of Hydrology and Meterology, Nepal.

Bajracharya, S. R., P. K. Mool, B. R. Shrestha.eds. 2007. *Impact of climate change on Himalayan glaciers and glacial lakes: Case studies on GLOF and associated hazards in Nepal and Bhutan*: Nepal: Internatioinal Centre for Integrated Mountain Development (ICIMOD).

Bapna, M. and H. McGray. 2008. *Financing Adaptation: Opportunities for innovation and experimentation.* Washington DC: The World Resources Institute.

Bardhan, P. 2002. 'Decentralisation of governance and development'. *The Journal of Economic Perspectives* 16(4):185-205.

Bargal, D. 2008. 'Action Research A Paradigm for Achieving Social Change'. *Small Group Research* 39(1):17-27.

Barnes, M. 1999.'Researching public participation'. *Local Government Studies* 25(4):60-75.

Bartlett, R., L. Bharati, D. Pant, H. Hosterman, and P. Mccornick. eds. 2010. *Climate change impacts and adaptation in Nepal*. Working Paper 139. Colombo Srilanka: International Water Management Institute (IWMI).

Bauer, M., G. Gaskell,. and NC. Allum. 2000. *Quality, quantity and knowledge interests*. In Qualitative Researching with Text, Image and Sound: A Practical Handbook, eds. B. Gaskell et al. London:Sage Publications.

Baum, F., C. MacDougall, and D. Smith. 2006. 'Participatory action research'. Journal *of epidemiology and community health* 60(10):854.

Bazeley, P. 2007. *Qualitative data analysis with NVivo.* London: Sage Publications Limited.

Becken, S., A. K. Lama, and E. Stephen. 2013. 'The cultural context of climate change impacts: Perceptions among community members in the Annapurna Conservation Area, Nepal'. *Environmental Development* 8:22-37.

Bhatta, P. 2011. 'Aid agency influence in national education policy-making: a case from Nepal's 'Education for All' movement', *Globalisation, Societies and Education* 9(1), 11-26.

Berkes, F. 2009. 'Evolution of co-management: role of knowledge generation, bridging organizations and social learning'. *Journal of environmental management* 90(5):1692-1702.

Berkes, F. and D. Jolly. 2002. 'Adapting to climate change: social-ecological resilience in a Canadian western Arctic community'. *Conservation ecology* 5(2):18.

Berkes, F., J. Colding, and C. Folke. eds. 2003. *Navigating social-ecological systems: building resilience for complexity and change.* Cambridge:Cambridge University Press.

Beveridge, F. and S. Nott. 2002. 'Mainstreaming: A case for optimism and cynicism'. *Feminist Legal Studies* 10(3):299-311.

Bhattachan, K. B. 1997. 'People/Community-based development strategy in Nepal'. *Development practices in Nepal* 1:100-148.

Bhattarai, B. and H. R. Ojha. 2001. *Distributional impact of community forestry: who is benefiting from Nepal's community forests?*. Rome: Food and Agriculture Organization (FAO).

Bherer, L. 2010. 'Successful and Unsuccessful Participatory Arrangements: Why Is There a Participatory Movement at the Local Level*?' Journal of urban affairs* 32(3):287-303.

Biermann, F. and P. Pattberg. 2008. 'Global environmental governance: Taking stock, moving forward'. *Annual review of Environment and Resources* 33:277-294.

Biggs, E. M., E. L. Tompkins, J. Allen, C. Moon, and R. Allen. 2013. 'Agricultural adaptation to climate change: observations from the Mid-Hills of Nepal'.*Climate and Development*: 5(2):165-173.

Biggs, E. M., G. R. Watmough, and C. W. Hutton. 2012. *Community-Level Environmental and Climate Change Adaptation Initiatives in Nawalparasi, Nepal*. In Climate Change and the Sustainable Use of Water Resource, eds. W. Leal Filho et al,Berlin Heidelberg: Springer.

Bird, N. 2011. *The future for climate finance in Nepal*. Report for CDDE Bangkok. London: Overseas Development Insitutte (ODI).

Bishokarma, N. K. and S. R. Sharma. 2013. *Climate Change and Food Insecurity: Institutional Barriers to Adaptation of Marginal Groups in the Far-Western Region of Nepal*. In Sustainable Food Security in the Era of Local and Global Environmental Change, eds. M. Behnassi et al. Netherlands: Springer:115-130.

Bishowkarma. D, N. Sharma, and J. Molina. 2012. 'Civil Society Organizations in Climate Chnage Policy Dynamics in Nepal: How Representative and Inclusive Is the Process?' *TMC Academic Journal*, 7(1):1-12.

Bishop, P., and Davis, G. 2002. 'Mapping Public Participation in Policy Choices'. *Australian Journal of Public Administration*, *61*(1): 14-29.

Bista, D. B. 1991. *Fatalism and development: Nepal's struggle for modernization*. Calcutta, India: Orient Blackswan.

Bizikova, L., E. Crawford, N. Maria and R. Swart. 2012. 'Climate change adaptation planning in agriculture: processes, experiences and lessons learned from early adapters'. *Mitigation and Adaptation Strategies for Global Change* 19:411-430. doi.10.1007/s11027-012-9440-0

Blaikie, P. and O. Springate-Baginski. 2007. *Understanding the Policy Process. Forests, People and Power.* The Political Ecology of Reform in South Asia. London: Earthscan:61-91.

Blaikie, P. M. 1994. *At risk: natural hazards, people's vulnerability, and disasters*. London: Routledge.

Boutrup Møller, E. and M. M. Nielsen. 2013. *Inequality in the Effectiveness of Climate Change Adaptation-A Case Study of Strategic Local Adaptation in Nepal*. Masters Thesis. Denmark: Roskilde University.

Bowling, A. 1997. *Research methods in health*. Buckingham:Open University Press.

Boyd, E., N. Grist, S. Juhola, and V. Nelson. 2009. 'Exploring development futures in a changing climate: frontiers for development policy and practice'. *Development Policy Review* 27(6):659-674.

Brayner, G. 2001. 'Cooperative Instruments and policy making: participation in US environmental regulation'. *European Environment* 11:49-60.

Brockhaus, M. and H. Kambire. 2009. *Decentralisation: a window of opportunity for successful adaptation to climate change*. In Adapting to Climate Change: Threshhold, Values and Governance, eds. N.Adger et al. Cambridge UK: Cambridge University Press.

Brockhaus, M. and H. Kambiré. 2009. *Decentralised planning and climate adaptation: toward transparent governance*. New York: Cambridge University Press. 313-335

Brown, K. 2011. 'Sustainable adaptation: An oxymoron?'. *Climate and Development* 3(1):21-31.

Bryan, E. and J. Behrman. 2012. *Community-based adaptation to climate change: a theoretical framework, overview of key issues and discussion of gender differentiated priorities and participation.* CAPRI discussion paper. Washington DC: International Food and Policy Research Insitute (IFPRI).

Bryant, C. R., B. Smit, M. Brklacich, T. R. Johnston, J. Smithers, Q. Chjotti, and B. Singh 2000. 'Adaptation in Canadian agriculture to climatic variability and change'. *Climatic Change* 45(1):181-201.

Bryman, A. 2006. 'Integrating quantitative and qualitative research: how is it done?' *Qualitative research* 6(1):97-113.

Bryman, A. and J. J. Teevan. 2004. *Social research methods.* Oxford: Ford university press.

Burnham, P., W. Grant, and Z. Layton-Henry. 2008. *Research methods in politics.* London: Palgrave Macmillan.

Burns, N. and S. Grove. 1993. *The Practice of Nursing Research: Conduct, Critique and Utilization*. Philadelphia, Pennsylvania: WB Saunders.

Burton, I. 2006. Adaptation to Climate Change: international policy options. URL: http://linkit.flinders.edu.au/flinders?sid=google&auinit=I&aulast=Burton&title=Adaptation%20to%20Climate%20Change%3A%20international%20policy%20options&genre=book&date=2006.

Burton, I. 2007. 'Integrating adaptation into policy: upscaling evidence from local to global'. *Climate policy* 7(4):371-376.

Burton, I. 2008. *Beyond borders: the need for strategic global adaptation*. Sustainable Development Opinion Policy Brief. London: International Institute for Environment and Development (IIED).

Burton, I. 2009. *Climate Change and the adaptaiton deficit*. In Earthscan Reader on Climate change Adaptation, eds. E.F.L. Schipper, and I. Burton. London: Earthscan.

Burton, I. 2009. Deconstructing adaptation and reconstructing. In *Earthscan Reader on Climate change Adaptation*, eds. E.F.L. Schipper, and I. Burton. London: Earthscan.

Burton, I., L. Bizikova, T. Dickinson, and Y. Howard. 2007. 'Integrating adaptation into policy: upscaling evidence from local to global'. *Climate policy* 7(4):371-376.

Burton, I., S. Huq, B. Lim, O. Pilifosova, and E.L. Schipper. 2002. 'From impacts assessment to adaptation priorities: the shaping of adaptation policy'. *Climate policy* 2(2):145-159.

Byg, A. and J. Salick. 2009. 'Local perspectives on a global phenomenon—climate change in Eastern Tibetan villages'. *Global Environmental Change* 19(2):156-166.

Capistrano, D. and C. J. P, Colfer. 2005. *Decentralisation: Issues, Lessons and Reflections.* The Politics of Decentralization: Forests, Power and People. UK: Earthscan.

Cannon, T. 2013. *Rural livelihood diversification and adaptation to climate change*. In Lessons from Community Based Adaptation, eds. J. Ensor, R. Berger and S. Huq. London:Practical Action Publishing.

Cannon, T., MD. Muller. 2010. 'Vulnerability, resilience and development discourses in context of climate change'. *Natural hazards* 55(3):621.

Carpenter, S. R. and L. H. Gunderson. 2001. 'Coping with collapse: ecological and social dynamics in ecosystem management'. *BioScience* 51(6):451-457.

Casero, F. L., T. Cadman, and T.N. Maraseni, eds. 2013. *Quality-of-governance standards for carbon emissions trading: Developing REDD+ governance through a multi-stage, multi-level and multi-stakeholder approach*. IGES Discussion Paper. Kanagawa Japan: Institute for Global Environmental Strategies (IGES).

CBS. 2011. *Preliminary findings of the National Census 2011*. Kathmandu Nepal: Centre Bureau of Statistics.

CBS. 2009. *Preliminary findings of the National Census 2009*. Kathmandu Nepal: Centre Bureau of Statistics.

Chaudhary, P. and K. P. Aryal. 2009. 'Global warming in Nepal: challenges and policy imperatives'. *Journal of Forest and Livelihood* 8(1):5-15.

Chevalier, J. and D. J. Buckles. 2008. *A guide to collaborative Inquiry and Social Engagement*. New Delhi:Sage Publications.

Chevalier, J. M. and D. J. Buckles. 2008. *SAS2: a guide to collaborative inquiry and social engagement*. New Delhi: Sage Publications.

Chevallier, R. 2010. 'Integrating adaptation into development strategies: The Southern African perspective'. *Climate and Development* 2(2):191-200.

Chinvanno, S. and V. Kerdusk. 2011. *Mainstreaming Climate Change into Community Development Strategy: A critical opinion on climate change adaptation planning and case study in Thailand Bangkok.* Thailand: Stockholm Environment Institute.

Chuku, C. A. 2010. 'Pursuing an integrated development and climate policy framework in Africa: options for mainstreaming'. *Mitigation and adaptation strategies for global change* 15(1):41-52.

Claycomb, P. 2009. 'SAS 2: A Guide to Collaborative Inquiry and Social Engagement'. *Development in Practice* 19(8):1091-1093.

Cleaver, F. 1999. 'Paradoxes of participation: questioning participatory approaches to development'. *Journal of International Development* 11(4):597-612.

Coirolo, C. and A. Rahman. 2014. 'Power and differential climate change vulnerability among extremely poor people in Northwest Bangladesh: lessons for mainstreaming'. *Climate and Development* 6(4):336-344.

Collins, K and R. Ison. 2006. Dare we jump off Arnstein's ladder? Social Learning as a New Policy Paradigm. In: *Proceedings of PATH (Participatory Approaches in Science & Technology) Conference*, 4-7 June 2006, Edinburgh.

Collins, K. and R. Ison. 2009. 'Jumping off Arnstein's ladder: social learning as a new policy paradigm for climate change adaptation'. *Environmental Policy and Governance* 19(6):358-373.

Cooke, B. and U. Kothari. 2001. *Participation: The new tyranny*? London: Zed Books Limited.

Cornwall, A. 2000. *Beneficiary, consumer, citizen.* Sweden: Swedish International Development Cooperation Agency.

Cornwall, A. 2002. 'Locating citizen participation'. *IDS Bulletin* 33(2):i-x.

Cornwall, A. 2004. 'Introduction: New democratic spaces? The politics and dynamics of institutionalised participation'. *IDS Bulletin* 35(2):1-10.

Cornwall, A. and J. Gaventa. 2000. 'From Users and Choosers to Makers and Shapers Repositioning Participation in Social Policy'. *IDS Bulletin* 31(4):50-62.

Cornwall, A. and R. Jewkes. 1995. 'What is participatory research? *Social science & medicine* 41(12):1667-1676.

Creswell, J. W. 2007. *Qualitative Inquiry and Research Design: Choosing among Five Approaches'.* CA: Sage Publications.

Croft, S. and P. Beresford. 1996. *The politics of participation. Critical Social Policy*. In Critical Social Policy: a Reader, edt. D. Taylor. London: Sage Publications.

Crotty, M. 2010. *The foundations of social research: Meaning and perspective in the research process*. Los Angeles:Sage Publications.

Dahal, G. R. and A. Chapagain. 2012. *Community forestry in Nepal: decentralised forest governance. Lessons from Forest Decentralization*. In Money, Justice and the Quest for Good Governance in Asia-Pacific, eds. C.J.P. Colfer et al. London: Earthscan.

Dalal-Clayton, B. and S. Bass. 2009. *The Challenges of Environmental Mainstreaming: Experience of integrating environment into development institutions and decisions*. London: International Institute of Environment and Development (IIED).

Davies, M., B. Guenther, J. Leavy, T. Mitchell, and T. Tanner. 2009. 'Climate change adaptation, disaster risk reduction and social protection: complementary roles in agriculture and rural growth?' *IDS Working Papers* 320:1-37.

DDC-Pyuthan. 2008. *District Profile of Pyuthan*. Khalanga, DDC Pyuthan: Ministry of Local Development Nepal.

Deutscher, E. and S. Fyson. 2008. 'Improving the effectiveness of aid'. *Finance and development* 45(3):15-19.

Devkota, S. R. 2007. 'Socio-economic Development in Nepal Past Mistakes and Future Possibilities'. *South Asia Economic Journal* 8(2):285-315.

Dhungana, S. P. and R. Wagle. 2013. 'How Climate Change Discourses are Negotiated at Meso Level: Revisiting Annual Development Planning in Nepal'. *Journal of Forest and Livelihood* 11(1):29-41.

Dhungel, D. 2011. *Decentralisation in Nepal: Laws and Practices*. NIBR-rapport 2011:23. NIBR. Norway: Norwegian Institute for Urban and Regional Research.

Di Gregorio, M., M. Brockhaus, T. Cronin, and E. Muharrom. 2012. *Politics and power in national REDD+ policy processes*. In Analysing REDD: Challenges and Choices, eds. A Angelsen. Bogor Indonesia: Centre for International Forestry Research (CIFOR).

DiCicco Bloom, B. and B. F. Crabtree. 2006. 'The qualitative research interview'. *Medical Education* 40(4):314-321.

Dodman, D., Ayer, J., and Huq, S. 2009. Building Resilience. *In 2009 State of the World Into a Warming World*. Washington DC: Worldwatch Institute.

Dodman, D. and D. Mitlin. 2013. 'Challenges for Community-Based Adaptation: Discovering the Potential for'. *Journal of International Development* 25(5):640-659.

Department of Forest [DoF]. 2011. Status of Community Forestry. Kathmandu, Department of Forest, Ministry of Forest and Soil Conservation Nepal.

Dill, B. 2009. 'The Paradoxes of Community-based Participation in Dar es Salaam', *Development and Change,* 40 (4):717-43.

Donini, A. and J. R. Sharma. 2008. *Humanitarian Agenda 2015: Nepal Country Case Study*. Medford, MA: Feinstein International Center, Tufts University.

Dover, G. and T. B. Lawrence. 2010. 'A gap year for institutional theory: Integrating the study of institutional work and participatory action research'. *Journal of Management Inquiry* 19(4):305-316.

Dovers, S. R. and A. A. Hezri. 2010. 'Institutions and policy processes: the means to the ends of adaptation'. *Wiley interdisciplinary reviews: climate change* 1(2):212-231.

Dumaru, P. 2010. 'Community-based adaptation: enhancing community adaptive capacity in Druadrua Island, Fiji'. *Wiley interdisciplinary reviews: climate change* 1(5):751-763.

Dyson, A. 1999. Inclusion and Inclusions: Theories and Discourses in Inclusive Education. In World Yearbook of Education 1999: Inclusive Education, edt Harry Daniels and Philip Garner. New York: Kogan Page.

Engle, N.L. 2011. 'Adaptive Capacity and it's Assessment'. *Global Environmental Change* 21(1):647–656.

Ensor, J.E., Park, S.E., Hoddy, E.T., and Ratner, B.D. 2014. 'A Rights-based Perspective on Adaptive Capacity'. *Global Environmental Change* 31 (1): 38–49.

Ensor, J. and R. Berger. 2009. *Understanding climate change adaptation:lessons from community-based approaches*. Warwickshire, UK: Practical Action Publications.

Escobar, Arturo. 2011. *Encountering Development: The Making and Unmaking of the Third World.* Princeton New Jersey: Princeton University Press.

Evans, P. 1997. 'The eclipse of the state'. *World politics* 50(1):62-87.

Exworthy, M. and M. Powell. 2004. 'Big windows and little windows: implementation in the 'congested state'. *Public administration* 82(2):263-281.

Eyben, R. and L. Savage. 2013. 'Emerging and Submerging Powers: Imagined Geographies in the New Development Partnership at the Busan Fourth High Level Forum'. *The Journal of Development Studies* 49(4):457-469.

Fairclough, N. 2003. *Analysing discourse: textual analysis for social research.* USA: Psychology Press.

Faul, F., E. Erdfelder, AG. Lang, A. Buchner. 2007. 'G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences'. *Behavior research methods* 39(2):175-191.

Fentona, A., D. Gallagherd, H. Wright, S. Huq, and C. Nyandigag. 2014. 'Up-scaling finance for community-based adaptation'. *Climate and Development* 6(4): 388–397.

Few, R., Brown, K., and Tompkins, E. L. 2006. *Public Participation and Climate Change Adaptation.* Tyndall Centre for Climate Change Research Working Paper *95*. Tyndall Centre: United Kingdom.

Few, R., K. Brown, EL. Tompkins. 2007. 'Public participation and climate change adaptation: avoiding the illusion of inclusion'. *Climate policy* 7(1):46-59.

Finan, T. J. and D. R. Nelson. 2009. *Decentralised planning and climate adaptation: toward transparent governance*. In Adapting to climate change: thresholds, values, governance, eds. Adger, N. et al. Cambridge:Cambridge Univesity Press.

Fischer, F. 2003. *Reframing public policy: Discursive politics and deliberative practices.* USA: Oxford University Press.

Fischer, F. 2007. '*Deliberative policy analysis as practical reason: integrating empirical and normative arguments'*. In Handbook of Public Policy Analysis: Theory, Politics and Methods, eds. F. Fischer et al. New York: CRC Press Taylor and Francis Group.

Folke, C. 2006. 'Resilience: The emergence of a perspective for social-ecological systems analyses'. *Global Environmental Change* 16(3):253-267.

Forester, J. 1999. The deliberative practitioner: Encouraging participatory planning processes. USA: MIT Press.

Forsyth, T. 2013. 'Community-based adaptation: a review of past and future challenges'. *Wiley interdisciplinary reviews: climate change* 4(5):439–446.

Friend, R., J. Jarvie, S.O. Reed, S. Ratri, T. Pakamas, and T.V. Canh. 2013. 'Mainstreaming urban climate resilience into policy and planning; reflections from Asia'. *Urban Climate* 7:6-19.

Fritzen, SA. 2007. 'Can the design of community-driven development reduce the risk of elite capture? Evidence from Indonesia', *World development* 35 (8):1359-75.

Fröhlich, J. and J. Knieling. 2013. *Conceptualising Climate Change Governance*. In Climate Change Governance, eds. J. Knieling and W. Leal Filho. Hamberg, Germany: Springer.

Fünfgeld, H. and D. McEvoy. 2011. *Framing Climate Change Adaptation in Policy and Practice*. Working Paper 1. Melbourne, Australia: Royal Melbourne Institute of Technology (RMIT) University.

Fung, A. 2003. 'Survey article: recipes for public spheres: eight institutional design choices and their consequences'. *Journal of Political Philosophy* 11(3):338-367.

Füssel, H. M . 2007. 'Vulnerability: A generally applicable conceptual framework for climate change research'. *Global Environmental Change* 17(2):155-167.

Gallopín, G. C. 2006. 'Linkages between vulnerability, resilience, and adaptive capacity'. *Global Environmental Change* 16(3):293-303.

Gaskell, G. 2000. *Individual and group Interviewing*. In Qualitative Researching with Text, Image and Sound: A practical Handbook, eds. M. Bauer, and G. Gaskell. London: Sage Publications:38-57.

Gautam, M. and B. Pokharel. 2011. *Foreign Aid and Public Policy Process in Nepal: A Case of Forestry and Local Governance.*Kathmandu Nepal: South Asia Institute of Advanced Studies.

Gaventa, J. 2002. 'Exploring citizenship, participation and accountability'. *IDS Bulletin* 33(2):1-14.

Gaventa, J. 2006. 'Finding the spaces for change: a power analysis'. *IDS Bulletin* 37(6):23-33.

Gbikpi, B. and J. R. Grote. Eds. 2002. *From democratic government to participatory governance*. In Participatory governance: Political and societal implications. Wiesbaden: Springer Fachmedien. 17-34.

Gentle, P. and T. N. Maraseni. 2012. 'Climate change, poverty and livelihoods: adaptation practices by rural mountain communities in Nepal'. *Environmental Science & Policy* 21:24-34.

George, A. L. and A. Bennett. 2005. *Case studies and theory development in the social sciences.* USA: The MIT Press.

Ghimire, S. 2011. *Climate Justice: Bottlenecks and opportunities for policy-making in Nepal*. Kathmandu, Nepal: Southasia Institute of Advanced Studies.

Gigli, S. and S. Agrawala. 2007. *Stocktaking of Progress on Integrating Adaptation to Climate Change into Development Co-operation Activities*. Paris:Organisation for Economic Co-operation and Development (OECD).

GoN [Government of Nepal]. 1999. *Local Self-governance Act (LSGA)*. Kathmandu: Ministry of Local Development.

GoN [Government of Nepal]. 2000. *Forest Sector Policy*. Kathmandu: Ministry of Forest and Soil Conservation.

GoN [Government of Nepal]. 2009. *National Disaster Risk Management Strategy*. Kathmandu: Ministry of Home Affrais.

GoN [Government of Nepal]. 2010. *Three Year Interim Plan (2010-2013)*. Kathmandu: National Plannign Commissioin (NPC).

GoN [Government of Nepal]. 2013. *Nepal Climate Change Support Programme (NCCSP) Document:* Kathmandu:Ministry of Science Environment and Technology.

GoN and UNDP. 2014. *Nepal Human Development Report 2014: Beyond Geography, Unlocking Human Potential:* Kathmandu: Government of Nepal and United Nations Development Programme.

GoN-NPC [Government of Nepal- National Planning Commission]. 2011. *Climate Resilient Planning- A tool for long-termed adaptation*. Kathmandu: National Planning Commission.

Gray, D. E. 2004. *Doing research in the real world*. London: Sage Publications Limited.

Grasso, M. 2014. 'An Ethical Approach to Climate Adaptation Finance'. *Global Environment Change* 20(1):74-81.

Grist, N. 2008. 'Positioning climate change in sustainable development discourse'. *Journal of international development* 20(6):783-803.

Grover, H. 2010. *Local response to global Climate Change: The role of local development plans in Climate Change management*. PhD Thesis. Texas: A&M University.

Gupta J, Persson Å, Olsson L, Linnerooth-Bayer J, van der Grijp N, Jerneck A, Klein RJT, Thompson M, Patt, A. 2010. *Mainstreaming climate change in development cooperation policy: conditions for success*. In Making Climate Change Work for Us. European Perspectives on Adaptation and Mitigation Strategies, eds. M. Hulme M, and H. Neufeldt UK: Cambridge University Press.

Gupta, J. 2009. 'Climate change and development cooperation: trends and questions'. *Current Opinion in Environmental Sustainability* 1(2):207-213.

Gupta, J. and N. van der Grijp. 2010. *Mainstreaming climate change in development cooperation: Theory, practice and implications for the European Union*. UK: Cambridge University Press: 319–339.

Gurung, G. B. and D. Bhandari. 2009. 'Integrated approach to climate change adaptation'. *Journal of Forest and Livelihood* 8(1):43-47.

Guthman, J. 1997. 'Representing Crisis: The Theory of Himalayan Environmental Degradation and the Project of Development in Post-Rana Nepal'. *Development and Change* 28(1):45-69.

Hajer, M. A. and H. Wagenaar. 2003. *Deliberative policy analysis: understanding governance in the network society:* UK:Cambridge University Press.

Hajer, M. and W. Versteeg. 2005. 'A decade of discourse analysis of environmental politics: Achievements, challenges, Perspectives'. *Journal of Environmental policy and Planning* 7(3):175-184.

Hay, J. E. 2005. *Climate proofing: a risk-based approach to adaptation*. Manila:Asian Development Bank (ADB).

Heltberg, R., P. B. Siegel, S.L. Jorgensen. 2009. 'Addressing human vulnerability to climate change: Toward a no-regrets' approach'. *Global Environmental Change* 19(1):89-99.

Helvitas. 2011. *Nepal's Climate Change Policies adn Plans: Local Communities' Perspective.* Kathmandu, Nepal: Helvitas- Swiss Intercorporation Nepal.

Hickey, S. and G. Mohan. 2004. *Participationfrom tyranny to transformation?: Exploring new approaches to participation in development.* New York: Zed books.

Hiskey, J. T. and M. A. Seligson. 2003. 'Pitfalls of power to the people: Decentralization, local government performance, and system support in Bolivia'. *Studies in Comparative International Development* 37(4):64-88.

Holmes, T. and I. Scoones. 2001. *Participatory environmental policy processes: experiences from North and South PLA Notes 40*. In Deliberative democracy and citizen empowerment IIED. London, IIED: 76-79.

Hoppe, R. 1999. 'Policy analysis, science, and politics: from speaking truth to power to making sense together'. *Science and Public Policy* 26(3):201-210.

HTSPE. 2011. *Climate Change Adapation Design and Piloting Project Nepal.* Final Report. London: HTSPE/IIED.

Huq, S. and H. Reid. 2014. 'Mainstreaming community-based adaptation into national and local planning'. *Climate and Development* 6(4):291-292.

Huq, S. and H. Reid. 2007. *Community Based Adaptation*. IIED Briefing Paper. London: International Institute for Environment and Development (IIED).

Huq, S. and J. Ayers. 2008. Streamlining adaptation to climate change into development projects at the national and local level. *Financing climate change policies in developing countries*. Brussels:European Parliament.

Huq, S. and J. Ayers. 2008a. *Taking steps: mainstreaming national adapation.* IIED briefing IIED. London, International Institute for Environment and Development

Huq, S. and J. Ayers. 2008b. *Streamlining adaptation to climate change into development projects at the national and local level*. Brussels: European Parliament.

Huq, S., and H. Reid. 2006. *Mainstreaming adaptation to climate change in least developed countries (LDCs)*. London: Institute for Development Studies (IDS): 181-200.

Huq, S. and M. Khan. 2006. *Equity in national adaptation programs of action (NAPAs): the case of Bangladesh*. In Fairness in adaptation to climate change, eds. N. Adger, J. Paavola, S. Huq and M. Mace. Cambridge: MIT Press**.**

Huq, S., and H. Reid. 2009. *Mainstreaming Adaptation and Development*. In The Earthscan Reader on Adaptation to Climate Change, eds. E. L. F. Schipper and I. Burton. London: Earthscan.

Huq, S., H. Reid , and L. A. Murray, eds. 2006. *Climate change and development links*. London: International Institute for Environment and Development (IIED).

Huq. S, A. Rahman, M. Knoate, Y. Sokona, and H. Reid, eds. 2003. *Mainstreaming Adapation to Climate Change in Least Developed Countries (LDCs)*. IIED Report. London: IIED.

Institute of Development Studies (IDS) and International Institute for Environment and Development (IIED). 2011. *Case Study Report: The Pilot Programme for Climate Resilience in Nepal*. London: IDS-Learning Hub.

Institute of Development Studies (IDS). 2007. *Mainstreaming Climate Change Adaptation in Developing Countries*. IDS IN FOCUS. London: Institute of Development Studies (IDS).

Intergovernmental panel on Climate Change (IPCC). 2001. *Climate change 2001: The scientific basis*. Contribution of working group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate change 2007: Impacts, adaptation and vulnerability.* Contribution of the Working Group II to the Fourth Assessment report of the Intergovernmental Panel on Climate Change. Sweden: IPCC.

Intergovernmental Panel on Climate Change (IPCC). 2013. *Working Group I Contribution to the IPCC Fifth Assessment Report Climate Change 2013:* The Physical Science Basis Summary for Policymakers. IPCC WGI AR5, Intergovernmental Panel on Climate Change. Sweden: IPCC.

International Institute for Environment and Development (IIED) and Bangladesh Centre for Advanced Studies (BCAS). 2013. *Community Based Adaptation: Mainstreaming CBA into national and local planning Seventh international Conference on Community Based Adaptation Dhaka, Bangladesh. Dhaka*: IIED and BCAS.

International Institute for Environment and Development (IIED). 2013. *Building Blocks for Main-Streamlining Climate Resilience into Development Planning*. London, UK: International Institute for Environment and Development.

Ireland, P. 2012. 'Nepalganj, the centre of the world: local perceptions of environmental change and the roles of climate-change adaptation actors'. *Local Environment* 17(2):187-201.

Irvin, R. and J. Stansbury. 2004. 'Citizen Participation in Decision Making: Is It Worth the Effort?' *Public Administration Review* 64(1).

Johnson, R. B. and A. J. Onwuegbuzie. 2004. 'Mixed methods research: A research paradigm whose time has come'. *Educational researcher* 33(7):14-26.

Jones, L. 2012. Social barriers to adaptation: *Exploring implications and identifying options for adaptation policy across the SADC region*. In Overcoming Barriers to Climate Change Adaptation Implementation in Southern Africa, eds. M. Lesley and D. Lyndsey. South Africa: Africa Institute of South Africa and the Institute for Global Dialogue:.

Jones, L. and E. Boyd. 2011. 'Exploring social barriers to adaptation: Insights from Western Nepal'. *Global Environmental Change* 21(1):1262-1274.

Joshi, P., A. Rawat, S. Narula, and V. Sinha. 2012. 'Assessing impact of climate change on forest cover type shifts in Western Himalayan Eco-region'. *Journal of Forestry Research* 23(1):75-80.

Kabeer, N. 2003. *Gender mainstreaming in poverty eradication and the millennium development goals: A handbook for policy makers and other stakeholders*. London: Commonwealth Secretariat.

Kanel, K. and B. Kandel. 2004. 'Community Forestry in Nepal: Achievements and Challenges'. *Journal of Forest and Livelihood* 4(1):55-63.

Karna, B. K., G. P. Shivakoti, E.L. Webb. 2010. 'Resilience of community forestry under conditions of armed conflict in Nepal'. *Environmental Conservation* 37(2):201-209.

Kavanagh, D. and D. Richards. 2001. 'Departmentalism and joined-up government'. *Parliamentary Affairs* 54(1):1-18.

Kelly, P. M. and W. N. Adger. 2000. 'Theory and Practice in Assessing Vulnerability to Climate Change and Facilitating Adaptation'. *Climatic Change* 47(4):325-352.

Khadka, R. 2012. 'Switching Gears: From Needs to Assets Based Approach to Community Development in Nepal'. *OIDA International Journal of Sustainable Development* 3(11):81-88.

Khadka, R., B. Dalal-Clayton, A. Mathema, P. Shrestha. eds. 2012. *Safeguarding the future, securing Shangri-La – Integrating environment and development in Nepal: Achievements, challenges and next steps*. UK: International Institute for Environment and Development (IIED).

Khatri D. B, R. Bista, and N. Gurung. 2013. 'Climate change adaptation and local institutions: how to connect community groups with local government for adaptation planning'. *Journal of Forest and Livelihood* 11(1):14–28.

Kindon, S., R. Pain. and M. Kesby. 2008. 'Participatory action research'. *International encyclopedia of human geography*: 90-95.

Kinnear, P. R. and C. D. Gray. 2009. *PASW Statistics 17 Made Simple: replaces SPSS Statistics 17.* USA: Psychology Press.

Kitzinger, J. 1995. 'Qualitative research: introducing focus groups'. *British Medical Journal*. 311(7000):299.

Klein, R. J. T. 2008. *Mainstreaming Climate Adapation Into Development*. A stockholm Environment Institue briefing note for the European Parliament Temporary Commmittee on Climate Change. Sweden: Stockholm Environment Institute.

Klein, R. J. T. 2010. 'Linking adaptation and development finance: A policy dilemma not addressed in Copenhagen'. *Climate & Development* 2(3):203-206.

Klein, R. J. T., E. L. F. Schipper, and S. Dessai. 2005. 'Integrating mitigation and adaptation into climate and development policy: three research questions'. *Environmental science and policy* 8(6):579.

Klein, R. J. T., E.L.F. Schipper, and S. Dessai. 2003. *Integrating Mitigation and Adaptation into Climate and Development Policy: Three Research Questions*. Working Paper 405. Norwich: Tyndall Centre for Climate Change Research.

Klein, R., S. Eriksen, L. Naess, A. Hammill, T. Tanner, and C. Robledo. 2007. 'Portfolio screening to support the mainstreaming of adaptation to climate change into development assistance'. *Climatic change* 84(1):23-44.

Kok, M. and H. De Coninck. 2007. 'Widening the scope of policies to address climate change: directions for mainstreaming'. *Environmental Science and Policy* 10(7-8):587-599.

Kok, M., B. Metz, J. Verhagen, and S. Van Rooijen. 2008. 'Integrating development and climate policies: National and international benefits'. *Climate Policy* 8(2):103–118. doi:10.3763/cpol.2007.0436.

Korten, D. C. 1980. 'Community organization and rural development: A learning process approach'. *Public administration review* 40(5):480-511.

Krimerman, L. 2001. 'Participatory action research'. *Philosophy of the Social Sciences* 31(1): 60-82.

Kumar, P. 2012. 'Assessment of impact of climate change on Rhododendrons in Sikkim Himalayas using Maxent modelling: limitations and challenges'. *Biodiversity and Conservation* 21(5):1251-1266.

Kunwar, K. B. 2006. *Rural Development in Developing Countries.* Kathmandu: Mina Publications.

Lasco, R. D., F.B. Pulhin, A.S. Patricia, R.P. Delfino, G. Roberta, and K. Garcia. 2009. 'Mainstreaming adaptation in developing countries: the case of the Philippines'. *Climate and Development, 1*(2).130-146.

Lawoti, M. 2007. *Looking back, looking forward: centralization, multiple conflicts, and democratic state building in Nepal*. Policy studies 43. Washington: East West Centre.

Lebel L, L. Li, C. Krittasudthacheewa, M. Juntopas, T. Vijitpan, T. Uchiyama, and D. Krawanchid. 2012. *Mainstreaming Climate Change Adaptation into Development Planning*. Bangkok, Thailand: Adaptation Knowledge Platform and Stockholm Environment Institute.

Lebel, L. 2012. 'Local knowledge and adaptation to climate change in natural resource-based societies of the Asia-Pacific'. *Mitigation and Adaptation Strategies for Global Change* 18(7):1057-1076.

Leck, H. and D. Simon. 2013. 'Fostering Multiscalar Collaboration and Co-operation for Effective Governance of Climate Change Adaptation'. *Urban Studies* 50(6):1221-1238.

Lemos, M. C., Boyd, E., Tompkins, E. L., Osbahr, H., and Liverman, D. 2007. 'Developing Adaptation and Adapting Development'. *Ecology and Society*, *12*(2):26.

Lim, B., E. Spanger-Siegfried, I. Burton, E.L.Malone, and S. Huq, eds. 2005. *Adaptation policy frameworks for climate change: developing strategies, policies and measures*. Cambridge UK: University Press.

Ling, T. 2002. 'Delivering joined–up government in the UK: dimensions, issues and problems'. *Public administration* 80(4):615-642.

Litvack, J.I., J. Ahmad, and R. H. Bird. 1998. *Rethinking decentralization in developing countries*. Washington DC: World Bank Publications.

Lobo, C. 2011. *Mainstreaming Climate Change Adaptation: The need and role of Civil Society organization*. Pune India: Watershed Organization Trust (WOTR).

Luitel, S. 2009. 'Dependency and Underdevelopment: The Nepalese Context'. *Occasional Papers in Sociology and Anthropology* 11:202-220.

Mainlay, J. and S. F. Tan. 2012. *Mainstreaming Gender and Climate Change in Nepal IIED Climate Change*. Working Paper. London: International Institute for Environment and Development (IIED).

Malla, G. 2009. 'Climate change and its impact on Nepalese agriculture'. *Journal of Agriculture and Environment* 9:62-71.

Manandhar, S., V. P. Pandey, H. Ishidaira, and F. Kazama. 2012. 'Perturbation study of climate change impacts in a snow-fed river basin'. *Hydrological Processes* 27(24): 3461-3474.

Manor, J. 1999. *The political economy of democratic decentralisation*. Washington DC: World Bank.

Mansuri, G. and V. Rao. 2004. 'Community-based and-driven development: A critical review'. *The World Bank Research Observer* 19(1):1-39.

Mansuri, G. and V. Rao. 2012. *Localizing development: does participation work?*. Washington DC:World Bank Publications.

Marinetto, M. 2003. 'Who Wants to be an Active Citizen? The Politics and Practice of Community Involvement'. *Sociology* 37(1):103-120.

Martini, J., R. Mongo, K. Hyppolite, A. Fromont, N. Ribesse, and B. Dujardin. 2012. 'Aid effectiveness from Rome to Busan: some progress but lacking bottom-up approaches or behaviour changes'. *Tropical Medicine & International Health* 17(7):931-933.

Mataki, M., K. Koshy, and V. Nair .2007. *Top-down, bottom-up: Mainstreaming adaptation in Pacific island townships*. In Climate change and adaptation, eds. N. Leary et al. London: Earthscan.

Mawdsley, E., L. Savage, and M.S. Kim. 2014. 'A 'post-aid world'? Paradigm shift in foreign aid and development cooperation at the 2011 Busan High Level Forum'. *The Geographical Journal* 180(1):27-38.

McCarthy, J. J. 2001. *Climate change 2001: impacts, adaptation, and vulnerability: contribution of Working Group II to the third assessment report of the Intergovernmental Panel on Climate Change.* London: Cambridge University Press.

McEvoy, D., P. Matczak, I. Banaszak, and A.Chorynski. 2010. 'Framing adaptation to climate-related extreme events'. *Mitigation and Adaptation Strategies for Global Change* 15(7):779-795.

McTaggart, R. 1991. 'Principles for participatory action research'. *Adult Education Quarterly* 41(3):168-187.

Mearns, R. and A. Norton. 2010. *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*. Washington DC:World Bank Publications.

Mertz, O., K. Halsnæs, J. Olesen, and K. Rasmussen. 2009. 'Adaptation to Climate Change in Developing Countries'. *Environmental Management* 43(5):743-752.

Mertz, B., and M. Kok. 2008. 'Integrating development and climate policies'. *Climate policy* 8(2):99-102.

Michaelowa, A. and K. Michaelowa. 2007. 'Does climate policy promote development?' *Climatic Change* 84(1):1-4.

Michels, A. 2011. 'Innovations in democratic governance: how does citizen participation contribute to a better democracy?' *International Review of Administrative Sciences* 77(2):275-293.

Michels, A. and D. Laurens. 2010. 'Examining Citizen Participation: Local Participatory Policy Making and Democracy'. *Local Government Studies* 36(4): 477–491.

Mickwitz, P. 2003. 'A framework for evaluating environmental policy instruments'. *Evaluation* 9(4):415-436.

Miller, D. C. and N. J. Salkind. 2002. *Handbook of research design and social measurement*, USA:Sage Publications.

Ministry of Environment [MoE]. 2010. *National Adaptation Programme of Action (NAPA).* Kathmandu, Nepal: Ministry of Environment.

Ministry of Environment [MoE]. 2011a. *Status of Climate Change in Nepal*. Kathmandu, Nepal: Ministry of Environment.

Ministry of Environment [MoE]. 2011b. *Climate Change Policy, 2011*. Kathmandu, Nepal: Government of Nepal.

Ministry of Environment [MoE]. 2011c. *Local Adaptation Plan of Action (LAPA) Framework*. Kathmandu, Nepal: Ministry of Environment.

Ministry of Finance [MoF]. 2012. *Economic Survey 2011/2012*. Kathmandu, Nepal: Ministry of Finance.

Ministry of Finance [MoF]. 2013. *Economic Survey 2012/2013*. Kathmandu, Nepal: Ministry of Finance.

Ministry of Foreign Affairs, Denmark [MoFAD]. 2009. *Joint External Evaluation*. Denmark: Evaluation Department, Ministry of Foreign Affairs of Denmark: 1-79.

Mitchell, T. and T. Tanner. 2006. *Adapting to Climate Change: Challenges and opportunities for the development community*. Brighton: Institute of Development Studies.

Mitchell, T., M. Ibrahim, K. Harris, M. Hedger, E. Polack. 2010. *Climate Smart Disaster Risk Management*. Strengthening Climate Resilience. Institute of Development Studies: UK.

Mohammed, A. K. 2013. 'Civic Engagement in Public Policy Making: Fad or Reality in Ghana?' *Politics & Policy* 41(1):117-152.

Mosse, D. 2004. 'Is good policy unimplementable? Reflections on the ethnography of aid policy and practice'. *Development and Change* 35(4):639-671.

Multi Stakeholder Forestry Programme [MSFP]. 2013. *Document Review and Analysis of Communtiy Adaptation Plan of Action and Local Adaptation Plans of Action.* Kathmandu: Multistakeholder Forestry Programme (MSFP).

Munasinghe, M. and R. J. Swart. 2005. *Primer on climate change and sustainable development: facts, policy analysis, and applications.* Cambridge: Cambridge University Press.

Myers, M. D. and D. Avison. 1997. 'Qualitative research in information systems'. *Management Information Systems Quarterly* 21:241-242.

National Planning Commission [NPC]. 2010. *Approach Paper to the government of Nepal's three year national development plan (2010-2013).* Kathmandu: Government of Nepal.

NCVST. 2009. *Vulnerability Through the Eyes of Vulnerable: Climate Change Induced Uncertainties and Nepal's Development Predicaments*. Kathmandu: ISET.

Nelson, D. R., Adger, W. N., and Brown, K. 2007. 'Adaptation to Environmental Change: Contributions of a Resilience Framework'. *Annual review of Environment and Resources*, *32*(1):395.

Nunnenkamp, P., H. Öhler, and T. Rainer. 2013. 'Donor coordination and specialization: did the Paris Declaration make a difference?' *Review of World Economics* 149(3):537-563.

O'Brien, K., B. Hayward, and F. Berkes. 2009. 'Rethinking social contracts: building resilience in a changing climate'. *Ecology and Society* 14(2):1-14.

Oates N, D. Conway, and D. Calow, eds . 2011. *Background Note: The 'Mainstreaming' Approach to Climate Change Adaptation: Insights from Ethiopia's Water Sector*. Discussion Paper. United Kingdom:Overseas Development Institute.

OECD .2011. *Progress in implementing the Paris Declaration 2005-2010*. Paris: OECD.

OECD. 2009. *Integrating climate change adaptation into development co-operation policy guidance.* Paris: OECD. Accessed from http://site.ebrary.com/id/10333342.

O'Faircheallaigh, C. 2010. 'Public participation and environmental impact assessment: Purposes, implications, and lessons for public policy making'. *Environmental Impact Assessment Review* 30(1):19-27.

Ojha, H., L. Persha, and A. Chhatre. 2009. *Community Forestry in Nepal: A Policy Innovation for Local Livelihoods*. In Proven Successes in Agriculture Development: A Technical Compedium to Millenium Fed. eds. J.D. Spielman and R.P.Lorch. Washington DC:International Food Policy Research Institute (IFPRI).

O'Leary, Z. 2004. *The essential guide to doing research*..USA: Sage Publications Limited.

Olsson, P., C. Folke, and F. Berkes. 2004. 'Adaptive comanagement for building resilience in social-ecological systems'. *Environmental Management* 34(1):75-90.

Oxfam. 2009. *Even The Himalayas Has Stopped Similing: Climate Change, Poverty and Adaptation in Nepal*. Report Summary. Kathmandu: Oxfam - Nepal office.

Oxfam. 2010. *The Impact of the Global Financial Crisis on the Budgets of Low-Income Countries*. A report for Oxfam by Development Finance International. UK: Oxfam.

Oxfam. 2011. *Minding the money: Governance of climate change adapation finance in Nepal*. Kathmandu, Nepal: Oxfam.1-43.

Panday, D. R. 2012. *The Legacy of Nepal's Failed Development*. In Nepal in Transition: From People's War to Fragile Peace, *e*d. S.V. Einsiedel. New York: Cambridge University Press.

Pant, D. and K. Gautam. 2013. *Policy Provisions and Local Response on Climate Change Adaptation in Nepal*. Regional Climate Change Adaptation Knowledge Platform for Asia. Bangkok: Stockholm Environment Institute.

Pant, D. and K. R. Gautam. 2012. 'Climate Change Adaptation: The Institutional Context. Hydro Nepal'. *Journal of Water, Energy and Environment* 11(1):100-105.

Parry, M. 2009. 'Climate change is adevelopment issue, and only sustainable development can confront the challenge'. *Climate and Development* 1(1):5-9.

Paudel NS, DB. Khatri, H. Ojha H, R. Karki, and N. Gurung. 2013. 'Integrating climate change adaptation with local development: exploring institutional options'. *Journal of Forest and Livelihood*, 11(1):1–13.

Payne, G. and J. Payne. 2004. *Key concepts in social research*. London: Sage Publications.

Pelling, M. 2011. *Adaptation to climate change : from resilience to transformation*. New York: Routledge.

Pelling, M. and B. Wisner. 2009. *Disaster Risk reduction: Cases from urban Africa*. UK: Earthscan/James & James.

Pelling, M., High, C., 2005. 'Understanding Adaptation: What can Social Capital Offer Assessments of Adaptive Capacity?' *Global Environmental Change-Human and Policy Dimensions* 15 (4): 308-312.

Persson, A. 2009. *Mainstreaming climate change adaptation into official development assistance: A case of international policy integration*. EPIGOV Paper No. 36. Berlin: Ecologic Institute for International and European Environmental Policy.

Persson, Ã., and Richard J. T. Klein. 2009. 'Environmental policy integration and bilateral development assistance: challenges and opportunities with an evolving governance framework'. *International environmental agreements: politics, law and economics* 9(4):409-429.

Pielke, R. A. 1998. 'Rethinking the role of adaptation in climate policy'. *Global Environmental Change* 8(2):159-170.

Pierre, J. 2009. 'Reinventing governance, reinventing democracy?' *Policy & Politics* 37(4): 591-609.

Pilot Programme on Climate Resilience [PPCR]. 2011. *Programme Document*. Kathmandu: ADB/MoE.

Pinkse, J. and A. Kolk. 2012. 'Addressing the Climate Change-Sustainable Development Nexus: The Role of Multi-stakeholder Partnerships'. *Business & Society* 51(1):176-210.

Plummer, R. 2013. 'Fostering Governance and Building Capacity for Climate Change Adaptation: Can Adaptive Co-management Help?'. *Ecology and Society* **18**(4):2 http://dx.doi.org/10.5751/ES-05699-180402

Practical Action, 2009. *Temporal and Spatial Variability of Climate Change over Nepal (1976 -2005).* Nepal: Practical Action: Nepal Office.

Pokharel, R. K. and K. R. Tiwari. 2013. 'Good Governance Assessment in Nepal's Community Forestry'. *Journal of Sustainable Forestry* 32(6):549-564.

Potter, J. 1996. *Discourse analysis and constructionist approaches: Theoretical background*. In Handbook of Qualitative Research Methods for Psychology and the Social Sciences, eds. J. Richardson. Leicester: British Psychological Society.

Pouliotte, J., S. Barry, and L. Westerhoff. 2009. 'Adaptation and development: Livelihoods and climate change in Subarnabad, Bangladesh'. *Climate and Development* 1(1):31-46.

Poverty Environment Initiatives [PEI]. 2010. *Programme Document*. Kathmandu: Government of Nepal.

Poverty Environment Initiatives [PEI]. 2012. *Annual Progress Report of Poverty Environment Initiatives (PEI).* Kathmandu: Ministry of Local Development.

Practical Action. 2009. *Temporal and Spatial Variability of Climate Change over Nepal (1976-2005),* Kathmandu: Practical Action.

Pradhan, P. 2002. 'Decentralisation of Governance and Development'. *The Journal of Economic Perspectives* 16(4):185-205.

Pretty, J and H. Ward. 2001. 'Social capital and the environment'. *World development,* 29 (2):209-27.

Rahman, A. 2008. *Integrating Climate Change into Development: Multiple Benefits of Mitigation and Adaptaiton*. Citeseer.

Regmi, B. R. and A. Adhikari. 2007. *Climate change and human development-risk and vulnerability in a warming world (HDR 2007 Nepal Case Study),* Occassional Paper, Human Development Report Office: UNDP.

Regmi, B. R., L. Thapa, R. Suwal, S. Khadka, GB. Sharma and BB. Tamang. 2009. 'Agro-biodiversity Management: An Opportunity for Mainstreaming Community-based Adaptation to Climate Change'. *Journal of Forest and Livelihood* 8(1):113-121.

Rehman, S, 2006. 'Development, Civil Society and the Conflict in Nepal'. Independent Study ***Project (ISP) Collection.*** Paper 343. ULR<http://digitalcollections.sit.edu/isp_collection/343>.

Reid, H., M. Alam, R. Berger, T. Cannon, S. Huq, and A. Milligan. 2009. *Community-based adaptation to climate change: an overview*. In Community-based adaptation to climate change: Participatory Learning and Action 60. eds. H. Reid et al. London: International Insitute for Enviornment and Development (IIED).

Reid, H., S. Huq. and L. Murray. eds. 2010. *Community Champions: Adapting to Climate Challenges*. London: IIED.

Reid, H. and E.L. F. Schipper. 2014. Upscaling community-based adaptaiton: an introduction to the edited volume. *Community Based Adaptation to Climate Change: Scaling it Up,* eds. E. Lisa, F. Schipper, J. Ayers, H. Redi, S. Huq, A. Rahman. Routledge, New York. 3-21.

Ribot, J. C., 2006. 'Choose democracy: environmentalists socio-political responsibility'. *Global Environmental Change,* 16(2).115–119.

Ridder, D. and H. Team. 2006. *Learning together to manage together: improving participation in water management*: Germany: University of Osnabrueck, Institute of Environmental Systems Research.

Ritchie, J. and L. Spencer. 2002. *Qualitative data analysis for applied policy research*. In The qualitative researcher's companion. eds AM Huberman and MB Miles.California: Sage Publications.

Robb, C. M. 2002. *Can the poor influence policy?: Participatory Poverty Assessments in the Developing World.* Washington DC: World Bank Publications.

Roberts, E. 2011. *Addressing Vulnerability to Climate Change in Least Developed Countries?: An Evaluation of the National Adaptation Programmes of Bangladesh, Nepal, Malawi and Tanzania*. MSc Thesis. London: London School of Economics.

Roberts, N. 2004. 'Public Deliberation in an age of Direct Citizen Participation'. *American Review of Public Administration* 34(4):315-353.

Roggema R. 2012. *The difficulties to design for climate adaptation*. In Swarming Landscapes: The Art of Designing for Climate Adaptation, ed. Roggema R. London: Springer.

Rondinelli, D. A., J. S. McCullough, and R.W. Johnson.1989. 'Analysing decentralization policies in developing countries: a political-economy framework'. *Development and Change* 20(1):57-87.

Rowe, G. and L. J. Frewer. 2000. 'Public participation methods: A framework for evaluation'. Science, *technology & human values* 25(1):3-29.

Rubin, H. J. and I. S. Rubin. 2011. *Qualitative interviewing: The art of hearing data*. United States of America: Sage Publications.

Rupantaran Nepal. 2012. *Consolidating learning of local and community based adaptation Planning: Implication for Adaptation Policy and Practice*. Kathmandu: Rupantaran.

Saito, N. 2012. 'Mainstreaming climate change adaptation in least developed countries in South and Southeast Asia'. *Mitigation and Adaptation Strategies for Global Change* 18(6):825-849.

Salih, M. A. M. 2009. *Climate change and sustainable development: new challenges for poverty reduction.* UK: Edward Elgar Publishing.

Sapkota, S., M. N. Paudel, N.S. Thakur, M.B. Nepali, and R. Neupane. 2011. 'Effect of Climate Change on Rice Production: A Case of Six VDCs in Jumla District'. *Nepal Journal of Science and Technology* 11(1):57-62.

Schipper, E. L. 2013. *Expanding the Community of Community-Based Adaptation*. Policy Brief. Bangkok: Stockholm Environment Institute.

Schipper, E. L. F. 2004. *Exploring adaptation to climate change: A development perspective*. PhD Thesis. UK: University of East Anglia.

Schipper, E. L. F. 2007. *Climate Change Adaptation and Development: Exploring the Linkages*. Working Paper. UK: Tyndall Centre for Climate Change Research.

Schipper, E. L. F. 2009. 'Meeting at the crossroads: Exploring the linkages between climate change adaptation and disaster risk reduction'. *Climate & Development* 1(1):16-30.

Schipper, E. L. F. and I. Burton. eds. 2009. *The Earthscan reader on adaptation to climate change.* London: Earthscan.

Schipper, L. and M. Pelling. 2006. 'Disaster risk, climate change and international development: scope for, and challenges to, integration'. *Disasters* 30(1):19-38.

Schoon, M. 2005. *A Short Historical Overview of the Concepts of Resilience, Vulnerability, and Adaptation*. Working paper W05-4. USA: Indiana University.

Sherman, M.H and Ford, J. 2014. 'Stakeholder Engagement in Adaptation Interventions: an Evaluation of Projects in Developing Nations'. *Climate Policy 14(3):* DOI**:**10.1080/14693062.2014.859501

Scott, J C. 1998. *Seeing like a state: How certain schemes to improve the human condition have failed*. USA: Yale University Press.

Scott, C. and S. Huq. 2014. 'Knowledge flows in climate change adaptation: exploring friction between scales'. *Climate and Development* 6(4):382–387.

Seddon, D. and K. Hussein. 2002. *The consequences of conflict: livelihoods and development in Nepal.* London:Overseas Development Institute (ODI).

Serrao-Neumann, S., F. Crick, B. Harman, O. Sahin, R. van Staden, G. Schuch, S. Baum, and DL. Choy. 2014. 'Improving cross-sectoral climate change adaptation for coastal settlements:insights from South East Queensland, Australia'. *Regional Environmental Change* 14(2):489-500.

Shaw, R. 2006. *Community-based Climate Change Adaptation in Vietnam: Interlinkages of Environment, Disaster, and Human Security*. In Multiple dimension of global environmental changes, eds. S. Sonak. India: TERI Publication.

Shornstein, I. 2010. *Sticks and Stones: The Strategic Use of Development by the Maoists in the Mobilization of Nepal's Rural Population*. Independent study project collection paper 1243. Binghampton:SIT Graduate Institute.

Shrestha, A. B. and R. Aryal. 2011. 'Climate change in Nepal and its impact on Himalayan glaciers'. *Regional Environmental Change* 11(1):65-77.

Shrestha, A. B., C. P. Wake, P.A. Mayewski, and J.E. Dibb. 2000. 'Precipitation fluctuations in the Nepal Himalaya and its vicinity and relationship with some large scale climatological parameters'. *International Journal of Climatology* 20(3):317-327.

Shrestha, N. R. 2008. 'Misery is My Company Now: Nepal's Peasantry in the Face of Failed Development'. *Journal of Peasant Studies* 35(3):452-475.

Shrestha, R. M. and S. R. Shakya. 2012. 'Benefits of Low Carbon Development in a Developing Country: Case of Nepal'. *Energy Economics* 34(3):503-512.

Sietz, D., M. Boschutz, R.J.T. Klein, and A. Lotsch. 2008. 'Mainstreaming Climate Adaptation Into Development Assistance In Mozambique'. *World Bank Research Working papers* 1(1):1-30.

Simelton, E., C. H. Quinn, N. Batisani, A.J. Dougill, J.C. Dyer, E.D.G. Fraser, D. Mkwambisi, S. Sallu, and L.C. Stringer. 2013. 'Is rainfall really changing? Farmers' perceptions, meteorological data, and policy implications'. *Climate and Development* 5(2):123-138.

Sjoberg, G., N. Williams, T. Vaughan, and A. Sjoberg. 1991. *The case study approach in social research*. In A case for the case study, eds. J. R. Feagin et al. USA: The University of North Carolina Press.

Sjöstedt, M. 2013. 'Aid Effectivenss and The Paris Declaration: A Mismatch Between Ownership and Results-Based Management?' *Public Administration and Development* 33(2):143-155.

Smit, B. 1993. *Adaptation to Climatic Variability and Change: Report of the Task Force on Climate Adaptation.* The Canadian Climate Program. Cananda: Department of Geography, University of Guelph.

Smit, B. and J. Wandel. 2006. 'Adaptation, adaptive capacity and vulnerability'.*Global Environmental Change* 16(3):282-292.

Smit, B. and O. Pilifosova. 2003. 'Adaptation to climate change in the context of sustainable development and equity'. *Sustainable Development* 8(9):9–28.

Smit, B., I. Burton, R. J. T. Klien, and J. Wandel. 2009. *An anatony of adaptation to climate change and variability*. In The Earthscan Reader on Adaptation to Climate Change, eds. E.L.Schipper et al. London: Earthscan.

Smit, B., I. Burton, R.J.T. Klein, and R. Street. 1999. 'The Science of Adaptation: A Framework for Assessment'. *Mitigation and Adaptation Strategies for Global Change* 4(3):199-213.

Smith, B., I. Burton, R.J.T. Klein, and J.Wandel. 2000. 'An anatomy of adaptation to climate change and variability'. *Climatic Change* 45(1):223-251.

Smith, J. B. and S. S. Lenhart. 1996. 'Climate change adaptation policy options'. *Climate Research* 6:193-201.

Smithers, J., and Smit, B. 2009. *Human Adaptation to Climatic Variability and Change*. In The Earthscan Reader on Adaptation to Climate Change, eds. E.L.Schipper et al. London: Earthscan.

Sovacool, B. K., A. L. D'Agostino, A. Rawlani, and H. Meenawat. 2012. 'Improving climate change adaptation in least developed Asia'. *Environmental Science & Policy* 21:112-125.

Sperling, F. 2003. *Poverty and Climate Change: Reducing the Vulnerability of the Poor Through Adaptation*. Washington DC: African Development Bank.

Srinivasan, A. and T. Uchida. 2008. *Mainstreaming and financing adaptation to climate change*. In The climate regime beyond 2012. Reconciling Asian development priorifies and global climate interests, eds ADB. Manila:ADB Publications.

Standing, H. 2004. 'Gender, myth and fable: the perils of mainstreaming in sector bureaucracies'. *IDS Bulletin* 35(4):82-88.

Stillman, PG. 1974. 'The Concept of Legitimacy'. Polity 7(1):32-56.

Stockholm Envionment Insititue (SEI). 2013. *Mainstreaming Adaptation into Development Plans: Lessons from the Regional Climate Change Adaptation Knowledge Platform for Asia*. Policy Brief. Sweden: Stockholm Environment Institute.

Stringer, L. C., A. J. Dougill, J. Andrew , E. Fraser, K. Hubacek, C. Prell and M.S. Reed. 2006. 'Unpacking participation in the adaptive management of social-ecological systems: a critical review'. *Ecology and Society* 11(2):719-740.

Swaminathan, P. and J. Jeyaranjan. 2008. 'Mainstreaming Gender, Engendering Development: Reflections on a Case Study'. *Economic and Political Weekly* 43(17):77-86.

Swart R. J. Robinson, and S. Cohen. 2007. 'Making integration of adaptation and mitigation work: mainstreaming into sustainable development policies'. *Climate policy* 7(4): 288-303.

Swart, R., J. Robinson, and C. Stewart. 2003. 'Climate change and sustainable development: expanding the options'. *Climate policy* 3(1):19-40.

Tacconi, L., 2007. 'Decentralisation, forests and livelihoods: theory and narrative'. *Global Environmental Change*, 17(3):338–348.

Tanner, T. and J. Allouche. 2011. 'Towards a New Political Economy of Climate Change and Development'. *IDS Bulletin* 42(3):1-14.

Tanner, TM, A. Hussan, KMN. Islam, D. Conway, R. Mechler, AU. Ahmed, M. Alam. 2007. *ORCHID: piloting climate risk screening in DFID Bangladesh*. Research Report. Brighton: Institute of Development Studies, University of Sussex.

Taylor, L. 1998. *Citizenship, participation and democracy: Changing dynamics in Chile and Argentina.* New York: St. Martin's Press.

Tearfund. 2006. *Overcoming the barriers: Mainstreaming Climate change adapatation in developing countries Tearfund Climate Change*. Briefing paper. UK: Tearfund.Thomas, S. and Thanh TN.2007.'Exclusive Versus Inclusive Devolution in Forest Management: Insights from Forest Land Allocation in Vietnam's Central Highlands'. *Land Use Policy* 24(4):644-653.

Thoms, C. A. 2008. 'Community control of resources and the challenge of improving local livelihoods: A critical examination of community forestry in Nepal'. *Geoforum* 39(3):1452-1465.

Tiwari, K. R., S. Rayamajhi, RK. Pokharel, and MB Balla. 2014. 'Does Nepal's Climate Change Adaptation Policy and Practices Address Poor and Vulnerable Communities?' *Journal of Law, Policy and Globalization* 23:28-38.

Tompkins, E. L. and W. N. Adger. 2004. 'Does adaptive management of natural resources enhance resilience to climate change?' *Ecology and Society* 9(2):1-14.

Tritter, J. Q. & McCallum, A., 2006. The Snakes and Ladders of User Involvement: Moving beyond Arnstein. *Health Policy* 76(1):156-168.

Tschakert, P. and K. A. Dietrich. 2010. 'Anticipatory learning for climate change adaptation and resilience'. *Ecology and Society* 15(2):11.

Turnbull, A. P., B. J. Friesen, C. Ramirez. 1998. 'Participatory action research as a model for conducting family research'. *Research and Practice for Persons with Severe Disabilities* 23(3):178-188.

United Nations Development Programme [UNDP]. 2013. *Human Development Report 2013. The rise of the South: Human progress in a diverse world.* New York, United Nations Development Programme.

United Nations Development Programme [UNDP]. 2010. *Screening tools and guidelines to support the mainstreaming of climate change adaptation into development assistance-A stoctaking Report*. New York: United Nations Development Programme.

Urwin, K. and A. Jordan. 2008. 'Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance'. *Global Environmental Change* 18(1):180-191.

Van Aalst, M. K., T. Cannon, and I. Burton. 2008. 'Community level adaptation to climate change: the potential role of participatory community risk assessment'. *Global Environmental Change*, 18(1). 165-179.

Village Forest Coordination Committee (VFCC)-Bangesaal. 2010. *Local Adaptation Plan of Action (LAPA).* Khalanga: Village Forest Coordination Committee (VFCC)-Bangesaal.

Village Forest Coordination Committee (VFCC)-Dhungegadi. 2009. *Local Adaptation Plan of Action (LAPA).* Khalanga: Village Forest Coordination Committee (VFCC)-Dhungegadi.

Vincent, K. 2007. Uncertainty in Adaptive Capacity and the Importance of Scale. *Global Environment Change* 17(1): 12-24.

Walby, S. 2005. 'Gender mainstreaming: Productive tensions in theory and practice'. *Social Politics: International Studies in Gender, State & Society* 12(3):321-343.

Walker, B., C. S. Holling, S.R. Carpenter, and A. Kinzig. 2004. 'Resilience, Adaptability and Transformability in Social--ecological Systems'. *Ecology and Society* 9(2):5.

Walt, G. and L. Gilson. 1994. 'Reforming the health sector in developing countries: the central role of policy analysis'. *Health policy and planning* 9(4):353-370.

Walter, M. 2009. *Social Research Methods.* Oxford: Oxford University Press.

Watts, R. 2012. *Linking National and Local Adaptation Planning: Lessons from Nepal*. London: Institute of Development Studies (IDS).

Waylen, K., A. Fischer, P. McGowan, J K. Milner, and E. J. Gulland. 2013. 'Deconstructing Community for Conservation: Why Simple Assumptions are Not Sufficient'. *Human Ecology* 41(4):575-585.

Wiggins, S. 2011. *Adaptation United: Building blocks from developing countries on integrated adaptation*. London:Tearfund

Wilby, R. L. and S. Dessai .2010. 'Robust adaptation to climate change'. *Weather* 65(7):180-185.

Wilkins, P. 2002. 'Accountability and Joined-up Government'. *Australian Journal of Public Administration* 61(1):114-119.

Wiseman, J., L. Williamson, J. Fritze. 2010. 'Community engagement and climate change: learning from recent Australian experience'. *International Journal of Climate Change Strategies and Management* 2(2):134-147.

WorldBank. 2010. *Development and Climate Change World Development Report*. Washington DC: World Bank.

WorldBank. 2011. *Migration and Remittance Factbook*. Washingon DC: The World Bank.

Yamin, F., A. Rahman., and S. Huq. 2005. 'Vulnerability, adaptation and climate disasters: a conceptual overview'. *IDS Bulletin* 36(4):1.

Yates, J. S. 2012. 'Uneven interventions and the scalar politics of governing livelihood adaptation in rural Nepal'. *Global Environmental Change* 22(1):537-546.

Yin, R. K. 1994. *Case Study Research: design and methods*. Los Angeles: Sage Publications.

Yin, R. K. 2003. *Case study research: Design and methods (3rd ed.)*. CA: Sage Publications.