CAPRi Workshop on Collective Action, Property Rights, and Conflict in Natural Resources Management

June 28 – July 1, 2010
Siem Reap, Cambodia

Political Conflicts and Community Forestry: Understanding the Impact of the Decade-Long Armed Conflicts on Environment and Livelihood Security in Rural Nepal

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This paper has been prepared for presentation at the CAPRi Workshop on Collective Action, Property Rights, and Conflict in Natural Resources Management. The present version has not undergone review.

In this paper, we investigated the impact of the decade-long Maoist armed insurgency on three major resource management outcomes with regard to the community-based forest management in Nepal: governance, livelihoods, and environment sustainability. Field studies combined qualitative (interview and participant observations, focused group discussions) and quantitative methods, such as a household survey. Secondary data available from various sources was also assessed. Although the period of armed insurgency was to blame for the destruction of local level infrastructures and the crisis of governance, the empirical analysis confirmed that that there was no marked impact as a result of the armed conflict on the governance regime of CFUGs, nor to access to forest products. The central government was dysfunctional during much of the insurgency, but local forest management by CFUGs continued to operate effectively. Although the study reported a few incidents of clear cutting of community forests for security purposes, there was no marked difference between "before" and "during" situation in terms of community forest based environmental services associated with CF such as greenery, biodiversity conservation, watershed protection, erosion and landslide control and household income. We concluded that the resilience of local management institutions was crucial to cope with the armed conflicts at the local level during the period of Maoist conflict.

Keywords: Political conflicts, Community forest governance, livelihoods

1. INTRODUCTION[1]

Community forests (CF) are widely considered an important vehicle for the environmental and livelihood security for the majority of the rural population as well as halting forest degradation, improving the supply of forest products, and improving the capacity for collective action and strengthening local level resource governance (Acharya 2002: 54; Bhattarai and Khanal 2005: 65; Acharya 2005: 46; Kanel, Poudyal, and Baral 2005: 80-81; Dangal 2002; Dev et al. 2003: 64-75; Dev and Adhikari 2007: 162). Governments in more than 50 countries are ceding some control over resources to local users (Agrawal 2001). Devolution of forest management has been underway in Nepal since the late seventies when national forests were handed over to the local community as a community forest (CF). The government has given substantial authority to local users to manage the local forest independently through the amendments in forest law and regulations. Community forest users are managing the forest to meet their demand for forest products and also to generate income for community development (Dev and Adhikari 2007: 162; Ojha et al. 2007: 2; Springate-Baginski et al. 2007: 365). The Government has been issuing a number of policy initiatives to encourage participation of rural households in order to strengthen community-based institutions for the control and sustainable management of local forest resources. Forest User Groups (FUGs) are being encouraged to become independent and self-governing organizations, and be fully involved in

[1] This essay draws on research based on first author's PhD study. The authors would like to thank Associate Professor Dr. Carol Warren, Fellow, Asia Research Centre at Murdoch University, WA for valuable comments and suggestions.

preparing plans, harvesting, and sharing benefits (Gautam, Shivakoti, and Webb 2004b: 139). As of July 2009, out of the 3.5 million hectares of potential CF in the country (which is 65% of the total forest), the government of Nepal has handed over 1.23 million hectares (35.14%) of government managed forests to 14,460 CFUGs, involving 16, 60,000 households, that covers more than 35% of the population of the country (Kandel, 2009)[2]. The CFUG is now one of the biggest grass root organizations in the villages of Nepal.

Although, Nepal has been at the forefront of community-based forest governance (CBFG), donor community, government, resource planners, civil society and academia have been concerned about the sustainability of the community-based forest management, especially with the onset of Maoist insurgency in 1996, and the subsequent political conflict over the next 10 years. During the ten years of Maoist insurgency in Nepal, it has been reported that most of the forestry department's office and range post were destroyed (LFP 2007). Out of 75 district offices, forestry offices in 67 districts were fully or partially destroyed. During the insurgency period, office buildings of 30 District Forest Offices (DFO) buildings, 52 Illaka Ban Karyalaya (Area Forest Office), 235 Range Posts, 2 Forestry Training Centre, and 3 Armed Guard Quarter were partially or fully destroyed amounting a total loss of NRS 311.7 million[3] (DoF, 2008)[4] . After the destruction of Illaka Ban Karyalaya (Area Forest Office) in rural areas, most of the forest administration was operating from the District Forest Office (DFO); thus, the service delivery and technical support to community forest user groups (CFUGs) were heavily curtailed. Beside that many CFUGs members and forestry staff were killed (Baral and Heinen 2006: 8; LFP 2007: 2). National park in Nepal used to be under the security of the Nepal Army, however, when the armed conflict was in climax, security forces patrolling the national park were deployed to fight against the army. Due to lack of security, many filed offices and staffs of the national park as well as of the conservation area were displaced (like Makalu-Barun National Park in the eastern hills of Nepal, Dhor Patan Hunting Reserve in the western Hills), which increased the incidence of poaching and illegal logging (Gajurel 2004).

During the insurgency, forests have been cleared for military installations, and training sites by both conflicting parties. The forest was used by CPN-M to train their People's Liberation Army (PLA) and also as hide outs. Similarly, government also used the CF as training sites for security forces and to establish additional security barracks for the Royal Nepal army as well as for Armed Police Force (APF) (Khanal 2006). Those areas of forest where security barracks have been established were restricted to the general public, preventing forest access to the community and affecting the livelihoods of local people. It is reported that during the insurgency CPN-Maoist imposed a Yuddha kar (war tax) on CFUGs, contractors engaged in transactions of forest products (LFP 2007: 3). During the period of the direct rule of the King (February 2005 to April 2006), many CFUGs in the Eastern and Far-Western Development Region were suspended and their bank accounts were closed by Zonal and Regional Administrator for fear that the resources generated from CFs may fall into the hand of the rebels(LFP 2007: 3).

This paper explores and analyses the impact of the decade long armed conflict (commonly known as Maoist insurgency) on the community-based forest governance, environment and livelihoods of forest dependent mountain communities in Nepal. Most specifically, it deals with the impact of prolonged armed conflict (PAC) on the management and governance of community forest resources, access to and benefits sharing from these resources, and likely effects on the livelihoods and environmental on

[2] Data received through email from Mr. Balaram Kandel, Forest Officer, Government of Nepal, Department of Forest, and Community Forestry Division on February 5, 2010.

[3] 1 US$ equivalent to 70 Nepali Rupees

[4] The data on damage to forestry infrastructures was received on July 20, 2008, from Mr. Ram Bhakta Malla, Under Secretary (Technical), National Forest Division, Department of Forest, Babarmahal, Kathmandu, Nepal.

rural communities in the Middle-hills region in Nepal. There is a considerable gap in the evidence available on the effectiveness of community forests in providing livelihood support to users especially to the poor and disadvantaged people before the onset of armed conflict and distribution of benefits and governance of community forest resources during the period of prolonged armed conflict (PAC). Based on a case study of three community forest user groups (CFUGs) in the Kavrepalanchok district in the Middle-hills of Nepal, this paper aims to address how forest management and governance of these resources by the local community operated during the PAC, and what kind of coping strategies were adopted by communities to sustain community forest management activities and secure their livelihoods resulting from the shocks and stress of armed conflict. The armed insurgency was experienced for a decade i.e. from 1996 – 2006. Depending upon the severity of conflict based on the incidence of violence and destruction of infrastructure, 1996 to 2000/01 was considered before conflict period and 2001/02 to 2007/07 was considered during the conflict period for the sake of this study.

2. ARMED CONFLICT AND NATURAL RESOURCE MANAGEMENT

Since the end of World War II, armed conflict becomes a widespread phenomenon, posing serious problems for environmental and human security. Over the period 1946 – 2001, 225 armed conflicts erupted; and in 2005 alone, 32 armed conflicts were still active in 22 locations around the world (Gleditsch et al. 2002: 616; Harbom and Wallensteen 2007: 623). In recent decades, the concept of environmental security has been emerging as a major discourse in the field of environmental politics. More specifically, from the deepening public concern in the 1960s and 1970s over environmental degradation, there was growing interest among scholars to explore the linkage between environmental degradation, violent conflict and human security (Brown 2005: 1). Generally during a period of armed conflict the governance structure is weak and lacks control and the ability to assure access to and protection of resources. Communities are always sandwiched between rebels and the state, and environment conservation programs are under threat during the armed conflict (Shambaugh, Oglethorpe, and Ham 2001: 13-14).

It is argued that armed conflict drastically changes the social, economic and political structure of the society. It directly affects existing power relations, failure of law and order and disturbs the local economy. Conflict divides the society, undermining the local resource conservation initiatives and destabilizing the system of resource governance. The reason for the outbreak of conflict may vary but as the conflict is there it accelerates resource degradation and leads to further scarcity and compounds the vicious cycle of poverty (Shambaugh, Oglethorpe, and Ham 2001: 11-12). Beside destruction of life and property armed conflict may destroy or degrade forest, water, biodiversity, crop land and other natural resources. Moreover, the political instability and social disorder created by armed conflict may weaken environmental institutions and resource governance, and disrupts the conservation efforts thus ecosystems suffer even after the end of war (Orr 2002: 139). It is argued that the connection between conflict and resource governance and their impact on local environment depends on many factors including the type, intensity and duration of conflict and the impact of conflict also vary within the country itself. Conflict affects people's livelihood in numerous way as the social, economic, and political sphere change dramatically and people become more vulnerable. Moreover, there is considerable deterioration in security, education, health, food security, and infant mortality during conflict and this is borne differently by different groups of people (Collinson 2003: 10-11). During armed conflict, short term human needs for shelter, food and security get priority; and thus, environment conservation and sustainable resource management may receive low priority, which exacerbates resource exploitation. The breakdown of law and order during armed conflict creates a favorable environment for poachers of protected flora and fauna (Baral and Heinen 2006: 8). In most of the cases, conservation infrastructures were destroyed and many forestry and national park

staff were displaced. One study showed that in the Central African Republic, 90% of the elephant population was reduced by illegal hunting and poaching during the armed conflict between 1996 and 1997(Blom and Yamindou 2001: 14). Civil war in Cambodia resulted in the loss of 29% of its primary forest which was used both by the Khmer Rouge and the government for funding military expenses (Renner 2002; Le Billion 2000), the net loss of forest in Cambodia between 1990 to 2005 alone was 19 %(FAO 2006: 197).

It is evident that even after the end of armed conflict governments are not capable of effectively managing their natural resources due to weak and broken institutions, lack of funding, manpower and priority from the government. Studies conducted in sub-Saharan Africa indicate that, suggest that even after the end of war, international financial and technical support to conservation programs was not restored(Glew and Hudsona 2007: 147).

Armed conflict affects the ability of non-governmental organizations (NGOs), civil society, the media and resource users to access information, as well as to meet and discuss resource management issues. Similarly, the ability of NGOs who are actively involved in environmental education and natural resource conservation either hindered or ceased as their funding through international agencies is curtailed (World Resource Institute (WRI) 2003: 27; Regional Environmental Center (REC) 1997: 35). In many instances such as in Sierra Leone, Central African Republic and Ethiopia, donor support to various conservation programmes was curtailed due to the atmosphere of insecurity and violence (Squire 2001: 24). The World Bank and European Union (EU) supported conservation projects were also severely affected during the armed conflict in the Central African Republic, where infrastructure including buildings, equipment, vehicles, and database were destroyed by rebels, leading to suspension of the project. The cessation of conservation programmes directly affected the operation of anti-poaching units and sustainable forest management activities (Blom and Yamindou 2001: 17-18). A similar study conducted on the impact of conflict on the environment in sub- Saharan Africa suggests that most of the damage to the environment is found to be from non-military personnel taking the advantage of anarchy and lawlessness during the period of violent conflict (Glew and Hudsona 2007: 141-147).

In the post-war situation, where government and traditional and local authorities are in a disorganized state, illegal loggers and poachers takes advantage to exploit timber and wildlife inside and outside of protected areas for quick benefit as occurred in Mozambique (Hatton, Couto, and Oglethorpe 2001: 43-48). In addition, wildlife was exploited, conservation infrastructures were destroyed and conservation staff were displaced, creating a vacuum for illegal hunters and traders to exploit the natural resources. At the same time, however, the displacement of large numbers of people from villages reduced the slash and burn practices and reduced livestock activities, enabling natural regeneration and increasing the timber stock as illegal harvesting of timber was greatly reduced (Hatton, Couto, and Oglethorpe 2001: 51). During the civil war in Rwanda between 1990 -1994, there was massive deforestation in Gishwati and Mukura forest and the loss of 70% of the Akagera National Park. However, in other cases even during the period of severe armed conflict and political instability some of the forest areas were kept in good condition primarily due to the conservation activities carried out by NGOs (Plumptre, Masozera, and Vedder 2001: 27). Those countries which experienced the armed conflict not only witnessed heavy loss of life and property, disruption of socio-economic infrastructure, and cultural shock but also faced exploitation of natural resources, damage to conservation programs and infrastructure making people that depend directly on these resources, yet more vulnerable.

Most of the study conducted in Nepal and elsewhere suggests that armed conflict has severe impact on government forestry infrastructure, forestry administration, negative impact on national park and forest management, and results in increases in illegal logging, hunting and displacement of

conservation staffs from field offices and curtailent of financial resources from the donor as well as from the government(Squire 2001: 24; Regional Environmental Center (REC) 1997: 35; Glew and Hudsona 2007: 147; Baral and Heinen 2006: 8; Blom and Yamindou 2001: 14; World Resource Institute (WRI) 2003: 27).

While analyses of civil conflict as a consequence of resource scarcity and resource competition are abundant (Cramer 2003; Ohlsson 2000; Homer-Doxon 1999; Ullman 1983; Kaplan 1994), hardly any systematic study has been conducted to uncover how community-based governance of the CPRs functions during extended periods of armed insurgency or the degrees of resilience of these communities and their ability to cope adapt with the such shocks and disturbances created by conflict. In a country like Nepal, where community forest occupies a great role in the local economy, rural development, and local level resource governance, the issue of how armed conflict affects people's livelihoods, forest governance and its sustainability remains a challenge for all the concerned. There is a considerable gap in the evidence available on the effectiveness of community forests in providing livelihood support to users especially to the poor and disadvantaged people before the onset of armed conflict. Similarly, there is little known about the access to, distribution of benefits and governance of community forest resources during the period of prolonged armed conflict (PAC). Consequently, through investigation, this research will fill a serious gap in our understanding of the impact of the conflict on community-based forest governance by comparing the CBFM before and during the period of armed insurgency, which may provide a useful and basis for post conflict policy and planning at the local level.

3. STUDY SITES, DATA AND SURVEY METHODS

For this study, a combination of both documentary analysis and field research was conducted. Field studies combined qualitative (interview and participant observation, focused group discussion) and quantitative (household survey) methods. Information available from the Nepal-Australia Community Resource Management and Livelihood Project (NACRMLP), the District Forest Office and Department of Forestry were also used. Three Community Forest User Groups (CFUGs) were selected for the case studies with three different characteristics related to the conflicts during the insurgency: i) Community forest (CF) areas dominated by security forces, ii) CF area dominated by Maoist insurgents and, iii) CF dominated by neither the Security forces nor the Maoist. Forty five households were selected from each CFUG, representing 15 households each from high-income, middle-income and low-income groups respectively. Field studies combined qualitative (interview and participant observations, focused group discussions) and quantitative methods, such as a household survey. Secondary data available from various sources was also assessed. Fieldwork was conducted from February to July 2008 was conducted in the "Kavrepalanchok" district, in the Middle-Hills region of Nepal, to collect the data. The study district has been the site of a pioneering project for the inception of community forestry programs in Nepal because of its four decades (1966-2006) long partnership through a community forestry and resource management project between the Nepalese and Australian governments.

The CFUGs selected for these studies were Sharada Devi, Hile Jaljalke (Ka) and Lakuri Rukh. The Sharada Devi CFUG is located closer to the district centre and is relatively accessible to the market. The second case study CFUG, the Hile Jaljale (Ka) CFUG is located 7 km away from commercial town Banepa uphill north-west corner of Kavrepalanchok district. The third case study site, the Lakuri Rukh CFUG is relatively remote among three case study sites and also has the least access to the market. Table 1 presents the bio-physical characteristics of these three user groups.

Table 1: Bio-physical characteristics of three case study CFUGs

Description	Sharada Devi	Hile Jaljale (Ka)	Lakuri Rukh
Official handover of forest	July 3, 1995	January 1991	July 8, 1996
Total area of forest (ha.)	44.25	118.14	63
Forest area/household(ha)	0.26	0.49	0.86
Per capita forest area	0.05	0.08	0.14
Number of Forest blocks	5	7 Blocks (27 Sub-blocks 7 Working Circles)[5]	5
Aspect	North-east	South – West and North-East	North – East and South - West
Slope (degrees)	20 - 40	10-25	10 - 45
Canopy coverage (%)	60	65	35-40
Age of forest (years)	25 years	20	23 years
Average altitude (meters) above sea level	1500	2020	2100
Major forest species	*Castanopsis indica (Roxb.), Schima wallichii, Pinus spp., Myrica esculenta, Myrsine semiserrata wall*	*Pinus patula, Pinus walichiana, Schima wallichii, Rhododendron, Castanopsis indica, Aangeri, Kafal*	*Pinus patula, Pinus walichiana, Alnus nepalensis, Michelia champaca*

Source: Sharada Devi, Hile Jaljale (Ka) and Lakuri Rukh CFUGs Operational Plan, 2008

Table 2 presents the socio-economic status of households in the three CFUGs. The dependency of households on community forest, as indicated by fuel wood dependence, is high in Hile Jaljale and Lakuri Rukh CFUGs as compared to Sharad Devi. It can be concluded from the data that those CFUGs which are located in remote areas and with less access to market were predictably more dependent on community forest for household energy needs (primarily firewood) than CFUGs that are comparatively less remote and have easy access to markets.

[5] A Working Circle is a unit of forest area within the community forest, which is divided according to different management objectives. Generally forest area is divided into different working circles based on accessibility, geographic location and also on the nature and form of the forest produce available. Working circles tend to be relatively large units and include number of blocks and sub-blocks.

Table 2: Household characteristics (mean values from sample) of CFUGs

Attributes	Sharada Devi	Hile Jaljale	Lakuri Rukh
Household size (no.)	6.1	6.9	5.9
Annual household income(NRS)	151,915	111,081	72,187
Annual household income(US$)[6]	2,053	1,501	975
Average age of household head(yrs)	54.68	47.53	47.30
Literacy of household head (%)	71.1	71.0	57.8
Household with:			
Electricity (%)	97.8	93.3	13.3
Piped water (%)	82.2	95.6	95.6
Telephone (%)	82.2	68.9	28.9
Audiovisual owned (%)			
Radio (%)	73.3	93.3	95.6
Television (%)	88.9	82.2	17.8
Source of household energy (%)			
Fuel-wood	68.9	95.6	97.8
LPG Gas	31.1	2.2	2.2
Briquette	-	2.2	-

Source: Author, Field survey, 2008

A wealth ranking of households shows that more than 50% of the households in Sharada Devi belong to middle-income groups, while 20 % and 26% of the households belong to low-income and high-income groups respectively (Table 3). In Hile Jaljale (Ka) more than 50% of households belong to middle income, 12 % to high income and 30 % of households to low-income groups. In Lakuri Rukh CFUG, more than 50% of the households belong to the low-income group and the remaining 48 % are roughly evenly divided between high and middle income groups. These statistics indicates that those CFUGs which are in close proximity to the district centre and have easy access to market, are economically in a good position relative to those CFUGs which are remote and have more limited access to the market.

Table 3: Wealth ranking of CFUGs

Name of CFUG	High-income	Middle-income	Low-income
Sharada Devi	26	54	20
Hile Jaljale (ka)	12	58	30
Lakuri Rukh	23	25	52

Source: Compiled from CFUGs record

CFUGs which are situated relatively further from local markets have more land holdings, a larger allotment of *kharbari*[7] , and less productive land compared to CFUGs which are nearer to the district centre. However, those CFUG which are nearer to the district centre have more productive land and a smaller size of kharbari.

[6] 1 US$ equivalent to Nepali Rupees(NRS) 74

[7] Kharbari is a private land designated especially for growing grass (including thatching grass) and trees to supplement the household's needs of grass, fuel-wood and timber, especially when the demand cannot be fulfilled from government owned or communal forests. Generally in the middle hills of Nepal most of the farmers allocate some land as kharbari, however, the size of such land holding vary according to economic status.

Table 4: Mean land holding per household in three CFUGs

	Mean land holding (*ropani*)[8]		
	Sharada Devi	Hile Jaljale (Ka)	Lakuri Rukh
Irrigated land (*Khet*)	2.05	3.26	0.77
Unirrigated land	0.26	0.09	-
Bari (upland)	4.52	4.83	12.42
Kharbari	0.26	0.87	7.58
Total	7.09	9.05	20.00

Source: Field survey by author, 2008

4. RESULTS AND DISCUSSION

4.1 GOVERNANCE OUTCOMES

In all three cases, the CFUG General Assembly (GA) is the supreme body, which has the mandate of preparing the CFUG constitution, preparation and amendment of the operational plan, approval of annual program, formation of CFUG executive committee, assigning the roles and responsibilities of the executive committee members, and preparation of rules of financial transaction and fund mobilization. According to the CFUG's constitution, it is mandatory to convene the meeting of the GA once a year. The information about the GA meeting should be given to its members with agendas at least seven days before the date of meeting. The meeting of the GA convenes when two thirds of the CFUG members are present. The issues and agenda in the GA and executive committee meeting are presented by the Chairman. However, CFUG members are free to raise any issues in GA meeting related to community forest for discussion. Decisions are made after thorough discussion in GA meetings as well as in EC meetings. Most of the decisions about CF are based on consensus. In general, it was found that the participation of local people in the CFUG activities has been generally satisfactory from the beginning of the community forestry program to the present. The reason for sustained participation of villagers in the community forestry program, according to forest users is because the dependency on community forest for fuel-wood, timber, fodder and leaf litter, which is an essential component of local farming system.

During fieldwork, it was found that CFUGs had implemented a policy of nominating members representing every hamlet to make the committee representative in terms of spatial coverage. Recently, all CFUGs have adopted a policy of nominating at least 33% women representatives and 10% from disadvantaged groups. In order to increase the voice of women in CFUG policy formulation and implementation of CFUG activities, the Hile Jaljale (Ka) CFUG has constituted an 11-member 'Women's Hamlet Committee' – one woman representing from each hamlet of the CFUG. However, data shows that there was not a single representative of women on the Sharada Devi CFUG executive committee from 1993-1995. From 1995 -2000, women's participation fluctuated. Since 2000, there has been a rise in women's participation, and finally in 2007 it reached 38 per cent. Similarly, in Hile Jaljale (Ka) CFUG, in the period between 1997– 2004, there was no representation of women in CFUG committee, however, since 2004 women have occupied 36% of the CFUG committee. In Lakuri Rukh CFUG, the period between 1995 -2001, women's representation was 11 %; however, it increased to 22% between the periods 2000 – 2007 and finally reached to 33% in 2007. These data indicate that overall representation of women in CFUG executive committee is gradually increasing. In similar vein, women's participation in the general assembly meetings has been found to be much lower than that of their counterpart in all three case study sites. In 1994 -2006

[8] 1 ropani is approximately 500 square meters, making 20 ropani to the hectare

the average participation of women in the GA meeting of Sharada Devi and Hile Jal Jale (Ka) CFUGs was 9 % and 11% respectively. While, that of Lakuri Rukh CFUG was 28%.

The CFUG GA and CFUG executive committee (EC) are the decision-making and program implementing bodies, whose functioning and frequency of meeting are important indicators of sustainability of community-based forest governance mechanisms established as part of the CF program. Data collected during fieldwork about the status of GA and EC meetings shows that the GA meetings of the Sharada Devi CFUG, convened regularly from 1993– 2006, although the CFUG encountered difficulties in organizing a general assembly meeting during the intense period of conflict (2000 – 2005). Similarly, the Executive Committee (EC) meeting of CFUG convened regularly, again with a slight reduction in the number of meetings conducted during the period of conflict. The Hile Jalajle (Ka) CFUG also experienced difficulties due to its location near to the Nagarkot army barrack, which is also an "army training zone". A small portion of the CFUG area was occupied by security forces during the period of conflict. The CFUG was able to carry out GA meetings except in the year 2002 and 2003. There was also a reduction in the number of EC meetings in those two years. The Lakuri Rukh CFUG, which was under the influence of Maoist rebels, also encountered difficulty in organizing GA meetings. However, the CFUG did manage to carry out the GA and EC meetings regularly throughout the conflict period, with the exception of 2005. A slight reduction in the number of meetings of executive committee was observed during the intense period of conflict.

CFUGs encountered difficulties in organizing a general assembly meeting mainly due to the order issued by the District Administration Office (DAO) requiring permission for organizing mass meetings and more generally due to the deteriorating law and order situation. However, besides all these difficulties, CFUGs continued their meetings and were able to carry out community forest governance and forest management activities. As CFUG general assembly meeting is an important forum to steer the community forest governance activities, the CFUGs were keen in organizing the GA meeting and also carrying out the forest management activities. According to the CFUG executive committee members, they work hard to coordinate with District Administration Office (DAO) and local security forces to organize the meeting and carry out forest management activities without undesirable incident. Similarly, CFUG also has close coordination with Maoist local leaders and informed them in advance their activities, especially in the Maoist controlled area.

In terms of equity of forest product distribution, all CFUGs in the case study sites have adopted a policy of positive discrimination toward disadvantaged groups in distributing forest products. Households that belong to lower socio-economic strata, especially the poor, landless, and the blacksmith groups receive a certain amount of timber and fuel wood free of cost. Besides that, households received free timber for the construction of houses damaged by natural disasters like earthquake, fire and other calamities. The Hile Jaljale (Ka) also adopted a policy to assign subsidized rates for selling forest products to those households that belong to disadvantaged groups. Similarly, the Sharada Devi CFUG has a policy that those households that belong to lower economic strata do not have to pay annual membership fees. The Lakuri Rukh CFUG has a policy to provide 100 cubic feet of timber free of cost for community development works and wood required for making agricultural implements.

There was decline in the amount of forest products collected during the period of conflict, especially in Hile Jaljale (Ka) and Lakuri Rukh CFUGs. The greatest decline in forest product collection was found in timber, fodder, grass and leaf litter and the smallest declines were in firewood collection. However, in Sharada Devi CFUG there was not any impact of the conflict on forest products collection. During the interview with CFUG members in Lakuri Rukh and Hile Jaljale (Ka) CFUG members said that the decline in forest products collection did not have any significant impact on their livelihoods. During conflict period, villagers went to the forests cautiously only to collect those forest

products which were absolutely necessary, mainly firewood, leaf litter and fodder, depending upon the security situation in the village. During the course of the interview, CFUG members said that they adopted a practical strategy of "wise use and minimum use". Besides that, they also used forest products from their private land, when it was risky entering to the forest. This fact is also supported by the amount of kharbari land holding owned by each income category. The mean land holding of private forest is much higher in Hile Jaljale (Ka) and Lakuri Rukh CFUGs, which suggests that the households fulfill their needs of forest products from the trees in their farmland.

4.2. LIVELIHOODS OUTCOMES

4. 2.1 Status of household Income in Case Study Sites before and during Conflict

Data collected on household income in Hile Jaljale (Ka), Lakuri Rukh and Sharada Devi CFUGs shows that during the period of conflict the household income was increased by 1.92%, 22.58% and 43.65%, respectively (Table 5). The increase of household income is not primarily due to dependence on community forest, however, community forestry has played an important role in supporting income especially contribution of CF on animal husbandry, agriculture and support to household energy needs in lower income households.

Table 5: Mean household income (NRs), all categories (for all sample households)

CFUGs	Mean annual household income (NRs), all income category combined		
	Before conflict	During conflict	Change (%)
Sharada Devi	103,135.27	148,153.50	+43.6
Hile Jaljale (Ka)	108,989.11	111,081.20	+ 1.9
Lakuri Rukh	58,933.83	72,242.24	+22.6
Total	271,058.21	331,476.94	+ 22.3

Source: Field survey by author 2008

Specifically in Sharada Devi CFUG, the household income among high, middle and low-income households was increased by 56%, 28% and 30% respectively. Among three case studies, the increase of household income in Sharada Devi CFUG during the conflict period was remarkable. Households were able to augment their income through various means like vegetable farming, dairying, small, animals, service employment, self employment and overseas employment.[9]

[9] World Bank (World Bank 2006: 3) shows that between 1996 and 2004, the share of remittance in GDP almost trebled from 4.5% to 12 percent. Surprisingly, the poverty rate declined dramatically between 1995-96 and 2003-04, from 42 percent to 31 percent, a decline o f 3.7 percent a year(World Bank 2006: 5)

Table 6: Mean household income (NRs) before and during conflict by income category (for all sample households)

Community Forest User Groups			
Income group	Sharada Devi	Hile Jaljale (Ka)	Lakuri Rukh
Low-income			
Before conflict	49,322	60,271	34,983
During conflict	63,897	59,592	35,477
Change (%)	+30.16	- 1.13	+1.41
Middle-income			
Before conflict	102,974	91,938	52,360
During conflict	131,515	90,692	77,734
Change (%)	+28.0	- 1.4	+48.5
High-income			
Before conflict	167,525	174,758	89,459
During conflict	260,332	182,960	128,848
Change (%)	+55.8	+4.7	+44.0

Source: Field work by author, 2008

The income of high-income households in Hile Jaljale (Ka) CFUG was increased by 5%, while there was a minor reduction in household income (1%), among low and middle income households. During the period of insurgency, low-income households in Hile Jaljale (Ka) augmented their income through piggery, dairying and service employment. It is interesting to note that households in all three case study sites have diversified their income through various sources during this period. In some instances, households were able to utilize opportunities created by armed conflict to raise their household income. The Nepalese Army and Nepal Police expanded the number of positions in the security forces to cope with the Maoist insurgents that opened employment opportunities for local people. Before the conflict, none from the Hile Jaljale (Ka) CFUG members were serving in the Nepal army. During the conflict, 21 village youths from the Hile Jaljale (Ka) community were recruited in the then Royal Nepal Army. Further, there was a sharp increase in overseas employment in Hile Jaljale (Ka) CFUG, mainly among middle and high-income households; as people from low-income households could not afford the costs of seeking overseas employment through agents. Major sources of household income in Lakuri Rukh were through overseas employment, agricultural crops, and the public service. The two major sources of income for high-income households were overseas employment, and for middle-income households, forest products. Low income households augmented their income with forest products, agriculture and off-farm wages, mainly working in urban transport, brick kiln and construction sectors. The income data collected through household surveys clearly indicates that there was no significant negative impact on household income in all three CFUGs due to the conflict. This has been possible through diversification of their income portfolio and also through utilizing opportunities created by conflict. This finding is in line with a World Bank Study which claimed that Nepal accomplished remarkable overall economic and human development between 1995/96 and 2003/04, despite political instability and armed insurgency ((The World Bank 2006: i-ii). Interestingly, during this period the incidence of poverty fell from 42 to 31 percent.

4.2.2 Contribution of Community Forests (CF) to household income

Table 7 presents the share of community forest contribution to overall household income in all three case study sites. This is calculated in terms of consumptive use-value[10] of forest products and NTFPs. Analysis shows that the contribution of community forest to household income in Sharada Devi, Hile Jaljale (Ka) and Lakuri Rukh CFUGs was 3.25 %, 8.73 % and 11 % respectively.

Table 7: Share of Community forests on household income

Name of CFUG	Annual household income (NRs) from CF	Share of CF contribution to total household income (%)
Sharada Devi	4,938.25	3.25
Hile Jaljale (Ka)	9,694.50	8.73
Lakuri Rukh	8,833.00	10.95

Source: Field survey by author, 2008

The analysis further indicates that the share of community forest in household income is directly related to the status of forest and the distance to the market. As compared to the other two sites, the status of forest stocks in Sharada Devi is poor. However, it is close to the district centre and has good access to market. Data shows that the share of forest products and NTFPs in household income in Sharada Devi CFUG was minimal, as people relied more on other sources for their livelihood. Among the three case study sites, the Hile Jaljale (Ka) CFUG is located at a moderate distance from district centre. Lakuri Rukh is located outermost corner from the district centre.

The share of forest products and NTFPs in household income in the Hile Jaljale (Ka) and Lakuri Rukh CFUGs is 8.73% and 11% respectively; in direct correspond to the degree of remoteness of the CFUG and the condition of its resource base. When data is disaggregated across income categories, it gives a striking picture. Table 8 shows that the share of forest products and NTFPs in the total income of low-income households in Sharada Devi is 6.67%, in Hile Jaljale (Ka), it is 14.39% and in Lakuri Rukh is 27.57% (more than twice that of middle income and nearly 5 times that of high income households in this most remote CFUG). This indicates that CF plays a significant role in household income generation and livelihood support for low-income households as compared to middle and higher-income households. However, this does include the in-kind value of indirect benefits such as inputs to agriculture activities.

[10] 'Consumptive value'- is the direct use values or benefits received from the use of the forest products and NTFPs (Merlo and Croitoru 2005: 29). The economic value of forest are categorized(Merlo and Croitoru 2005; Croitoru 2007) into three main components i.e. use value, option value and non use value. Use value is further divided into two components, direst use value (such as timber, fire-wood, fodder and recreation), and indirect use value (such as watershed protection, soil conservation, carbon sequestration). Option value refers to future recreation and biodiversity. Non use value is divided in two components, first bequest value (landscape and carbon storage value for future generations) and existence value (biodiversity and respect for rights).

Table 8: Share of CF contribution to household income by income category (%)

CFUGs	Annual income	Average Share of CF contribution to household income (%) **
Sharada Devi		
Low-income	4,263.75	6.67
Middle-income	5,335.50	4.06
High-income	5,215.00	2.00
Hile Jaljale (Ka)		
Low-income	10,998.15	14.39
Middle-income	9,491.85	10.47
High-income	8,593.50	4.70
Lakuri Rukh		
Low-income	9,782.67	27.57
Middle-income	9,307.92	11.97
High-income	7,408.42	5.75

Source: Field survey by author, 2008

4.2.3 Community Development and Forest Management Activities by CFUGs

A substantial amount of the income of the CFUGs has been directed to key infrastructure development, such as the construction of school buildings, public toilets, community buildings, rural roads, repair of rural bridges, maintenance work at the local school and monastery, drinking water facilities, and the development of forest-based enterprises such as community saw mills. Similarly, CFUGs have made investments in human capital through women's literacy classes, salaries for school teachers, local health facilities, and subsidized loans to carry out income generating activities for the marginalized section of the community. However, due to the insufficient funds, CFUGs have been unable to implement community infrastructure activities to the extent required by these communities. Out of total income of the Sharada Devi CFUG 53% and 47% of the total income was earned before and during conflict respectively, meaning that the armed insurgency did not have a significant impact on CFUG's income. Both the Hile Jaljale (Ka) and Sharada Devi CFUGs earn a substantial amount of income from the sale of timber. Surprisingly, out of total income of the Hile Jaljale (Ka) CFUG, 89% of the income was earned during the conflict period. The Lakuri Rukh CFUG's income was reduced by 22.8% during the period of conflict, which is mainly attributed to the closure of the Chaubas Community Saw Mill and reluctance of the CFUG to use the timber business. During the period of insurgency, the Lakuri Rukh CFUG was under the influence of Maoists, thus, the CFUG was reluctant to engage in the timber business, largely because of the double tax burden imposed by both the government and the rebels. The CFUG adopted a strategy of "wait and see", harvesting only a limited amount of timber needed for meeting their basic expenses. Despite difficulties created by the insurgency, all CFUGs were able to continue their forest management activities and maintain good governance of their forests even during the intense period of conflict and were capable of earning income from them.

According to the 1993 Forest Act (amended in 1999), CFUGs are mandated to invest at least 25% of CF income in forest management activities and the remaining amount can be invested in other community development activities. Data shows that the CFUGs in all study sites have invested more than 46% of their income in various forest management activities, including plantation, plantation of cash crops, forest thinning and pruning for better regeneration, preparation of forest inventory, operational plan, the establishment of research plots, and the organization of different training sessions and study tours. The Sharada Devi, Hile Jaljale (Ka), and Lakuri Rukh CFUGs have invested

75.96%, 46.87%, and 54.69% of the total CFUG income on forest management activities and 10.67%, 45.17% and 41.49% on community development activities.

Table 9: Proportion of CFUGs expenditure on forest management and community development activities (%)

Activities	Sharada Devi (1995-2007)	Hile Jaljale (Ka) (1998-2007)	Lakuri Rukh (1997- 2007)
Forest management	75.96	46.87	54.69
Community development	10.67	45.17	41.49
Administration	13.37	7.96	3.82
Total	100	100	100

Source: Fieldwork by author, 2008

The Hile Jaljale (Ka) and Lakuri Rukh CFUGs have made substantial contributions to the improvement of education facilities in the villages. Out of total expenditure in CD activities, Lakuri Rukh CFUG invested 40% alone in upgrading the capacity of Seti Devi Lower Secondary School into a full secondary school. Similarly 28% of the total income of the Hile Jaljale (Ka) CFUG has been invested in local schools. Table 9 presents the investment of CFUGs on various forest management (FM) and community development (CD) activities. It is apparent that the major activities carried out by CFUGs were not significantly affected by the conflict, but actually increased substantially in many cases. It can be concluded that despite the worsening law and order situation and difficulties created by conflict, the community forestry activities were functional in all three case study sites and there was little negative impact on forest management and community development activities.

Table 10: Expenditure of CFUG income in different activities before and during conflict (%)

Activities	**Sharada Devi**		**Hile Jaljale (Ka)**		**Lakuri Rukh**	
	Before	During	Before	During	Before	During
Forest management	31.47	44.49	2.91	36.22	29.6	25.08
Community development	9.08	1.59	2.28	49.46	11.03	30.46
Administrative	7.09	6.28	2	7.13	1.47	2.35
Total	47.64	52.36	7.19	92.81	42.1	57.89

Source: Data compiled from CFUGs record by the author, 2008

Data shows that the CFUGs have given great emphasis to forest management and community infrastructure development activities, with most of the income generated from CFs devoted to these purposes in all three communities. Direct investment in pro-poor activities has been minimal, although. Employment created through CF activities has benefited the poor as it is primarily this group who are employed in such activities. .

4.2.4 Employment opportunities created by CFUGs

Among the three case study sites, households from Lakuri Rukh CFUG had the opportunity to work in the Chaubas- Bhumlu Community Sawmill which was being operated through the collaboration of four CFUGs. During the sawmill operation hundreds of local people were employed in sawmill related works, which positively affected the economic status of local people. Out of the total 92.17 million Nepali rupees earned by the saw mill between the period 1996/97 and 2004/05, about 1.84 million Nepali rupees were spent on hiring wage laborers, creating about 28,000 man days of employment (for details refer to case study chapter on Lakuri Rukh). CFUG members in Lakuri Rukh

were also employed in forest management (thinning, pruning, log transport) and community development activities.

Table 11: Employment opportunity generated by CFUGs (man-days)

Activities	**Sharada Devi (1995 -2007)**	**Hile Jaljale (Ka) (1998-2007)**	**Lakuri Rukh (1997 - 2007)**
Forest management	6,455	12,868	7,538
Community development	193	2,844	2,920
Total	6,648	15,712	10,458

Source: Calculated from CFUGs record by author, 2008

Table 11 shows that Sharada Devi, Hile Jaljalke (Ka), and Lakuri Rukh CFUGs, each generated 6,648, 15,720, and 10,458 man-days of employment respectively for the local community. Every year, CFUGs implement various programs in the village, thus, CFUG members have an opportunity to work as paid laborers. During the course of interviews and interactions with CFUG members it was found that low income groups positively valued the opportunities for employment created by community forests, which contributed significantly to household income and livelihood improvement. For example, in the Lakuri Rukh, CFUG members were able to convert thatched roof into corrugated tin roof through the money earned working in the community saw mill and forest management activities launched by the CFUG. The overall employment created by the CFUG in the Sharada Devi and Hile Jaljale (Ka) CFUGs increased during the period of conflict compared to the pre-conflict situation, as opposed to the reduction in the Lakuri Rukh CFUG, mainly attributed to the closure of the community sawmill. However, beside the reduction in forest management activities, the Sharada Devi CFUG continued its support to community development activities and there was no impact on such activities during the period of conflict.

Table 12: Proportion of employment generated from CFUGs activities before and during conflict (%)

Activities	Sharada Devi		Hile Jaljale (Ka)		Lakuri Rukh	
	Before conflict	During conflict	Before conflict	During conflict	Before conflict	During conflict
Forest management	48	49	16	65	51	21
Community development	2	1	2	16	14	14
Total	50	50	18	81	65	35

Source: Calculated by author based on CFUG records, 2008

It can be concluded the community forestry institutions have created a number of seasonal employment opportunities for its members. Given the nature of the job, which is mostly laboring work, people from lower-socio-economic strata are the ones who are most likely to take on such work, as people from higher socio-economic strata are involved in service employment, business and farming. The CFUGs were capable of maintaining these activities even during the period of armed insurgency.

4.3. ENVIRONMENTAL OUTCOMES

Respondents in all three case study sites reported that after the establishment and conservation of the community forests, there was a significant improvement in the local watershed condition. A noticeable environmental outcome achieved by the Sharada Devi and Hile Jalajle (Ka) CFUGs is the significant increase in off-season vegetable farming mainly because of the increase in water supply

coming from the forest watershed. Another environmental outcome according to the people interviewed in both Sharada Devi and Hile Jalajle (Ka) is the improvement in the drinking water quality and supply for the local community because of the increased water volume from the watershed. Due to the improvement in water yield from forest watershed, many additional drinking water facilities have been installed in the community. Moreover, as reported by people in all three cases, the incidence of mudflow, erosion, landslide, flood hazard and downstream siltation has greatly reduced. Nonetheless, during the initial stage of the CF, mainly in the Hile Jaljale (Ka) and Lakuri Rukh CFUGs, these communities experienced dryness and reduction in water supply, which is believed to be mainly due to the initial plantation of pine species. However, in the later years of the CF establishment, when the forest became mature and the regeneration of understorey and broadleaf species was good, the quantity of water coming out of the forest watershed has increased.

Before the establishment of the community forests, people had to walk many hours away from their villages is search of firewood, fodder and timber. People also faced difficulties in rearing livestock and farming due to the lack of fodder, grass, compost and water for irrigation as well as for drinking. After the noteworthy improvement in forest condition, the household demands for forest products are completely met from community forest in both the Hile Jalajle (Ka) and Lakuri Rukh CFUGs, and the demands of such products are partially met in Sharada Devi CFUG.

Table 13: Mean annual forest products and NTFPs collected per household

Forest products	Community Forest User Groups (CFUGs)		
	Sharada Devi	Hile Jalkjale (Ka)	Lakuri Rukh
Timber (cu. ft)	-	16.44	7.78
Fuel-wood (*bhari*)[11]	16.71	66.29	76.00
Fodder (*bhari*)*	8.56	1.44	36.11
Grass (*doko*)	2.22	28.89	51.22
Leaf-litter (*bhari*)	21.65	85.00	69.56
NTFPs	-	-	3.05

Source: Fieldwork by author, 2008

Another interesting finding was the status of wild life species in the forests. Before the initiation of the CF, the forests were completely degraded; and there were only few wildlife species, mainly rabbit, jackal, and a few bird species present in the forest. After a decade of conservation through the community forest program, many species of wild life have migrated into the forest and their population has increased significantly, due to the improvement in habitat. Table 14 shows the list of wild animals and birds in the community forest sighted by CFUG members. It is learned from CFUG members that during the period of insurgency, there was no marked negative impact on wild life. As the frequency of visits to the forest decreased during the period of insurgency, it may even have had some positive impacts for wildlife, on their movement and even in their population levels. In some cases, however, such as Hile Jalajle (Ka), there may have been some localized impacts mainly due to the regular firing exercise being conducted by the Nepal army inside the community forest area.
These exercises may have a negative impact on wild life and as the wildlife which may have temporary migrated in other areas.

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Table 14: List of wild life sighted by informants at Sharada Devi CFUG*

Vernacular name	English name	Scientific name	Sharada Devi	Hile Jaljale (ka)	Lakuri Rukh
Wild animals					
Bandel	Wild boar	*Sus scrofa*	×	×	×
Pate Bagh	Tiger	*Panthera tigris*	×	-	×
Chituwa	Leopard	*Panthera pardus*	×	×	×
Dumsi	Porcupine	*Hystrix indica*	×	×	-
Salak	Chinese pangolin	*Manis pantadactyla*	×	×	-
Kharayo	Hispid hare	*Caprolagus hispidus*	×	×	-
Shyal	Jackal	*Canis aurevs*	×	×	
Ban Biralo	Wild cat	*Telis chans*	×		
Chittal	Spotted dear	*Axix axis*	×		
Ratuwa mirga	Barking Deer	*Muntiacus muntaijak*	×	×	×
Lokharke	squirrels	*Funambulus spp.*	×		
Malsapro	Yellow-throated Marten	*Mortes flarigula*	-	×	-
Banmuso	-	-	-	×	-
Sun Gohoro	Golden Monitor Lizard	*Varanus favescens*	-	×	-
Sarpa	Snake	-	-	×	-
Birds					
kalij	kalij pheasant	*L. l. leucomelanos*	×	×	×
Battai	Quail	*Coturnix coturnix*	×	-	-
Titra	Hill-partridge	*Arborophila torqueola*	×	×	-
Fiste	-	-	×	-	-
Lampuchree	Yellow billed Blue Magpie	*Urocissa flavirostris*	×	×	×
Dhukur	Oriental Turtle Dove	*Streptoplia orentalis*	×	×	×
Jureli	Red vented bubbul	Pycnonotus jocosus	-	×	×
Suga	Red Breasted Parakeet	Psittacula alexandri	-	×	-
Dhobichara	-	-	-	×	-
Chyakhura	Chukur Patridge	Alectoris graeca	-	×	-
Baj	Falcon	Falcon peregrinus	-	×	-
Baudai chari	-	-	-	×	-
Gauthali	House Swift	*Apus affinis*	-	×	-
Kalchaude	-	-	-	×	-
Malichara	-	-	-	×	-

Source: Information compiled by author during fieldwork based on interview with informants and CFUG operational Plans, 2008 * x indicates the presence of wildlife

In Sharada Devi, the regeneration of the broadleaf species inside the community forest is promising. There is a complete transformation of the landscape. Once a denuded hill the area has now been converted to a green and lustrous healthy forest. The Hile Jaljale (Ka) and Lakuri Rukh CFUGs have

adopted a policy to develop a healthy forest[12] by removing overstocked stands and promoting the growth of broadleaf species by gradual thinning of pine species. As the number of plants per hectare is too high, every year communities undertake thinning operations. The author also made a number of visits to the community forest during the fieldwork and found that the forests in all three sites are in very good condition.

Table 15: Status of regeneration of broad leaf tree species in CFUGs

CFUGs	Saplings (no. of trees /ha)	Pole size tree (no. of trees /ha)
Sharada Devi	17,375.00	5,417.00
Hile Jaljale (Ka)	17,148.00	11,805.00
Lakuri Rukh	3,275.00	219.00

Source: Compiled from CFUG Operational

Besides natural regeneration, the growth of forest stock is also promising. A forest inventory prepared by CFUGs with the technical help of forestry technicians shows that the annual increment of forest stock in Sharada Devi, Hile Jaljale (Ka) and Lakuri Rukh is 2,806, 233, and 439 cubic feet respectively.

Table 16: Forest tree stock in three CF

CFUGs	No. of trees/ha (10-30 cm diameter)	No. of trees per ha (> 30 cm diameter)	Total trees/ha	Annual increment (cubic feet)
Sharada Devi	1,028.00	17	1,055.00	2,805.53
Hile Jaljale (ka)	495	71	566	232.72
Lakuri Rukh	441	217	658	438.61

Source: Compiled from CFUGs record

In Lakuri Rukh CFUG, households collect and sell medicinal plants collected from the community forest for extra income, while in other CFUGs; medicinal plants are used solely for household needs. The Hile Jaljale (Ka), Sharada Devi and Lakuri Rukh CFUGs have prepared a policy to develop their community forest area as a tourist destination. As these CFUGs are situated the top of the mountains, after a few hours of trekking, tourists can see panoramic landscapes. These places are also an equally ideal camping site for tourists. Community forest user groups have planned to develop this area as an ecotourism destination, from which local people can earn income and the money generated from such activities can also be used for conservation of community forest and various other community development activities. On the whole, it was found that after the establishment of the Community Forests, there was a marked improvement in wild life, forest stock, and watershed condition. People in all the case study sites agreed that they have experienced a diverse range of direct benefits and environmental services from community forest.

[12] A healthy forest refers to the improvement in both ecological and social aspects. Ecologically, a healthy forest maintains its unique species and processes, while maintaining its basic structure, composition and function. In social terms, healthy forests have the ability to accommodate current and future needs of people for aesthetic values, products and services.

5. CONCLUSIONS

In this paper, three major outcomes associated with the community forestry program, in the spheres of governance, livelihood and environmental outcomes were assessed, and a comparative analysis was undertaken to understand the impact of armed conflict (i.e. before and during the period of armed insurgency) at these three sites. A number of lessons could be drawn from the research.

The CFUGs, in these case study sites, have experienced a number of positive outcomes following the initiation of the CF programme. There was a significant increase in the supply of forests products, and other environmental benefits. Due to enhanced watershed protection, the most noticeable outcomes were improved irrigation and drinking water facilities, which enabled an expansion of off-season vegetable farming and dairying. Many species of wild life (wild animals and birds) migrated into these regenerating forests and their number increased enormously after the community forest intervention. Moreover, many species of medicinal plants which had disappeared before now have reemerged. This demonstrates that greater local control over forest can contribute to healthier and ecologically sustainable forest management and use. This entirely positive result shows that the management of forest through local communities is a viable way of managing the forest in an effective and sustainable manner, with relatively little investment from the state. Despite the conflict, CFUGs undertook a number of activities, both socio-economic and environmental protection, that help them in strengthening their technical and managerial capability For example, the Hile Salable (Ka), Sharada Devi and Lakuri Rukh CFUGs have implemented landslide control programs, saving and credit schemes, social mobilization initiatives, micro-enterprise development, and plantation programs.

Since 2000, there has been a rise in the representation of women and marginalized sections of the community in the community forest executive committee and general assembly meetings. It suggests that the Maoist political objectives behind the armed conflict helped to raise awareness among different marginalized groups and trigger some positive changes in the community forestry program, especially the participation of women and socially excluded sections of the community to decision-making authority such as the executive committee of the CFUG. The formation of the Federation of Community Forestry Users' Nepal **(**FECOFUN**)** in the centre and its sister organizations at the regional, district and local levels is a significant step in safeguarding CFUG rights and interests, as well as maintaining communication and balancing power between the ministry of forest and CFUGs.

The governing mechanisms of the state agencies, including the Department of Forests, were dysfunctional and ineffective during the period of Maoist insurgency. But despite all these difficulties and challenges, the governance structures of the local CFUGs were largely stable and these proved very able to carry out forest management and governance activities more or less as usual. The FECOFUN has played a crucial role in safeguarding the rights of community forest users advocating with government as well as with the Maoist rebels even during the period of conflict. It is found that in all three case study sites, CFUGs continued meeting of executive committee and general assembly and also carried out forest management and community development activities. During this process they had also coordinated with local Maoist leaders to facilitate the CFUG member’s access to forest and also to continue their planned activities, depending on the local situation.

The study found that these local management institutions were very resilient because they are flexible and can adapt, cope and bear challenges according to the changing situation. It is argued that co-management and community-based management creates vertical linkages across levels of organization (including regional, national, and international) that facilitates cross-scale communication, which helps in building self-organization and capacity for learning, ultimately

augmenting the resilience of the social-ecological system(Berkes and Jolly 2001; Tompkins and Adger 2004; Fabricius et al. 2007). The interesting thing to note from this study is that the CFUGs were able to function throughout insurgency period, and the conflict didnot substantively impact upon CFUG governance arrangements in practice. Whether the CFUG was under the influence of insurgents or security forces, this research did not find much difference in actual governance arrangements of these community forests.

These case studies support the arguments that decentralization of resource management authority to local communities is one of the most viable approaches towards sustainable natural resource management. Further, this approach will contribute to the development of resilient local institutions. It reinforces the line of argument that institutions which are based at grass roots level and which function on democratic principles have more resilient capacity, more bargaining power as well as adaptive capacity to cope even during a period of armed conflict, than centralized institutions that lack these features (Berkes and Jolly 2001; Tompkins and Adger 2004; Fabricius et al. 2007). This study concludes that the new modes of governance of Common Property Resources - especially the evolving practices of community-based forest governance- in general helped in accommodating the local interest and needs of communities as well as policy goals and outcomes of the state agencies. Moreover, such a governance mechanism has more chances of functioning during an otherwise disruptive period of conflict compared to centralized management regimes.

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