

Effectiveness of the Local Adaptation Plan of Action to support climate change adaptation in Nepal

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Abstract

A key challenge in climate change adaptation in developing countries as a whole, and to handling global change in particular, is to link local adaptation needs on the one hand, with national adaptation initiatives on the other, so that vulnerable households and communities can directly benefit. This study assesses the impact of the Nepal government's efforts to promote its Local Adaptation Plan of Action (LAPA) and its applicability to other least developed countries (LDCs). Based on data gathered from two field studies in Nepal, the research shows that the Nepal's LAPA has succeeded in mobilizing local institutions and community groups in adaptation planning and recognizing their role in adaptation. However, the LAPA approach and implementation have been constrained by socio structural and governance barriers that have failed to successfully integrate local adaptation needs in local planning and increase the adaptive capacity of vulnerable households. This paper describes the mechanisms of suitable governance strategies for climate change adaptation specific to Nepal and other LDCs. It also argues the need to adopt an adaptive Comanagement approach, where the government and all stakeholders identify common local- and national-level mainstreaming strategy for knowledge management, resource mobilization, and institutional development, ultimately using adaptation as a tool to handle global change.

Keywords Climate change, Climate change adaptation, Comanagement. Local Adaptation Plan of Action (LAPA). Nepal. Least developed countries (LDCs)

1. Introduction

Climate adaptation is a major global change challenge. It has now gained both scientific as well as policy recognition at the international and national levels. The United Nations Framework Convention on Climate Change (UNFCCC) has made strategic policy decisions to support climate change adaptation in developing countries. The National Adaptation Programme of Action (NAPA) process was mandated by the UNFCCC in the Marrakech

Accords of 2001, with the intention to mainstream climate change adaptation planning within national development planning in least developed countries (LDCs). The NAPA is considered by LDCs as a way of developing immediate and urgent adaptation priorities at the national level identified to deal with the adverse effects of climate change (UNFCCC 2002, p. 1).

The National Adaptation Plan (NAP) was established under the UNFCCC Cancun Adaptation Framework (CAF) to enable developing countries to implement medium- and long-term adaptation needs. One of the major objectives of the NAP is to facilitate the integration of climate change adaptation into relevant new and existing policies, programs, and activities in the development planning processes and strategies in LDCs and other developing countries. The NAP process has just started and its outcomes are yet to be determined.

However, international experiences show that the majority of the NAPAs in LDCs have failed to meet the goal of reducing climate change impacts and vulnerability, and hence, a vulnerability to disasters still exists (Leal Filho 2013). Some years on, there remain outstanding issues regarding the integration of NAPAs within national and local development plans (Ayers 2009; MoFAD 2009) and the procurement of benefits for vulnerable households (Agrawal et al. 2012). There are a number of criticisms of the NAPA approach. For example, Huq and Khan (2006) argue that most NAPA preparation to date has been based on externally driven, top-down development planning. Hardee and Mutunga (2010) have shown that the NAPA process has failed to align urgent and immediate actions to address vulnerability to climate change with existing national development planning processes. Furthermore, nearly a decade after 2001, only a few projects were underway (Ayers et al. 2010).

There are gray areas as to how NAPAs and national climate change policies address local concerns and the roles of local actors and communities in the planning process. Current NAPA guidelines only consider sectoral and centralized planning and are silent on local participation and involvement. Thus, as the global community moves toward longer term adaptation strategies, it will be important to ensure that a stronger link is made in country processes and plans between local adaptation strategies and national development (Hardee and Mutunga 2010). Likewise, Yamin et al. (2005, pp. 126–131) argued that there is a need and importance to identify an operational framework that links locally determined adaptation needs with national and international policy.

There is ambiguity and great concern among government and civil society in LDCs like Nepal regarding how to institutionalize the NAPA and other climate change policies within national and local development planning. For example, although Nepal's NAPA and climate change policy has stressed that at least 80 % of climate change finance will go to local communities, there is a lack of clarity about how this can be ensured. As financial resources are now being made available to implement the adaptation priorities identified in the NAPA, governments in LDCs are looking for middle-range proposals for adaptation planning and delivery that link local and national policy and priorities and ensure the effectiveness of policy implementation (Reid et al. 2010). As outlined in some literature (Ayers 2009; Regmi and Bhandari 2012), the biggest challenge is to find an institutional mechanism that links top-down policies with bottom-up community needs.

The development sector is rich in planning experience. The literature on development and climate change outlines the limitations of both top-down and bottom-up planning. Sanyal (2005), and Dalal-Clayton et al. (2003) argue that top-down perspectives in development are

both disempowering and ineffective because they often neglect local issues and overlook the role of local institutions. The literature also highlights the constraints of bottom-up planning, which is often dominated by powerful local elites, thus leaving the poor more marginalized (Hickey and Mohan 2004; Mansuri and Rao 2004; Dodman and Mitlin 2013). Integrated approaches, deemed as useful by Jacobs et al. (2014), are seldom implemented.

Nepal is landlocked multiethnic, multilingual, multireligious country, situated north of India in the Himalayas. Nepal has some of the world's highest mountains including Sagarmatha (Mt. Everest, 8,848 m), which it shares with Tibet. Nepal is divided broadly into three ecological zones: the lowland, the midland, and the highland. The mountain region accounts for about 64 % of total land area. Specific to the context of development planning in Nepal, the research of Dhungana and Wagle (2013) shows that its government planning approach is flawed and overly dominated by a top-down process and, thus, fails to address the practical problems and voices of the communities vulnerable to climate change. Khatri et al. (2013) show that the local government in Nepal lacks capacity in terms of making the best use of climate change information and knowledge. The reports by Bird (2011) and Wiggins (2011) also show that there are critical capacity gaps within the government planning sector in terms of addressing cross-cutting issues like climate change.

Urwin and Jordan (2008, p. 180) reveal 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. This implies that structures within the local and national government system have to be reformed to create an environment conducive to effective integration of local adaptation needs with national policies and programs.

2 Nepal's initiatives on the Local Adaptation Plan of Action

The Government of Nepal is taking the lead in identifying and devising appropriate mechanisms and frameworks to address issues around operationalizing adaptation policies and programs, with innovative work focused around piloting local- and community-based adaptation plans (Ayers 2011). This approach is called the Local Adaptation Plan of Action (LAPA). The concept of the LAPA was coined by Nepali stakeholders during the NAPA development process. Regmi and Karki (2010, p. 23) define the LAPA as an "approach to integrated adaptation planning that enables and empowers communities to understand and respond effectively to the changing and uncertain future climatic conditions." Although the concept of local planning has been tried and promoted in the development sector, it is a new approach being tested for the first time in the context of climate change adaptation in Nepal.

The LAPA initiative was supported by the United Kingdom (UK) Government's Department for International Development (DFID) in 2010 through a project entitled "Climate Adaptation Design and Piloting Nepal" (CADPN). The LAPA was designed and piloted in 2010 with the help of eight national non-government organizations (NGOs) in 10 districts of Nepal: Local Initiatives for Biodiversity Research and Development (LI-BIRD), Institute of Social and Economic Transition (ISET), Rupantaran, Resource Identification and Management Society (RIMS), Nepal Water for Health (NEWAH), Rural Self-Reliance Development Centre (RSDC), and the British Nepal Medical Trust (BNMT). A total of 1 million United States dollars (USD) was invested by DFID in piloting the LAPA.

Among the agencies involved in the piloting, an NGO called Rupantaran carried out integration of the LAPA into development planning in the Pyuthan and Nawalparasi districts. Since 2012, the LAPA has been scaled up by the Climate Change Support Programme (NCCSP) in 14 districts of the mid- and far-western regions of Nepal, jointly by the Government of Nepal and donors. The governments of the UK and the European Union have provided a total of USD 18.9 million to implement the LAPA. It is being implemented by the local government with technical support from the United Nations Development Programme (UNDP).

The LAPA framework developed by the CADPN pilot project is endorsed by the Government of Nepal in 2011. The intention of the framework is to implement the NAPA and its climate change policy (MoE 2011, p. 1). A major objective of the LAPA framework is to support vulnerable households and communities to effectively respond to climate change impacts. The framework also aims to mainstream local adaptation needs into local and national development planning and to increase local level participation in adaptation planning and collaboration among stakeholders and agencies to provide effective services to vulnerable communities to assist their adaptation to climate change (Table 1).

The literature (Ayers 2011; Regmi and Bhandari 2012) is positive about the LAPA’s significance for addressing planning gaps. Bird (2011, p. 14) believes that the LAPA framework will work to ensure that the process of integrating climate change resilience into such planning is inclusive, responsive, and flexible. In his published case study, Watts (2012, p. 2) mentions that “the LAPA offers a way to reconcile autonomous and planned adaptation, bridging the ostensible gap between adaptation ‘by the people’ and adaptation ‘for the people’.” Regmi and Bhandari (2012) discuss the specific character of Nepal’s climate adaptation framework (the LAPA) as an unique example of a decentralized policy instrument initiated in Nepal, with a structure and process penetrating right down to the community level.

However, there is also a scattered literature that highlights the constraints to LAPA implementation, with regard to issues of governance, planning, and capacity. For example, a 2011 Oxfam report also highlights the challenges of the LAPA in terms of ensuring meaningful harmonization from the policy to the institutional level. Similarly, Ayers (2011), Watts (2012), and Regmi and Bhandari (2012) have highlighted issues around knowledge, capacity, and resources that could act as barriers to putting the LAPA in action. In addition, studies on climate change adaptation have discussed the challenges of implementing adaptation due to limited government capacity at the local level to deliver goods and services (Khadka et al. 2012; Khatri et al. 2013).

There is practical experience of implementing CBA but little scholarly understanding on how the LAPA approach works. There is thus a need for research to explore whether or not the LAPA can overcome the top-down and bottom-up gaps in planning and benefit vulnerable households. This paper considers these debates in light of the new approach (the LAPA) being adopted and implemented in Nepal by exploring the effectiveness of the plan to support climate change adaptation in this country. This paper addresses a significant policy issue— how can LDCs like Nepal adapt to climate change in ways that benefit the most vulnerable households? This constitutes one of the first in-depth studies of a LAPA.

Table 1 Intended objectives of the framework on Local Adaptation Plan of Action (LAPA)

Aim	Principles	Intended objectives
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<p>Enable communities to understand changing and uncertain future climatic conditions and engage them effectively in the process of identifying local adaptation needs that focus, e.g., on reducing local climate risks and vulnerabilities and increasing resilience</p>	<p>Bottom-up Inclusive Responsive Flexible</p>	<p>Engage local communities and increase collaboration among stakeholders in adaptation planning Integrate adaptation plans into local planning process Link bottom-up and community needs with national-level policies and plans</p>
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Source: MoE (2011)

Nepal was selected as a case country for this research, because it is one of the most recent countries to initiate local adaptation planning processes, and so has made attempts to learn from the criticisms of the NAPA and other planning approaches. Nepal is in the early stage of implementing the LAPA on a large scale with the support of bilateral and multilateral donor agencies. This research presented in this paper is intended to contribute to improving the design and process of the LAPA, to increase the effectiveness of its implementation in the future. This work is of relevance to policy makers and practitioners too, because it contributes to the discussion within the broader field of public policy (top-down, bottom-up) and its implementation. It could also be useful for other LDCs considering the application of a LAPA approach to implement climate change policies and strategies.

Measuring policy effectiveness in the context of climate change adaptation planning is particularly important for ensuring that the intended outcomes are met. According to Preston et al. (2010), measuring effectiveness will ensure a reduction in societal and ecological vulnerability, assist with learning and adaptive management, and provide accountability in an evidence-based policy environment. In this paper, effectiveness refers to the degree to which the policy or measure envisions provisions for achieving the objective of reducing climate change vulnerability.

There is scant literature on the framework that addresses assessing the effectiveness of climate change adaptation policies and plans. Lasco et al. (2009) used two approaches in assessing how far climate change has been integrated in major development plans and programs of the Philippine government, analyzing policy and the program document and interviewing people to map their perceptions. Similarly, Baker et al. (2012) used multicriteria methods to analyze the effectiveness of local adaptation planning and focused on outcome statements that reflected the expected outcomes that the plans should seek to achieve. Mickwitz (2003, p. 426), Mickwitz and Kivimaa (2007), and Huitema et al. (2011, p. 5) used criteria such as relevancy, effectiveness, and efficiency to evaluate the effectiveness of environmental policy integration and implementation.

This paper analyses the effectiveness of the LAPA in terms of how well it managed to fulfill the objectives set by the LAPA framework (refer to Table 1), particularly in terms of integrating local adaptation needs with the national policies and plan and creating opportunities for vulnerable households to build their adaptive capacity. The specific research questions were as follows: (a) How far has the LAPA been successful in increasing local-level collaboration?; and (b) How far has the LAPA been successful in integrating community needs into the local planning process and ensuring grassroots participation in planning?

3 Research methodology

3.1 Research approach

This is a social sciences-based paper, whose aim is to throw light onto a theme which has not been investigated as it should have. Consistent with this background, the paper uses a public policy analysis (PPA) approach to analyzing the effectiveness of the LAPA. This is a suitable approach because it provides insight into the conditions under which the policies will most likely achieve a given set of goals in light of the relations between the policies and the goals (Nagel 1999). Descriptive analysis is also employed in this paper to explain the process of the LAPA implementation and its outcomes.

The LAPA was evaluated using a multiple comparative case study as a methodological approach to analyze the differences in the context and perception of the stakeholders regarding its effectiveness. The study focused on the 2010 LAPA CADPN project supported by the U.K. government's DFID and also reviewed the NCCSP implemented in 14 districts of Nepal, as mentioned earlier. The rationale to select the CADPN and NCCSP projects for the case study is that these are the only two initial pilot projects on the LAPA that have been implemented in different geographical regions of the country.

3.2 Research sites

The field research was conducted in the Pyuthan and Nawalparasi districts, which lie in the western region of Nepal. These were selected because both are pioneer districts where the LAPA was carried out both at local (Village Development Committee—VDC) and community levels, and Pyuthan represents the hilly areas, whereas Nawalparasi represents the terai and plain areas of Nepal.

Two VDCs in the Pyuthan District, namely the Bangesaal Village Development Committee (VDC) and Dhugegadi VDCs, and one VDC in the Nawalparasi District, the Sukrauli VDC, were the focus of the in-depth field study. The commonality among the three VDCs is that they are the pioneer VDCs for LAPA piloting. However, each VDC differs in terms of its geographical location and climate change impacts. As climate change adaptation is context specific, analysis of three different VDCs best captures the experience of implementing the LAPA.

3.3 Research methods

The study used multiple methods to gather data: structured interviews, semi structured interviews, key informant interviews, focus group discussions, multi stakeholder discussions, and informal meetings. The diverse methods enabled triangulation at various levels to ensure validity of the information and evidence. Evidence was collected on the same parameters and assessed against the same criteria from three key primary sources which included semi structured interviews, focus group discussions with practitioners and communities, and a review of secondary information.

The interviews involved data collection with multiple groups of participants such as policy makers, practitioners, and communities. A total of 128 communities, 17 policy makers, and 28 practitioners were selected for the study based on their experiences of climate change adaptation. Stratified random sampling was used to identify respondents from different categories of households. Due to limitation of professionals involved in climate change, purposive sampling was used to identify knowledgeable and experienced policy makers and practitioners. Semi structured interviews with three different groups of

stakeholders were undertaken to capture the perceptions of those directly involved in LAPA design and implementation. The secondary evidence was collated from national and local reports and other documentary sources and included a review of published and unpublished policy and project documents, reports, and official memos.

4 Findings and discussion

The argument presented here is that better planning and integration benefits climate-vulnerable household communities. Better planning will allow climate-vulnerable households and communities to actively engage in planning and decision making. In addition, efficient and effective integration of climate change adaptation in local planning processes at the local and national level helps to assist households and communities to better adapt to and sustain their livelihoods. The following section presents the findings and a discussion on the effectiveness of the LAPA in terms of benefits for vulnerable communities.

4.1 Extent of LAPA's success in increasing local-level collaboration

Collaboration among rural institutions is crucial for shaping climate change adaptation and its outcomes (Agrawal 2010, p. 193). The LAPA experience showed that a range of institutions are relevant for local adaptation planning (Ayers et al. 2010). This section of the paper looks specifically at the contribution of the LAPA in enhancing collaboration and coordination among agencies toward implementing climate change adaptation activities in the study sites. It examines the progress of the LAPA in enhancing working collaborations by looking at the outcomes of such partnerships and collaborations.

The LAPA framework states that adaptation responses at the local level are of a diverse nature, demanding a wide range of thematic expertise at the local level. Hence, collaboration with other line agencies, service providers, and the private sector is crucial for its success. According to the majority of the practitioners interviewed, the LAPA initiative was intended to bring local and grassroots organizations together by forming different coordination mechanisms such as the Community Forestry Networks and district- and VDC-level coordination mechanisms. For example, in the NCCSP project areas, 14 District Energy Environment Climate Change Committees (DEECCCCs) and 69 Village Energy Environment Climate Change Coordination Committees (VEECCCCs) were formed. Similarly, at the CADPN project sites in Pyuthan and Nawalparasi, a Village Forest Coordination Committee (VFCC) and a District Climate Change Adaptation and Mitigation Committee (DCCAM) were formed to forge alliances between government and other stakeholders.

Increased working collaborations among agencies yield multiple benefits for communities. According to Leck and Simon (2013), the benefits range from skill transfer to increasing access to technology. The findings show that the working collaboration among local agencies with the LAPA had generated financial resources for vulnerable households. Analysis of the contribution of different organizations in implementing adaptation priorities in Bangesaal and Dhungegadi VDCs shows the positive impact of collaboration in terms of resource sharing among agencies. The field data indicates that the project and NGOs, VDC, community groups, and individual households had financially contributed resources to implement adaptation interventions. It was also observed that individual households had provided in-kind contributions, in the form of labor, to implement interventions (Table 2).

The other advantage of increased collaboration among local agencies was the successful empowerment of vulnerable communities and groups (Agrawal et al. 2012). This case study has provided evidence to show that collaboration positively contributed to resource leveraging

Table 2 Resource support by different institutions to implement climate change adaptation activities in Dhungegadi and Bangesaal VDCs

Study VDCs	Contribution from different organizations (amount in Nepalese rupees)									
	Project		VDC		Community groups		Individual		Total	Mean deviation
	Amount	%	Amount	%	Amount	%	Amount	%		
Dhungegadi	598,690	68	109,000	12	33,000	4	136,000	16	876,790	309,635.2
Bangesaal	917,351.9	67	38,138	3	214,466	16	191,000	14	1,361,056	475,841.3

and generated more benefits for the local communities. The analysis shows that after the LAPA intervention at the study sites, the local communities were active in demanding services and proposing their needs and priorities to the service providers. Almost all the community groups in the Dhungegadi VDCs were successful in procuring more than 20,000 USD of additional financial resources from local government (VDC) and other agencies (NGOs, project) to implement their adaptation priorities. This example demonstrates that if there is local-level collaboration, communities benefit from accessing external resources.

However, it has been noted in the literature that a stand-alone project approach of short duration faces barriers in scaling up and sustaining adaptation at the local level (Boyd et al. 2009). One interesting finding of the current study is that stakeholders felt excluded from the LAPA. It was found that the LAPA used a project-based approach to interventions for both the CADPN and NCCSP initiatives. The approach used for the CADPN project had limitations in terms of enhancing collaboration among district-based institutions and political parties because it was more focused on grassroots organization and NGOs. Most of the interviewed district agencies and local political parties felt excluded in the process because they were not given a substantial role and responsibilities.

In contrast, the LAPA case at the NCCSP project sites shows that government line agencies only were involved, while the communities and civil society organizations had limited roles. The majority of the practitioners interviewed in this research argued that government alone cannot effectively provide services to vulnerable households; they need support from other stakeholders. Although village and district mechanisms were provided, they were mostly dominated by government agencies and a few handpicked individuals said to represent the civil society.

There are negative implications for vulnerable households where there is a lack of long term stakeholder collaboration and support for adaptation. While mobilizing local resources was advantageous, as in the case of the Dhungegadi and Bangesaal VDCs, there needs to be a sustainable flow of resources to support local adaptation. The findings in Pyuthan and Nawalparasi show that due to the absence of support from district and central sectoral line agencies, the financial and technological burdens were great at the local level. For example, implementation of the adaptation plan at the community level was halted in the Dhungegadi, Bangesaal, and Sukrauli VDCs due to lack of adequate financial and technological resources. The LAPA project funding was only available for 2 years and less than 500 USD was allocated per community group. Communities were also constrained by lack of access

to government services. This is the primary reason why the LAPA implementation was not continued beyond the project sites in the Nawalparasi and Pyuthan districts.

On the other hand, early experiences at the NCCSP project site in the Dang District show that the LAPA planning and implementation was delayed due to the absence of an efficient government service delivery mechanism. It was found that due to the lack of a timely budget release and social mobilization skills, the government-led LAPA design and piloting was delayed in many cases and could not achieve timely outputs. The practitioners and policy makers interviewed in this research also revealed that only less than 20 % of the milestones had been achieved in 2013.

The experiences of LAPA investigated in this paper show that better collaboration leads to resource leveraging and benefits for local communities. However, the short-term nature of the LAPA's project-based approach posed constraints in Nepal. It was found that in the CADPN project case, NGOs were dominant, while in the NCCSP, the government controlled all resources and decision making. The exclusion of stakeholders occurred due to problems with the program design and implementation. The LAPA framework emphasizes the importance of engaging a diversity of local stakeholders but does not clarify their roles and responsibilities. In the absence of clarity, as evident in the case study, the leading institutions monopolized the decision making.

The lack of a sustainable mechanism for networking and collaboration has resulted in limited scaling up of LAPA initiatives. It was found that the LAPA was not scaled up beyond the project sites in the Nawalparasi and Pyuthan districts because there was a lack of financial support and technical guidance from the government and NGOs. The problem is that most of the funding from bilateral and multilateral donors for development and climate change initiatives is short term and uses financial channeling outside the government system. This has implications for the sustainability of the project and its ownership at the local and district levels.

The majority of the respondents argued that the implementation and financial modality of working in project mode adapted by the donors contradicts the LAPA principle and objective of sustaining adaptation responses at the local level. There are two major problems with this funding approach. The first issue is that most of the funding bypasses government systems and creates parallel implementation and overlapping structures that undermine the government service delivery system. The second issue is that the funding available is short term, with a maximum of 1–5 years duration, and therefore, it is difficult to scale up and sustain the initiatives.

The results from the field imply that it is therefore necessary for Nepali stakeholders and agencies to avoid a top-down/bottom-up, projectile approach that is driven by donors and is short term and shift toward a nationally owned, multi stakeholder based, integrated and long term approach. The evidence from this research indicates that a governance structure that is inclusive and owned by multiple stakeholders at the local and national levels has the potential to overcome the institutional, technological, and financial barriers. This means that the Government of Nepal and Nepali stakeholders should design a multi stakeholder mechanism at different levels to facilitate a collaborative approach to addressing climate change.

4.2 Extent of LAPA's success in integrating community needs into local planning processes and ensuring grassroots participation

This section of the paper argues that climate change adaptation at the local level is effective and sustainable when the needs of vulnerable households and communities are well integrated into the local and national planning processes. This section looks into the outcomes of the intent of the LAPA in terms of integration of local needs into the planning process.

The LAPA framework clearly spells out the spirit of the LAPA with regard to supporting adaptation planning and addressing issues around implementation by overcoming barriers to target and reach the most vulnerable areas and communities (Helvitas 2011). The objective of the LAPA, as stated in the 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 2011, p. 5). The LAPA framework also states that the planning process should be more inclusive and focused on poor and vulnerable households (MoE 2011, p. 1). The focus and intentions of the LAPA are to integrate community climate change adaptation needs into the local planning process (Table 1).

The use of participatory approaches ensures grassroots participation in adaptation planning. The LAPA project in the Nawalparasi and Pyuthan districts mobilized the local institutions in developing local adaptation plans. The discussion at the local level showed that a range of tools and techniques were being used to engage the local households and communities in identifying climate change issues and their priority adaptation needs (Table 3). According to the consulted participants, the tools provided them space for expressing their individual issues

Table 3 Tools used during LAPA preparation in Nawalparasi and Pyuthan districts

Participatory tool used	Purpose of the tools
Timeline	Assess past climatic hazards in the area
Seasonal calendar	Compare seasonal impacts of climate change
Hazard mapping	Locate hazard-prone and vulnerable areas
Vulnerability matrix	Assess impacts of climate change and identify vulnerable households
Adaptation prioritization	Identify priority adaptation actions
Institutional mapping	Identify institutions and their role in adaptation
Cost-benefit analysis	Analyze cost-effectiveness of adaptation options
Gateway system analysis	Analyze livelihood assets and opportunities
Adaptation planning	Prepare adaptation plans and mainstreaming strategies
Monitoring and evaluation framework	Identify monitoring and evaluation process and plan

Source: Authors

and needs for the future. It was found out that a total of 32 community adaptation plans had been prepared by the Sukrauli, Dhungegadi, and Bangesaaal VDCs. A total of 70 local adaptation plans were prepared in the NCCSP project areas by using the participatory tools.

Plans developed in partnerships with communities are also more likely to be successful and implemented (Wiseman et al. 2010; Baker et al. 2012). The findings of the present study indicated that integration of climate change initiatives had occurred successfully at the community level. It was found that the majority of community forestry user groups in the Dhungegadi (12), Bangesaaal (9), and Sukrauli (11) VDCs had included activities to support

the climate-vulnerable households. It was also evident from the field work that the community forestry user groups used the different participatory methods to set their priorities. For example, the communities of Kalidhunga Community Forestry in Dhungegadi had used the participatory ranking exercise to identify the most vulnerable women and poor households for targeting adaptation activities. This exercise, according to communities, helped to both identify and target poor and climate-vulnerable households. It was found that some of those activities identified by communities had been implemented.

However, the interview and focus group discussions with communities and practitioners showed that adaptation planning which is business as usual, i.e., only relies on a development planning approach, will dilute climate change adaptation foci and priorities and undermine their urgency. Evidence from the research sites showed that the process of adaptation planning had little influence on the structure and process of development plans within the local government. Although the adaptation planning process introduced climate change issues, the process of development planning failed to take long-term climate risks into consideration.

According to the discussion with communities, adaptation planning was carried out separately, and only a few activities were included in the local development plan. For example, in the period 2010–2011, in the Dhungegadi, Bangesaal, and Sukrauli VDCs, less than 5 % of the VDC budget had been allocated for climate change adaptation. The findings show that, in practice, climate change is viewed merely as an add-on to development activities. The study by Dhungana and Wagle (2013) also indicated that district government planning has its own priority areas, and addressing climate change issues is considered something that is required to please aid agencies rather than assist the communities who are vulnerable to climate change.

The interaction with policy makers and practitioners revealed that the existing local government system in Nepal is not yet ready to integrate climate change in development. This lack of readiness is due to the absence of capacity and clear policy directives. At the case study sites, the district line agencies were more reluctant to integrate climate change adaptation compared to the NGOs and communities. According to the majority of the government agencies, they were hesitant because they lack central-level policy directives and have limited knowledge and capacity on climate change adaptation. It was found that there was a general tendency for district line agencies to rely more on central-level technical guidance and suggestions. Paudel et al. (2013) also found that the inaction of local governments regarding climate change adaptation is due to the lack of a clear and explicit policy mandate and directives to them and a lack of capacity to implement.

The current institutional structure and practice of working in isolation within the government agencies is a barrier to integrating climate change adaptation, which is particularly acute in mountain areas (Archie 2014). According to the majority of the policy makers (85 %) and practitioners (90 %) interviewed in this research, the current capacity and service delivery approach, within the local government, was not supportive of scaling up the LAPA, as it was constrained by a silo approach and lack of collaboration among agencies, lack of efficient service delivery, low human resource capacity, and limited access of households to the government services. In addition, the majority of the practitioners of the NCCSP project also revealed that in the absence of local agency collaboration, implementation of the LAPA is in jeopardy. Ensor and Berger (2009) also argue that current governance structures at the national and international level present key barriers to scaling up climate change adaptation.

Adaptive action and responses must occur at different levels and involve various decisions across a landscape made up of agents ranging from individuals, firms, and civil society, to public bodies and international agencies (Adger et al. 2005). However, the current LAPA framework assumes the VDC and/or the municipality as the only administrative and geographic units to implement climate change activities. According to the majority of the practitioners interviewed, the framework ignores the significance of autonomous planning at the community level and within and among different institutions, including civil society and the private sector. Most communities were concerned that their voices would not be heard, given the top-down nature of government planning. Roggema (2012) also found that a fixed planning solution is ineffective for dealing with climate change problems because it fails to address the uncertainties of climate change and varying degrees of impact.

Integrating climate change adaptation in development planning in Nepal is problematic because of the lack of synergy between the LAPA framework and the development planning process in Nepal. The LAPA framework provides seven steps to be followed in developing the adaptation plan. Government development planning also has its own process. The annual planning is comprised of at least 14 steps, starting at the ward level of the VDC (the local government unit at the village level) before being finalized. Although there are similarities in the planning steps between the LAPA and the development plan, there are difficulties in integration. Many interviewed communities and practitioners argue that it is difficult to consolidate the current planning steps of the LAPA and the government planning process because of the issues around long-term investment and capacity needs. A study by Dhungana and Wagle (2013) also revealed planning gaps, mostly due to the short-term and rigid nature of the current development plan in terms of addressing climate change adaptation at the local level.

The lack of clarity in how integration should happen at the local level had implications for scaling up the LAPA. It was found that there are now critical issues with scaling up the LAPA to other geographical areas. The initial experiences with the government-led LAPA scaling up project, the NCCSP, show that implementation of the LAPA through the government system, i.e., a mobilizing local government unit, is becoming increasingly challenging due to a lack of capacity, insufficient human resources, and inefficient channelling of financial resources to the communities.

The interaction with policy makers and communities revealed that although the LAPA was successful in mobilizing local institutions in climate change adaptation planning, there were barriers to integrating the needs of communities in the local development planning. The existing development planning process does not sufficiently reflect communities' adaptation needs because of inherent limitations such as the short timescale of the plan, the planning focus and priority on development, and the process of planning, which is still top-down and influenced by only a select few actors such as government and political parties.

The analysis of respondents' perceptions of the LAPA indicated that the current capacity of local government and NGOs is not sufficient to manage climate change adaptation and responses effectively enough to address the needs of vulnerable households. This suggests that without revisiting the planning approach and strengthening the current institutions and their capacity, it is unlikely that the LAPA objectives of integrating communities' needs into planning will be achieved.

4.3 Extent to which LAPA links top-down policies with bottom-up community needs

This section investigates how far the LAPA was able to link top-down policies with bottom-up community needs. It is argued that the existence of a multi-institutional mechanism will facilitate strong linkages and coordination between top-down policies and bottom-up community needs and help vulnerable groups to benefit from the adaptation responses.

The LAPA framework clearly states the link between local plans and national climate change policies (Tiwari et al. 2014). The framework envisions the linkages between a top down approach and a bottom-up approach in terms of assessing the extent to which vulnerable communities and households can access services provided by these systems, and resources (MoE 2011, p. 6). There is also an expectation that the LAPA can facilitate channelling 80 % of the total climate investment, as mandated in the NAPA and climate change policy, directly to the community level.

The grassroots-level planning process is an important means by which community needs and aspirations can be incorporated into the local and national planning processes. The findings show that the LAPA encouraged a bottom-up planning process to link communities' needs with Nepal's national policies and plan. The adaptation planning was more focused at a local level to identify urgent and immediate adaptation priorities. At the study sites, there were two different types of adaptation plans. One was prepared at the VDC level and another was prepared at the community level. The preparation was facilitated by NGOs and local communities. According to the practitioners, this approach of focusing on different levels of planning has in fact helped to capture community needs with respect to climate change adaptation.

The promotion of participatory processes in adaptation planning helps to identify the most climate-vulnerable households and communities. It was revealed that the LAPA used different, innovative participatory approaches to identify poor and vulnerable households. The participatory well-being ranking typically used in development projects was redesigned, during the LAPA piloting, to include climate change indicators. This was an attempt to include both climate risk and development indicators to identify the most vulnerable households in communities. This study determined that in Dhungegadi, all nine community forestry user groups revisited their participatory well-being ranking categorization and included climate risk and vulnerability indicators (Table 4). According to the communities consulted, this is an important step in identifying and targeting the most vulnerable.

However, geographical and political boundaries are not appropriate units to carry out adaptation planning. This study found that although the LAPA was intended to bridge the top-down and bottom-up gaps, it was more inclined to foster top-down approaches. For example, the planning unit of LAPA integration was only focused on administrative boundaries such as the VDC and municipality levels. Although this approach was more favorable to provide services within the current government administrative structures, it often neglected the truly vulnerable populations.

The interaction with communities and practitioners in this research revealed that all the LAPAs prepared at the study sites investigated vulnerable VDC and geographical locations rather than vulnerable households. Mapping vulnerability using geographical boundaries overlooked the populations in urgent need of climate change support. Vulnerability is context-specific and household-focused, so using administrative boundaries is often biased to those households who live in less vulnerable VDCs but are still more vulnerable compared to others.

There is still a critical gap between central-level policies, such as the NAPA and climate change policy, and local climate change adaptation needs. The findings show that although

the LAPA initiative was intended to harmonize adaptation plans with local development planning, this could not occur because the two processes are parallel. Most of the local adaptation plans, promoted by LAPA, reflect different priorities than the NAPA and climate change policies. For example, the climate change policy identifies low emission development and risk reduction as priorities, whereas the LAPAs in the three study VDCs highlighted vulnerability reduction and capacity building as priorities. The majority of the policy makers and practitioners also revealed that there is a lack of clarity at the national and local level on how the two different sets of priorities can be integrated.

The majority of the government practitioners felt that most of the government line agencies in the center lack the will to integrate climate change because they do not have sufficient information about the issue, they lack internal capacity, and there is virtually no budget to support climate change work. The majority of the practitioners revealed that they could not implement national climate change policies at the local level because they had limited understanding and a limited capacity to deliver climate change adaptation services. This integration failure at the national level had impacted the district and local responses to and actions on climate change adaptation.

At the community level, although the LAPA approach of using community forestry institutions is a means of implementing policies and reaching out to communities, it was not the most appropriate institutional mechanism for empowering the poor and vulnerable groups

Table 4 Identification of households using climate-sensitive indicators in the Dhungegadi and Bangesaal VDCs of Pyuthan District

Ranking tools	Household category								Total	Mean deviation
	Well off		Medium		Poor		Very poor			
	No.	%	No.	%	No.	%	No.	%		
Participatory well-being ranking	208	19.5	330	31	309	29	219	20.5	1,066	266
Climate-sensitive participatory well-being ranking	186	17.4	291	27.3	339	31.8	250	23.5	1,066	200

and ensuring they had access to resources. In the study areas, the LAPA project engaged community forestry user groups as grassroots institutions for developing adaptation plans. However, more than 30 % of the population in the Dhungegadi and Bangesaal VDCs in the Pyuthan District were not affiliated with the community forestry groups. This meant that those who were not a member of the community groups were excluded from climate change adaptation support.

The interviews with households revealed that an internal governance issue within local institutions is a barrier to effectively targeting and benefiting the poor and vulnerable households. It was found in this research that most of the resource priorities of community institutions did not reach beyond their members and often neglected the needs of poor and vulnerable households. As financial resources are limited, vulnerable households and communities should be prioritized for support. According to the findings, there were also some disparities in terms of prioritization of the investment made in climate change adaptation at the study sites. Out of the total groups' investment in all the three study VDCs,

more than 70 % was distributed for the benefit of the generic public, mostly in favor of middle income and rich households (Fig. 1).

There are other governance challenges, such as a lack of sufficient financial resources and capacity to implement national-level climate change policies and priorities. The government annual development budget is 20,000 USD per village development committee per year. This allocated amount is less than 30 % of the proposed VDC budget. According to the local government officials, they have other development priorities, and investment in climate change is an additional burden. At the local level, all the community groups said that the funding available for adaptation was not sufficient. The funding limitations are already having implications at the community level, particularly regarding the failure to implement adaptation

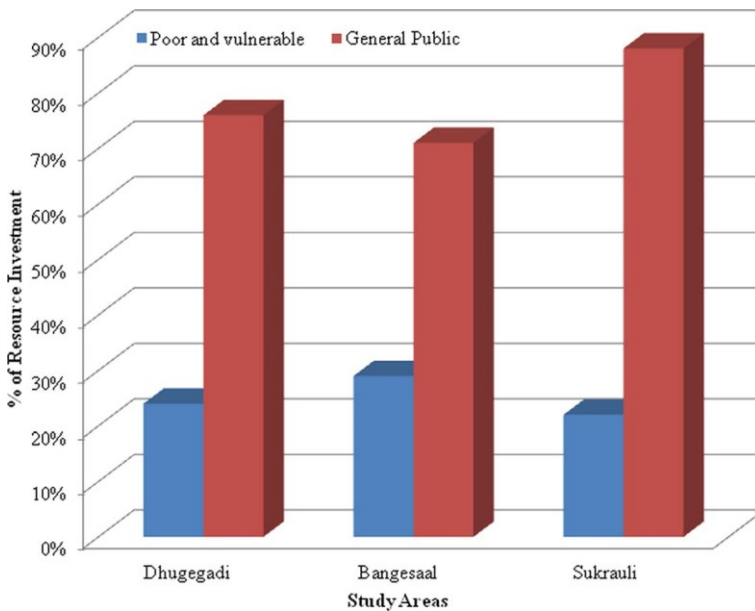


Fig. 1 Trend of resource investment in different Village Development Committees (VDC) studied in this research. The mean deviation in resource investment trend in the case of Dhugegadi, Bangesaal, and Sukrauli is 26, 23.5, and 33, respectively

priorities. The financial analysis of the VDC-level LAPA showed that the funding requirements for adaptation are huge, i.e., 415,486 USD (VFCC Dhungegadi and Bangesaal 2010). At the time of the research, less than 10 % of the funding requirements had been met (Fig. 2).

It can be concluded that, within the current institutional structure and planning and delivery mode, the LAPA is unlikely to produce any tangible benefits for vulnerable households. Based on the findings in this paper, the barriers for effective integration of the LAPA at the study sites were poor governance structure at different levels; isolated working approaches, e.g., projectbased approach of government and donors; and inadequate capacity and financial resources.

Based on the research reported in this paper, a number of lessons can be learned and policy recommendations made to enhance effective implementation of the LAPA in Nepal and other LDCs. The first lesson is that adopting a business-as-usual development approach to climate change adaptation planning and implementation does not guarantee local adaptation needs are well integrated into the development planning process. This suggests that integrating a crosscutting issue like climate change requires reforming the current planning approach and institutional structures at the national, district, and local levels in order to make them robust, capable, and flexible to respond to climate change impacts and vulnerability.

There is also an urgent need for government to devise policy and directives to strengthen the current institutional structure and capacity of the government and public sector. This

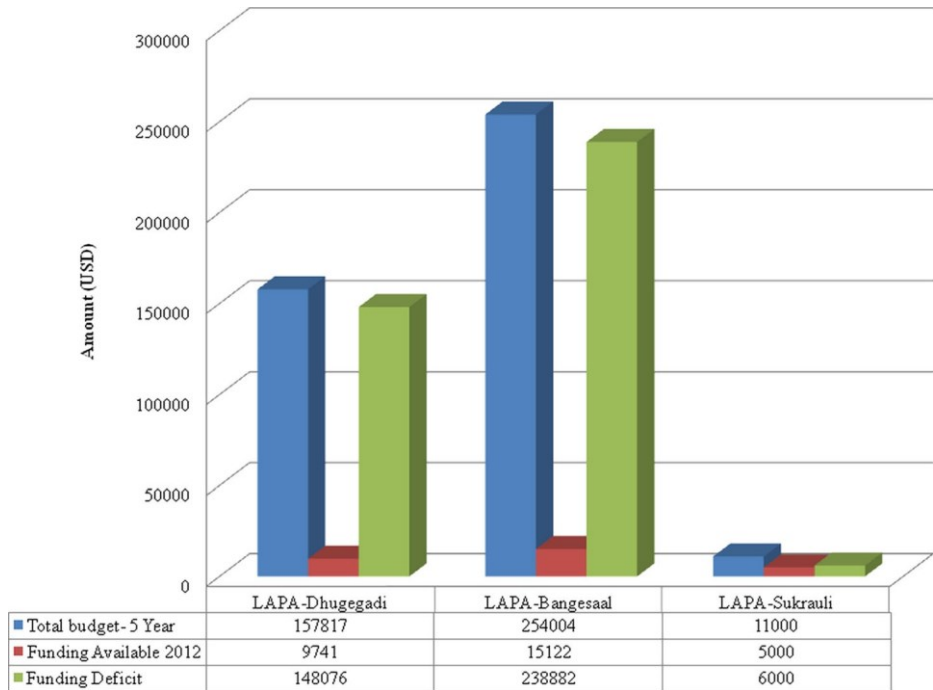


Fig. 2 Comparative assessment of funding requirements for implementing adaptation priorities in the study VDCs and availability of funding as of 2012 (USD). The mean deviation of funding requirements of Dhugegadi, Bangesaal, and Sukrauli VDCs is 63,646.89, 102,809.3, and 2,444.44, respectively requires government to (a) change the top-down working approach to planning and decision making, to make it more inclusive; (b) build local human resources and capacity on climate change; and (c) shift from a sectoral working approach to an integrated and more harmonized, multistakeholder approach.

The second lesson is that only working through community-based grassroots institutions does not guarantee that the needs of poor and vulnerable households will be reflected in the local planning process. People’s experiences and perspectives are important in pursuing adequate responses (Sada et al. 2014).

The current grassroots institutions have issues with respect to poor participation and exclusion of poor households in decision making. This entails that the Government in Nepal and other LDCs should work together with donors and civil society organizations to fix the

existing institutional and delivery mechanisms at the grassroots level. Specifically, intervention is required in the form of coaching and monitoring to support grassroots institutions to improve their internal governance mechanisms to allow the active participation of poor and vulnerable households in the decision making process.

The third lesson is that due to the cross-cutting nature of climate change adaptation, a silo, short-term project approach led by a single agency is likely to fail. Experiences with the LAPA in Nepal indicate that government and NGOs working alone and in project mode face difficulties in sustaining local adaptation. This implies that there is a need to take a more integrated and long-term, programmatic approach to climate change financing and technology transfer to deal with climate change adaptation at the national and local levels. The role of a diverse range of actors in climate change adaptation thus becomes a necessity.

6 Conclusions

The LAPA in Nepal provides an important framework for integrating local-level responses to climate change impacts in LDCs, with experiences which may be replicable elsewhere, as an example of an adaptation strategy for global change. The case study reported on here indicates that the LAPA encouraged a bottom-up planning process, mostly to bring community-based organizations to the forefront of climate change interventions. However, in practices, this case study shows that implementation and scaling of the LAPA framework in Nepal seems to be in jeopardy due to an existing problem in the design and implementation. The case study indicates that the LAPA approach to working through the local government system and NGOs and community mechanisms in isolation failed to link the top-down policies with bottom-up adaptation responses due to resource constraints, limited capacity, and governance issues within local institutions.

Nevertheless, the existing LAPA framework provides a foundation upon which to build, and perhaps the most critical considerations are how the plans can be both integrated and implemented. The findings of this research, which illustrates the role played by climate change adaptation as a tool to handle global change, suggest that the gap between local and national adaptation planning processes can still be improved upon substantially by making national policies and institutional mechanisms locally responsive and effective. Further, as adaptation is a dynamic process, a multi stakeholder and integrated approach with a multifaceted nature that provides for cross-sectoral adaptation support measures could benefit the future implementation and scaling of the LAPA framework in Nepal and other LDCs.

The learning from Nepal's LAPA contributes to the enriched understanding on how to bridge gap between global policies (NAPA, NAPA) and local- and national-level strategies. It has provided analysis on the opportunities and constraints of implementing adaptation strategies at the local level and the emerging issues of governance and sustainability. The learning is important at the global level in order to design effective monitoring and support mechanism to ensure the effectiveness of financial flow and technological support.

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