



IMPLEMENTATION STATUS OF COMMUNITY ADAPTATION PLANS: A CASE STUDY FROM PARBAT DISTRICT, NEPAL

Reeti Acharya^{1*} and Ganesh Paudel²

¹ Federation of Community Forest Users, Parbat, Nepal

² Department of Forests, Nepal

*Corresponding author: reetiacharya071@gmail.com

Abstract

This study was carried out in three community forests of the Parbat District, Nepal with the objective of assessing the implementation status of Community Adaptation Plans (CAPs). Three focus group discussions, observations and several informal discussions were made with the local people. Physical and financial progresses of the CAPs were assessed. Altogether 26 climate change adaptation activities were proposed for the fiscal year 2071/72 among them 46% activities were implemented completely, 19% activities were started but not implemented and 35% activities were not implemented. The physical and financial progresses of the CAPs were 41.79% and 27.47 % respectively. For ensuring the effective implementation of CAPs mainstreaming them into local level development plan is recommended. Analysis of the effectiveness of the implemented CAPs in reducing vulnerability is recommended for future researchers.

Key words: Climate change adaptation, Implementation, Physical progress, Financial progress

Introduction

Nepal is one of the climatically vulnerable countries in the world due to its fragile, climate sensitive ecosystem and socioeconomic circumstances (Tiwari et al., 2014). Despite Nepal's small contribution to climate change, it will be affected excessively by a changing climate (World Bank, 2010 at Barrueto, 2012). IPCC (2007) report states that climate change is already having discernable impacts particularly in least developed countries like Nepal which are more vulnerable from the impacts because of their inability to cope with these climatic shocks (Tiwari et al. 2014). Although being a global phenomenon, the impacts of climate change depend very much on locality and each locality will need its specific solution to successfully adapt towards climate change (Agrawal et al., 2009; Barrueto, 2012).

It has been widely recognized that climate change impacts are inherently local and context-specific; so, need has been felt for focusing climate change activities at the local level (Agrawal et al., 2009, Paudel et al., 2013). Localizing adaptation became a strong agenda among the research and development communities in developing world in the last 10 years due to realization about its context specific and local significance (Regmi, 2011). The community-based adaptation to climate change has developed considerable currency with civil society organizations and is effectively designed to help the poorest and most vulnerable adapt to climate change (Huq and Reid, 2007). For implementing climate change adaptation activities at local level National Adaptation Program for Action (NAPA) has provision to involve the community institutions such as Community Forest User Groups (CFUGs), water user groups and farmers' groups. The policy documents like In Nepal, many International Non-Governmental Organizations (INGOs) and donor-funded bilateral and multilateral projects have been promoting and supporting community-based adaptation planning across the country (Paudel et al., 2013). CFUGs are usually mobilized in preparation and implementation of climate change adaptation activities because they are the strongest and most influential community associations in the VDCs (Regmi and Karki, 2010). Along with the governmental sector various NGOs in Nepal have been supporting for the preparation of Community Adaptation Plans (CAPs). Community adaptation plans are based on existing

local resources, knowledge and capacity of the local community. Each CAP documents the appraisal of vulnerability assessment, adaptation options, action plan (Paudel et al., 2013) and it also contains information about the budget source for implementing adaptation activities at the community level.

Community-based adaptation is a promising way to manage the risks associated with climate change, as it can empower communities and offer synergies with broader poverty and sustainable development objectives (Heltberg et al., 2009; Regmi, 2011). Community based adaptation is getting momentum in Nepal as various donor agencies have been supporting for the preparation of CAPs taking as the valid approach to reduce vulnerability and increase adaptive capacity of the community. CAPs were prepared by several organizations in Nepal but implementation status has been rarely assessed. Large amount of money has been invested for the preparation of CAP but there is confusion about whether plans are implementable or not. Regular monitoring of CAP implementation is necessary to compare its effectiveness, identify challenges, and feedback (MSFP, 2015). There is no meaning of plans if these are not implemented in an effective manner. The study about the implementation status of CAP has been remained a critical gap in the field of climate change adaptation. Hence this study will fulfill this gap by analyzing the implementation status of CAPs.

Study Area

Parbat district a hilly district of Dhaulagiri Zone, is situated between 27⁰ 28' N to 28⁰ 39' N latitude and 83⁰ 34' E to 83⁰ 59' E longitude and has an area of 53656 ha. The altitude varies from 700m to 3194m. The annual rainfall is 2400 mm to 2600 mm. the normal maximum temperature in summer exceeds 32.3⁰C and the normal winter temperature is about 7.5⁰C. The total area of Parbat district is 53668 ha. out of which agriculture land cover about 16.8%, grazing/pasture land cover about 28.22%, forest land cover about 37.25% and others 17.73%. Main forest types found in the Parbat district are hill Shorea robusta forest, Schima-Castanopsis forest, Pinus roxburghii forest and Quercus forest. From among 372 community

forests (DFO, 2015) three community forests Samakhraka CFUG of Tribeni VDC, Bhadkhore of Kushma municipality and Salleri of Durlung VDC were selected consulting with officials of District Forest Office and Li-BIRD Parbat.

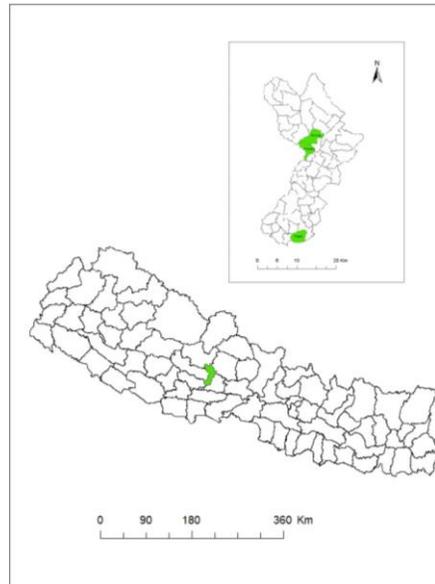


Fig 1: Study area

Bhadkhore CFUG is situated in ward no. 11 of Kushma municipality. The area of CF is 57.5 ha with *Shorea robusta*, *Schima-Castanopsis* and *Sissoo* as a major species. Salleri CFUG is situated in ward no. 5 of Durlung VDC which lies in the Northern part of the Parbat district. The area of the CF is 95.28 ha and divided into six blocks with *Pinus* and *Shorea robusta* as the major species. Samakharka CFUG is situated in ward no. 1, 2, and 3 of Tribeni VDC which lies in the Southern part of the Parbat district. The area of CF is 32 ha and composed of *Schima- Castanopsis* as the major species.

Material and Methods

Three focus group discussions were conducted in all three CFUGs by securing the representation of all categories of users. Proposed climate change adaptation activities for the fiscal year 2071/72 and their implementation status were discussed in the focus group discussions.

Informal discussions were carried out with different key informants: executive committee members, teachers, elder persons, local leaders and social workers to get the overall general

information on CAP implementation and check the information collected in the focus group discussion. Secondary sources of information such as CFUGs and DFO records and other literatures were also reviewed.

The climate change adaptation activities proposed in CAPs were categorized into six categories in accordance with the NAPA (2010) climate change impact area.

- i. Agriculture and Food Security
- ii. Forest and Biodiversity
- iii. Water Resources and Energy
- iv. Climate Induced Disasters
- v. Physical Infrastructures
- vi. Human Health

Data obtained were fed into Ms-Excel and Statistical Package for Social Sciences (SPSS) and analyzed accordingly. Chi-Square test and one way Analysis of Variance (ANOVA) were used as statistical tool for analyzing data. Results were presented in the tabular and graphic form. Physical progress and financial progress of the CAPs were calculated by employing following formula.

$$\text{Physical progress} = \frac{\text{Quantity of work done}}{\text{Quantity of work proposed}} * 100 \%$$

$$\text{Financial progress} = \frac{\text{Budget spent}}{\text{Budget proposed}} * 100 \%$$

Results and Discussions

Adaptation Activities

Altogether 26 climate change adaptation activities were proposed for the fiscal year. Highest numbers (7) of activities are proposed in forest and biodiversity and human health sectors and lowest number (1) is in water induced disaster sector. The highest number of activities in biodiversity and health sector implies that CFUGs are giving more emphasis in these sectors as these sectors were more adversely affected by climate change than other sectors.

Plantation, weeding, fire line construction, health awareness, water source protection, unseasonal crop cultivation training were the major activities proposed in CAP. Nearly half of the adaptation activities (46%) were found to be completed, 35 % activities were not implemented and 19% activities were implemented but not completed (Figure 2). This shows half of the activities proposed in CAPs remained unimplemented. Chi-Square test showed that there was no association between the program implementation and climate change impact area (P=0.380) (Table 1).

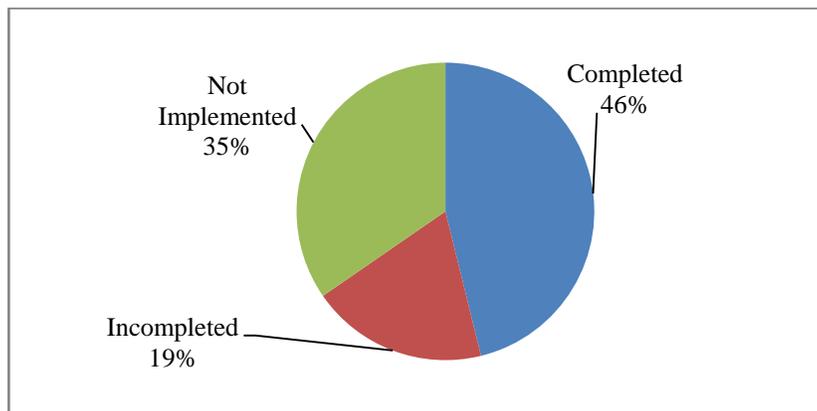


Figure 2 : Implementation status of CAP's activities

Table 1 : Chi-square and P-value obtained to test the association between program implementation and impact area

Categorical variable	χ^2 Value	df	P-value
Impact area	26.52	25	0.380

Proposed Budget and Expenditure

Total budget of NRs. 1245000 was proposed for carrying out activities in the fiscal year 2071/72 (Table 2). The highest budget was allocated in the physical infrastructure sector (NRs. 395000) and lowest budget was allocated for the water induced disaster sector (NRs. 55000). A total expenditure of NRs 342000 was made in the same fiscal year (Table 2).

Table 2 : Annual proposed budget and expenditure in fiscal year 2071/72

Adaptation Activities	Proposed Budget	Expenditure
Agriculture and food security	218000	60000
Forest and biodiversity	126000	70000
Water resources and energy	320000	95000
Water induced disasters	55000	17000
Physical infrastructure	395000	40000
Human health	131000	60000
Total	1245000	342000

Table 3 : Significance of proposed budget and expenditure according to Climate Change Impact Area

Categorical value	Proposed Budget	Expenditure
	F-value	F-value
Impact Area	12.44* (0.000)	1.26 (0.317)

Numbers in parenthesis show the P-value

*Significant at 5% level of significance

The purposed budget is highest (32%) in physical infrastructure sector but in terms of expenditure only 12% budget is spent in this sector (Figure 3). The share of total proposed budget by the agriculture and food security, forest and biodiversity, water resources and energy, human health and water induced disasters is found 17%, 10%, 26%, 11% and 4% respectively while the share of total expenditure by these field is found 18%, 20%, 28%, 17% and 5% respectively. One way ANOVA showed that proposed budget was significantly different with different impact area (P=0.000) but no significant difference was found in the expenditure in different impact area (P=0.317) at 5% level of significance (Table 3). Highest expenditure in water resources and energy sector is the results of the user's increased concern and priority to conserve the drinking water sources.

Table 4 : Physical and financial progress of CAPs

Adaptation Activities	Physical progress	Financial progress
Agriculture and food security	40.00	27.52
Forest and biodiversity	45.71	55.56
Water resources and energy	50.00	29.69
Water induced disasters	100.00	30.91
Physical infrastructure	16.67	10.13
Human health	33.33	45.80
Total	41.79	27.47

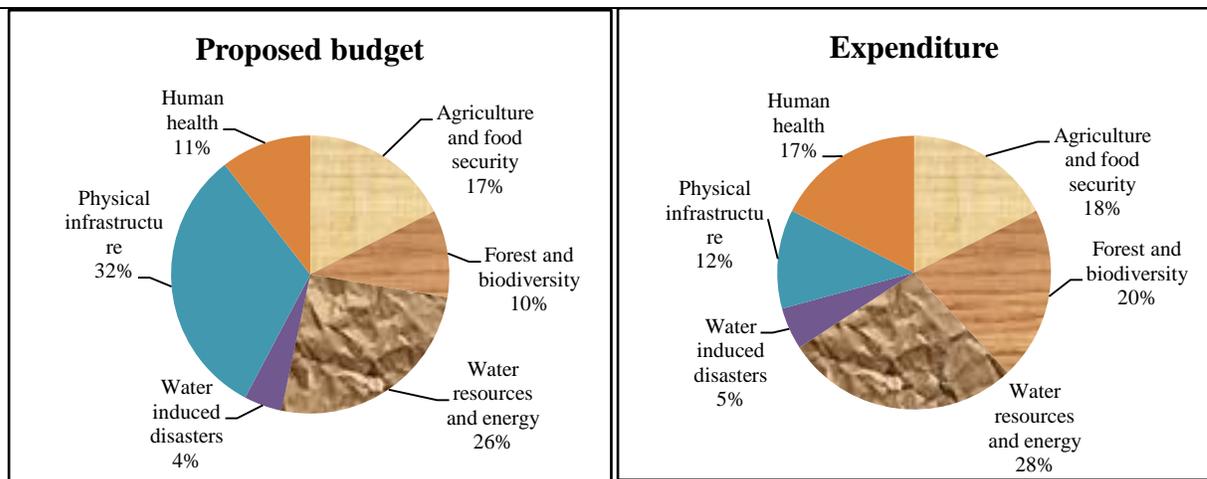


Figure 3: Percentage of proposed budget and expenditure in different sectors

Table 4 presents data about the physical and financial progress of CAPs in the fiscal year 2071/72. The aggregate physical progress is found to be 41.2 % with maximum progress (100%) in water induced disasters sectors and minimum progress (16.67%) in physical infrastructure sector. Aggregate financial progress is found to be 27.47% with maximum progress (55.56%) in forest and biodiversity sector and minimum progress (10.13%) in physical infrastructure sector.

In focused group discussion, users said that the low progress in physical infrastructure is caused by the two reasons. One is the lack of local people's knowledge for constructing infrastructure and the other is lack of funding support from the concerned agencies for

carrying out these activities. Regmi and Bhandari (2011) also found that financing is the barrier for carrying out adaptation activities.

Conclusion

Only half of the adaptation activities were found to be completed in the studied CFUGs. Highest budget was allocated for physical infrastructure sector in CAP but the highest expenditure in water resources and energy sector is the results of the user's increased concern and priority to conserve the drinking water sources. The aggregate physical progress is found to be 41.2 % and aggregate financial progress is found to be 27.47%. This condition is created due to the lack of integration and mainstream of CAPs in the governmental agency's annual development program. Timely assessment of implementation status of CAPs and mainstreaming these plans in the local level development plan like VDC, DDC is recommended for improving implementation.

Acknowledgement

We would like to acknowledge WWF/Hariyo Ban Program for funding support to carry out this study. We also want to give a lot of thanks to the staffs of District Forest Office, Parbat, Li-BIRD, FECOFUN, Parbat and local people for their help.

References

- Agrawal, A., Perrin, N., Chhatre, A., Benson, C. and Cononen, M., 2009. Climate Policy Processes, Local Institutions and Adaptation Actions: Mechanisms of Translations and Influence. Social Development Paper 119. Washington D.C: The World Bank pp. 1-16.
- Ayers, J. and Forsyth, T., 2009. Community-based adaptation to climate change: strengthening resilience through development. *Environment (Washington)* 51(4): 22-31.
- Barrueto, A., 2014. Rhetoric and reality of climate policy in Nepal: National and Local Adaptation Programme of Action (NAPA and LAPA) to Climate Change on Paper and in Practice pp. 4-15.

- DFO, 2013. Annual Monitoring Report. District Forest Office, Parbat, Nepal, pp. 1-5.
- DFO, 2015. Annual Monitoring Report. District Forest Office, Parbat, Nepal, pp. 1-5.
- GoN, 2011. Climate Change Policy, 2011. Government of Nepal, pp. 1-11.
- GoN, 2011. National Framework on Local Adaptation Plans for Action. Government of Nepal, Ministry of Environment, Singhdurbar, pp. 1-20.
- Heltberg, R., Siegel, P. B., Jorgensen, S. L., 2009. Addressing human vulnerability to climate change: Toward a no-regrets' approach. *Global Environmental Change* 19(1): 89-99.
- Huq, S. and Reid, H., 2007. Community Based Adaptation. IIED Briefing pp. 1-2.
- IPCC, 2007. Climate change 2007- The physical science basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Solomon, S.; Qin, D.; Manning, M.; Chen, Z.; Marquis, M.; Averyt, K. B.; Tignor, M.; Miller, H. L., eds. Cambridge and New York: Cambridge University Press, 1-989.
- IPCC, 2014: Summary for policymakers. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32.
- MSFP, 2015. Local Adaptation Planning in Forestry Sector : Process Guide Book. Multi Stakeholder Forestry Program, Nepal pp. 1-13.
- Paudel, G., 2015. Forest Resource Income Variation in Midhills of Nepal; A Case Study from two CFUGs of Parbat District, Nepal. *International Journal of Environment* . 4(3):1-10.
- Paudel, N. S., Khatri, D. B., Ojha, H., Karki, R. and Gurung, N., 2013. Integrating Climate Change Adaptation with Local Development: Exploring Institutional Options. *Journal of Forest and Livelihood*. 11(1):1-13.

- Regmi, B. R., 2011. Revisiting Community Based Adaptation. NGO Network Bulletin on Climate change. pp. 11-17.
- Regmi, B. R. and Bhandari, D., 2013. Climate Change Adaptation in Nepal: Exploring Ways to Overcome the Barriers. *Journal of Forests and Livelihood*, 11(1):43-61
- Regmi, B.R. and Karki, G., 2010. Local adaptation plans in Nepal. *Tiempo*, pp. 21-25.
- Regmi, B. R., Morcrette, A., Padyal, A., Bastakoti, R. and Pradhan, S., 2010. Participatory Tools and Techniques for Assessing Climate Change Impacts and Exploring Adaptation Options. *Livelihood and Forestry Programme, Nepal* pp 1-5.
- Tiwari, K. R., Rayamajhi, S., Pokharel, R. K. and Balla, M. K., 2014. Does Nepal's Climate Change Adaptation Policy and Practices Address Poor and Vulnerable Communities? *Journal of Law, Policy and Globalization*. Vol. 23: 28-38.
- UNFCCC, 1992. United Nations Framework Convention on Climate Change convention text. Accessed at <https://unfccc.int/resource/docs/convkp/conveng.pdf> 4th, February, 2015, pp. 1-25.
- World Bank, 2010. Nepal. Available at: <http://data.worldbank.org/country/nepal> Accessed at 16.02.2015.