



ISSN NO. 2320-5407

Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/3561
DOI URL: <http://dx.doi.org/10.21474/IJAR01/3561>



INTERNATIONAL JOURNAL OF
ADVANCED RESEARCH (IJAR)
ISSN 2320-5407
Journal homepage: <http://www.journalijar.com>
Journal DOI: 10.21474/IJAR01

RESEARCH ARTICLE

EVALUATING IMPACT OF COMMUNITY MANAGEMENT IN FOREST CONSERVATION: A STUDY ON COMMUNITY FORESTRY PROGRAM IN NEPAL.

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Manuscript Info

Manuscript History

Received: 02 January 2017
Final Accepted: 10 February 2017
Published: March 2017

Key words:-

Community Forestry, Community Forest Users Group (CFUGs), Conservation, Sustainable Management, Forest Products

Abstract

Expansion of agricultural land, the growing demand for timber and the local dependency on forest firewood created long term pressure for deforestation in Nepal. This paper investigated the impact of community management on forest conservation and outlines the conversion trend of the forest outlook in Nepal in the past decades by informal interviewing 10 representative Community Forest Users Groups (CFUGs) from the middle hills of the country. The results showed notable positive changes including increased forest cover, improved forest product supply and enhanced biodiversity after implementation of the community forestry program. The main factor behind the forest restoration is sustainable management adopted by the community and control on forest fire and over exploitation. However, the adopted conservative-oriented approach hampers communities to exploit the maximum benefits. It has been recommended that market-oriented approach would help communities to get more economic benefit than the existing approach. The community led initiative in Nepal has set best example in forest conservation and this experience can be explored by other countries as well. Local people's participation is very important and necessary for common resources management. The research results provide fundamental basis for policy making process regarding common pool resources management and forest governance.

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Introduction:-

The Community forest management program in Nepal is considered as the most successful example of participatory, collaborative and sustainable forest management. This program has played a vital role in improving forest condition and conserving biodiversity and supporting the local people to enhance their livelihoods (Gurung et al., 2013; Pokharel et al., 2007; Acharya, 2004; Carter et al., 2011; Gautam et al., 2004). Over the period of two decades forest-covered area of the country has increased remarkably and condition of the forest has been enhanced after the government came up with policy and legal intervention to promote the community forestry in the country. Since management rights handover to the community from the government, 86% Community Forest Users Groups (CFUGs) reported improvements in their all forest quality (MFSC, 2013). Community forestry program is effective in increasing the biodiversity in degraded land, conserving and improving the total environmental condition and enhancing livelihood of the users by effective resource management in the middle hills of Nepal (Acharya, 2002; KC et al., 2015; Birch et al., 2014).

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By engaging one third of the country's total population, more than 18,000 CFUGs have been formed in the country and have been able to manage over 30% of the total forest in the country (MOF, 2016). Among them, 75% of community forest users groups were formed in the middle hills of Nepal. A 2013 survey report from Ministry of Forests and Soil Conservation shows that forest conditions have improved in overall since the handover to CFUGs, with 86% reporting improvements in forest conditions. 79% of the CFUGs reported an increase in tree coverage area within the community forest geographical space (MFSC, 2013). The main factor behind the forest restoration is sustainable management adopted by the community and control on forest fire and over exploitation.

Forest Resources of Nepal was mostly controlled by the government and forest administration was centralized in 1970s (Gautam et al., 2004). The idea of local involvement in forest management was conceptualized in late 1970s (Nagendra et al., 2005). As a policy innovation to address the massive forest degradation in the country, the government of Nepal endorsed Forest Rules in 1978, which allowed local governance body to manage forest land (Ojha et al., 2009). In 1982 Decentralization Act introduced the 'user group' concept and in 1988 forest master plan emphasized the concept of forest users group with legal management rights (Poudel et al., 2015). The government of Nepal enacted the Forest Act in 1993 and forest regulation in 1995 which allows to flourish the community forest users group (CFUGs) all over the country (Pokharel et al., 2007).

In the beginning, community-based management strategy was adopted in the middle hills of Nepal as an experiment, which brought successful result, afterward evolved rapidly across the country over the years gaining endorsement among the policy makers and the local forest users. In order to restore degraded forest land and cope with massive deforestation, the Nepalese government formally adopted community based management approach in 1980s, which put emphasis on the devolution of management and governance right from government to local people (Gautam et al., 2004). Handing over a forest management and governance rights to the community led to overall improvement of environment as well as brought positive transformation in the livelihood of the local people (Nepal, 2006; Acharya, 2004).

Most of the past studies (e.g., Yadav et al., 2003; Gurung et al., 2013; Kanel et al., 2004; Adhikari et al., 2007) presented the status of the community forestry in forest management program, impact on livelihood of the community, challenges and opportunities among other. Both positive and negative aspects of community forestry program have been well documented comprehensively over the past years in various research papers. However, the literature on pushing factors for reforestation and restoration are relatively insufficient in telling the latest changes of forest outlook. There is a lack of comprehensive study on influencing factors on forestry rebound in the last two decades. Latest survey on the State of Nepalese forest produced by the government of Nepal has also failed to clearly mention the community forestry program as one of the major causing factors for afforestation in the country. This paper assesses the community forestry program as a key factor behind the successful change of forest outlook in the past decades. The forest survey of different time period did not indicate and discuss the factors of deforestation and afforestation. This paper argues that the cause factor for afforestation is the adoption of the community forestry program as a main strategy in the forestry policy. The impact of community management on change in local environmental condition was assessed. Both quantitative and qualitative data were collected to evaluate the role of community management on forest conservation, qualitative data were used to interpret the conditions of the forest.

Materials And Methodology:-

Data were collected through survey and informal interviews with the members of the CFUGs and experts for this study. This study was conducted in six representative districts namely Ilam, Nuwakot, Syangja, Palpa, Surkhet and Doti covering different parts of mid-hill region of Nepal. Mid-hills account 43% of total land area of the country, with the greatest and diversified ecosystem. Additionally, about 32% of the forests in Nepal are covered in the mid-Hills. This part has extended east to west of the country between the Himalayan range in the north and the Ganges River plain in the south with an altitude range between 1000 and 3000 meters (Shrestha et al., 1992). The topography of the mid-hill zone is generally mountainous, with combination of fertile farmland, forest, shrub and grassland.

In order to examine the status of forest under the community management, 10 sample CFUGs were randomly selected from a community for one-to-one interview and survey. In the sampled areas, the majority of the populations were engaged in agriculture and dependent on forest resources such as firewood, fodder, timber and other products to sustain their local livelihood. Data were collected through informal interviews, survey among the members of CFUGs in the year 2016. It was intended to select CFUGs from the different parts of the mid-hill so that

the impacts of community management all over the country could be assessed. The forest biodiversity information was collected through the informal interviews with the members of the CFUGs.

30 interviewed members of the CF were with 100% response rate. The interview was semi-structured, with closed and open ended questions. Experts were also interviewed to examine their opinions towards the performance of the community forestry program. A survey questionnaire was designed to assess the total environmental impact of the CF program on forest conservation. To compare before and after the CF intervention, three options were presented in the survey questionnaire. The three options were 'increased or improved condition', 'same as before' and 'decreased conditions', respectively. In addition, secondary data-based discussion is also presented on environmental impact of the CF program. This discussion also provides linkage of the present results to the other studies.

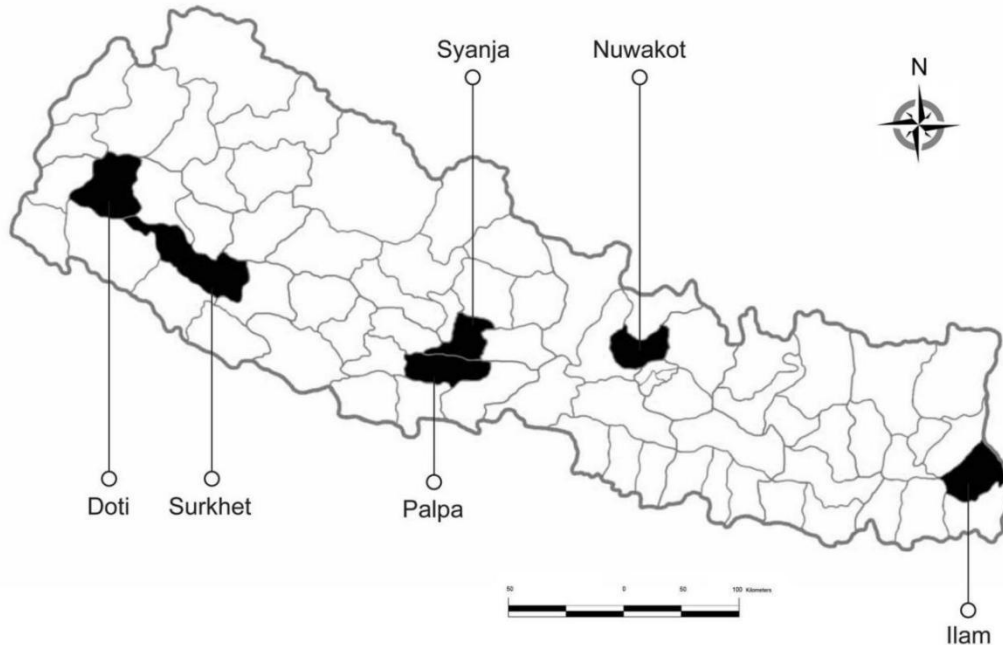


Figure 1:- The map of Nepal showing six study districts.

The main focus of the informal interview was to assess the quality of forest ecosystem before and after the implementation of community forestry program. The interview was designed to elicit forest conditions information from the users that mainly covered information on forest condition and health of biodiversity before and after CF intervention. In-depth interview is effective in collecting detailed information on significance of community management in conservation forest resources and evaluating the role in enhancing people's livelihood. The interview was designed to assess environmental impact of community management using multiple indicators. Similarly, this study also used the secondary data and reviewed literature to assess the contribution of community management. Existing literature and data related to community forestry were reviewed and analyzed to draw conclusions. The required secondary data were obtained from published reports, research papers, national data base and official records of the related agencies and stakeholders. The indicators of forest condition of this study include increasing shrub and greenery, improving biodiversity, reforestation of degraded land, availability of the resources, water resources conservation, soil erosion protection, effort to the conservation etc. The details about these conditions are presented in tables.

Limitations:-

Some of the data were collected through the informal interview and they were not quantifiable. Additionally, there is a lack of historic quantitative information on time — biodiversity for community forests. Small sample size was another limitation. However, given the objectives of the research, these limitations have not sacrificed the quality of the conclusions it has drawn. The implication of the limitations mentioned here suggests that there might be a room for further exploration or improvement on the subject matter of this study.

Results And Discussion:-

The present study revealed the improvement of forest conditions after the intervention of the Community Forestry program and CFUGs were effective in the environmental conservation. CFUGs are involved effectively in the activities of protecting the forest, managing the resources, cultivation, harvesting and benefits sharing, nursery production and planting as their own strategies and operational plan.

Deforestation in Nepal has a long history. Expansion of agricultural land, the growing demand for timber and the local dependency on forest firewood created pressure for deforestation in Nepal which lasted long (Pokharel et al., 2007). Conversion of forest to agriculture land, resource mismanagement, timber extraction for personal benefit by rulers, ineffective forest administration, unsustainable use of resources were the major causes for deforestation. The government of Nepal had already recognized alarming rate of deforestation, especially in mid-hills and Terai (lowland region in southern Nepal) in 1950s (Gautam et al., 2004). In 1964, forest and shrub covered area was 43.9% of the total land area of the country (WECS, 2010). By 1979 forest and shrub area slightly decreased to 42.7%. By the year of 1994, the total area of the forest and shrub further decreased to 39.6% of the total area of the country, while the area of forest alone was only 29% (DFRS,1999). Over a period of 15 years (1979-1994) total forest area of the country was decreased by 23.68% or in the annual rate of 1.57% and shrub area was increased by 124.89% which was alarming rate of forest degradation over that particular period. The latest statistics show that forest and other wooded land has increased and reached 44.74%. It indicates that the forest area of the country has increased by 39.17% over a period of 20 years (1994-2014) by an annual rate of 1.95% and the area of other wooded land (shrub) decreased by 58.67% during the same period (DFRS, 2015). High decrease rate of other wooded land and increase rate of the forest area gives the clear picture of the afforestation over the period.

Table 1:- Changes in the forest and other wooded land (shrub) cover area (area in '000 ha) over time period in Nepal

Type	1964		1979		1994		2014		Percent change	
	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	1979-1994	1994-2014
Forest			5617	38.0	4269	29.0	5962	40.36	-23.68	+39.17
Shrub			690	4.7	1568	10.6	648	4.38	+125.53	-58.67
Total	6466	43.9	6307	42.7	5829	39.6	6610	44.74	-7.25	+12.97

Note: The total area of the Nepal is 147,181 km², percentage calculated accordingly. The data sources are WECS, LRMP, NFI and FRA.

The statistics presented in Table 1 show the changing scenario over the period of 15 years (1979-1994) when Nepal lost 1.3 million ha forest, while in the period of 1994 and 2014, the situation was reversed and 1.69 million ha forest covered area was increased.

Table 2: Number of Forest Users Group formation and Area under community forest users group

Year	Number	Area (ha)
1989	32	1281
1994	2756	112626
2005	13677	1134372
2011	15137	1340714
2016	18961	1752193

Data source: Ministry of Finance, Nepal

Table 1 and 2 depict a positive relationship of forest area rebound and CFUGs formation. Formally, community forestry program was launched in late 1980s, though practically community forest users groups were rapidly formed after 1990. In 1989, only 32 community forest users groups were established, managing only 1281 ha forest. By the year of 1994, formation of CFUGs became rapid and 2756 CF were established, managing 112626 ha by the year of 2005, the number of community forest users group extended to 13,667. By the year of 2011, the number of CFUGs increased to 15,137 managing 1,340,714 ha forest. It clearly shows that increasing number of the CFUGs across the country brings afforestation gradually. Not only forest covered area rebounded, number of stems/ ha by stem diameter has also increased (Table 3), which indicate the enhancement of the forest quality. In 1960s, number of stems/ha by stem diameter was only 313, which reached 408 in 1994 and 429.93 in 2015. Similarly, carbon stock (t/ha) was 151 in 1960s which increased to 176.9 in 1994 and 176.95 in 2015.

Table 3:- Change in forest composition over time

Year	Number of Stems/ha by stem diameter	Carbon Stock (t/ha)
1964	313	151.0
1994	408	176.9
2015	429.93	176.95

Data Source: Department of Forest, Nepal .

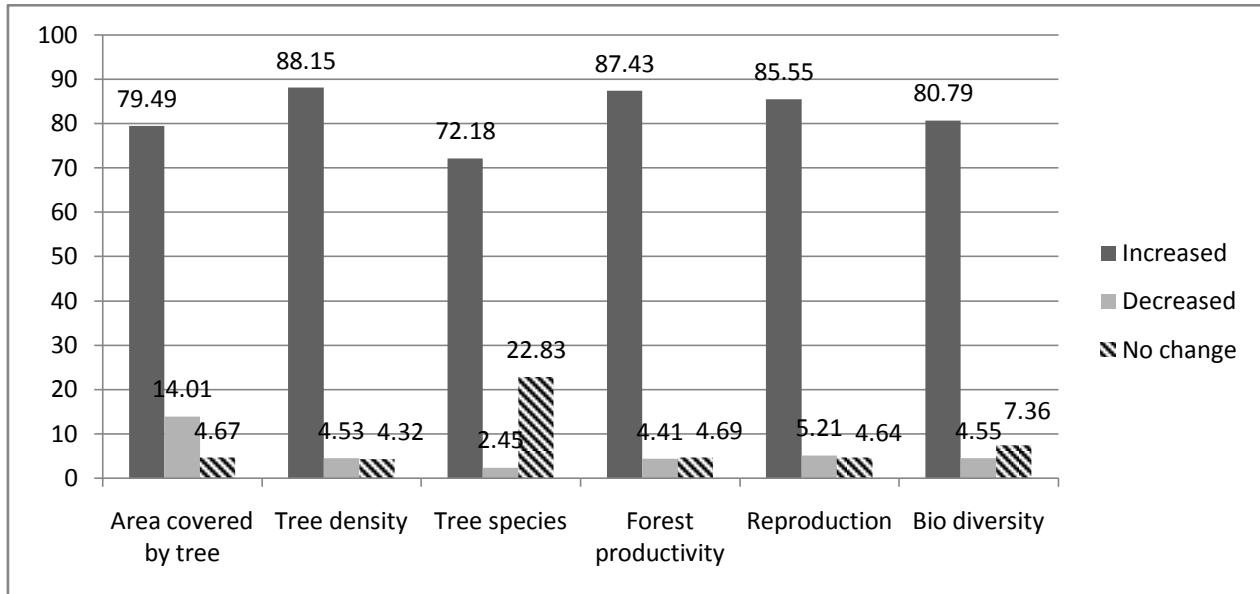


Figure 2:- Changes in forest condition. Data source: MFSC, 2013

Studies have shown that there have been remarkable positive changes in community forests across the country. Changes in different dimensions of forest quality are presented in Figure 2. Figure 2 shows outstanding improvement in forest quality as a reflection of the management inputs. According to a study conducted by Ministry of Forest and Soil Conservation, since handover, 86% of CFUGs reported improvements of forest condition. Forest quality has been improved in terms of tree coverage area, tree density, species, and forest productivity, regeneration and bio-diversity. Those are the main indicators and criteria to determine the forest quality. 79.49% of CFUGs reported that tree coverage area increased after CF program intervention, only 14.01% reported that their tree coverage area has been decreased. Similarly, 87.43% CFUGs reported that forest productivity has been increased. CF program has positive effect on bio-diversity in the forests, it has helped to conserve and foster different kinds of plant species.

According to the respondents, forest was under the big threat of massive deforestation due to unsustainable use of resources in order to meet the demands for fuel wood, fodder, timber etc. before the CF program intervention. After the implementation of the program, apart from the improving forest conditions, forestry product supply and forestry income has also increased.

Table 4 describes ten community forests in the study area and provides the information regarding size, household number, forest types, forest condition and total years of forest management by communities. The investigated forests are small in size; therefore the produced forest products are not sufficient to meet the demands of local users. It was found that the condition of the forest that has been conserved for a longer period is good and has higher regeneration rate.

Table 4:- Attributes of community forest

Name of CFUG	District	Forest Area (ha)	No. of households	Years managing the forest actively	Forest Condition	Forest Type (dominant species)	Forest area per household (ha)
Thokre Firfire	Ilam	25	70	20	Good	Katus, Chilaune (Castanopsis sp./schima wallichii)	0.35
Choyatar	Ilam	150	170	20	Good	Pine (Pinus roxburghii)	0.88
Ramche Deurali	Nuwakot	17	65	21	Fair	Katus, Chilaune (Castanopsis sp./schima wallichii)	0.26
Salghari Silapatra	Nuwakot	37	350	16	Good	Sal (Shorea robusta)	0.10
Sallaghari	Syangja	27.75	27	10	Good	Katus–Chilaune (Castanopsis sp./schima wallichii)	1.02
Ramche	Palpa	99.7	302	24	Good	Sal (Shorea robusta)	0.33
Deuti Bajyei	Surkhet	749	1032	26	Fair	Sal (Shorea robusta)	0.72
Kalika	Surkhet	220.76	88	10	Fair	Sal (Shorea robusta)	2.50
Navadurga	Doti	200	73	15	Fair	Pine (Pinus roxburghii), Sal (Shorea robusta)	2.73
Ranipokhari	Doti	126.23	250	18	Good	Pine (Pinus roxburghii), Sal (Shorea robusta)	0.50

The entire sample CFUGs chosen for this study is implementing scientific forest management activities. CFUGs are promoting forest protection and plantation; prohibition of trees falling and wildlife hunting, preventing forest fire, control grazing, conserving soil and water and protecting forest from encroachment have been included in their operational management plans and programs. The primary objectives of forest managements set by all CFUGs are more or less similar to fulfilling the basic needs of forest products by using them in sustainable ways and protecting the forest resources. Income generation, conserving water sources, preventing soil erosion, maintaining greenery, protecting wildlife are the additional objectives of the CFUGs.

The activity of 'Godmel', 'Jhadifadne'¹ is an effective silvicultural practice carried out by CFUGs. This activity includes cleaning, weeding, thinning, pruning etc, which allows the favorable environment to the desired trees to establish, grow and eliminate unwanted trees and bush. Removal of shrub and unwanted wood could help to increase main crop or trees' productivity.

In six of the ten sampled community forests, the forest area per household is found to be less than national average (0.73 ha) ((Bista, Gurung, Karki, Shrestha, & Uprety, 2012). Most of the family in the sampled areas is engaged in the agriculture and dependent on forest for firewood, timber, fodder, leaf-litter etc to meet their daily requirements of cooking, infrastructure and building construction and feed to animals. Nevertheless, all studied community forests are not in the condition to supply full required forest products to the community. Generally, CFUGs distribute their forest products free of cost to the locals, therefore income of CFUGs is very low. Member household pays a very small amount as membership fee. According to them, deforestation took place exclusively before CF program intervention, and the forest condition in the studied community forests has improved since forest handover to the community from the government. The mixed forests were found in the study area, though Sal (Shorea robusta) is a dominant species. Most of the sampled forests are covered with Sal (Shorea robusta) which is commercially high valued timber species. The main aim of the community forestry program of Nepal is to improve the forest condition through the efficient management and fulfill the demand of forest products of the community as well as livelihood improvement of the poor people. The sampled communities have succeeded in improving forest condition in a sustainable way and restore the degraded forests. Reforestation is one of the major indicators to evaluate community forestry program and most of the CFUGs have achieved this goal impressively.

¹cleaning, pruning, thinning and weeding operations

The handing over management rights of forest encouraged community participation to conserve the resources and also assured the livelihood improvement through benefits generation from forest. A large number of small and medium sized trees is growing up in the sampled area because most of them were recently handed over and communities have been conserving them very well. Seven out of the 10 sampled CFUGs underwent plantation after possession of management rights of the forest in the degraded land. Since the establishment of CFUGs, no forest fire incidents have happened according to all 10 sample CFUGs which is a strong indicator of CFUGs' contribution in forest conservation and protection. Previously forest fire was the main problem. In all the CFUGs studied, the forest condition is improving and 'improving forest condition' is their most successful indicator to evaluate entire community forestry program in Nepal. Restoration of the forest from declined stage and overall indicators of the forest show that CF program is undoubtedly successful.

Data presented in Table 5 indicates that tree coverage area has been increased since the program implementation. Nine of the ten CFUGs studied clearly answered that tree coverage area has been increased and one answered that no changes have occurred. In case of regeneration of plant (seedlings and sapling), six of the 10 CFUGs have done well and four have average characteristics meaning that the forests are sustainable.

Table 5:- Indicators after intervention of community forestry program

Name of Community forest	Area covered by tree	Tree density	Tree Species	Productivity	Biodiversity	Road access to forest	Plantation	Regeneration
ThokreFirfire	Increased	Increased	No Change	Increased	Increased	Yes	No	Good
Choyatar	Increased	Increased	No Change	Increased	Increased	No	Yes (Regular)	Good
RamcheDeurali	Increased	Increased	Increased	Increased	Increased	Yes	No	Average
SalghariSilapatra	Increased	Increased	No Change	Increased	Increased	Yes	Yes	Average
Sallaghari	Increased	Increased	Increased	Increased	Increased	No	Yes(2 times)	Good
Ramche	Increased	Increased	Increased	Increased	No Change	Yes	Yes	Average
DeutiBajyei	Increased	Increased	Increased	Increased	Increased	No	Yes	Good
Kalika	No Change	Increased	Increased	Increased	Increased	No	No	Average
Navadurga	Increased	Increased	Increased	No Change	Increased	No	Yes (regular)	Good
Ranipokhari	Increased	Increased	No Change	No Change	Increased	Yes	Yes (regular)	Good

After handing over management rights to the community (as a reflection of management input), most of CFUGs regulated their forests for regeneration and adopted sustainable forest management strategies. They made effective plans and procedures themselves, implemented the plans rigorously and moved towards successful sustainable management. Amongst the CFUGs studied, tree density and productivity of the forest has been increased in all forests after adaptation of community forestry. The improvement of productivity brings many benefits to community that can be distributed for their livelihood support. As shown in Table 5 most of the CFUGs (seven among the 10) carried out plantation as a priority activity, which indicates that most of the community reforested in degraded land in a planned way. Although 3 community forests are natural forests, CFUGs conserved and managed well.

Most of the forest in Nepal regenerates very easily from seed and roots. The plantation is subjected to less priority in recent years as natural regeneration is sufficient to allow for forest restoration. According to the respondents, the harvesting system is sustainable now, which was unsustainable before the implementation of CF. After intervention of the program, tree species such as, Shorearobusta (sal), pinus sp. (sallo), Schimawallichii (chilaune),

Dalbergiasissoo (sisau) etc have been increased notably in the all CFUGs. As depicted in Table 5, about 27% respondents replied that the status of prioritized species is in good condition after intervention of the program, and 40% replied that the condition is improving. The research revealed that besides forest condition's improvement, the level of awareness of forest protection among the users has also increased after intervention of the program. Similarly, 40% of the respondents replied that the conservation efforts are good, and 23.33% responded that situation is improving whereas 23.33% responded that the conservation efforts of the CFUGs were poor.

After the program intervention, many of the CFUGs put efforts into several activities and behaviors that contributed to the forest conservation. To improve the ecosystem services, the communities focused on planning of the activities for restoration of degraded land, water resources protection, soil erosion and landslide control, biodiversity protection and greenery promotion. According to the respondents, the restoration of the degraded land was the most important issue for them. Then after, water resources conservation, biodiversity protection, soil erosion control, greenery promotion are the other factors of conservation.

Table 6:- Users perception about forest

	Good	Improving	Satisfactory	Poor
Status of prioritized species	8 (26.66%)	12(%)	7(23.33%)	3 (10%)
Conservation efforts	12 (40%)	7(23.33%)	4(13.33%)	7(23.33%)

Despite effective conservation efforts and significant improvement in the forest condition in the country, forest products are not sufficient to meet growing demands of the community. Most of the CFs studied are not in the situation to fulfill the forest product needs of the users and the revenue generation is also low. Forests do not generate enough revenue to support livelihood of the local people. CFUGs are very sensible about sustainable use of forest resources which ensures that use of resources are less than the rate of regeneration. Particularly, forests are unable to meet the demands for timber, mainly due to the immaturity of the forests to produce large amount of timber.

Most of users do not have technical knowledge about harvesting and silvicultural practices among other. They do not have technical human resource as well. Their management model somehow tends to be traditional. One of the underlying problems of the CF is most of the CFUGs adopted a conserve-oriented approach rather than taking economic benefit for the community. They harvested few forest products mainly to restore and protect the forest products. Also, the study found that most of the users are unaware of the financial opportunity from the Non timber forest products (NTFPs) to the community forest. Despite having a huge potential of commercial value, NTFPs are being ignored. Either they are selling the NTFPs in cheap price or the products are becoming useless due to no-market accessibility although, in recent years many CFUGs have shown concern towards the NTFPs and high commercial value products such as bamboo, lanthusemblica (amla), cardamom, broom grass (amriso) etc. CFUGs prioritized tree species of high commercial value as required, established nursery and carried out plantation. For example, DeutiBajyei CFUGs planted Sisau (Dalbergiasissoo) Khayar (Senegalia catechu) in 47.5 ha because of their high commercial value.

There are still many challenges for community forestry program towards making it more successful. CF of Nepal is based on protection approach rather than market oriented approach. CFUGs, however, are not far from criticism over few problems regarding representation and benefit sharing.

As depicted in the Figure 3, the majority of the CFUGs member responded that forest products' availability has been increased after formation of the CF. The study examined the member's perception regarding forest condition and outcomes of the CFUGs efforts. They answered that the CF program was raising their living standards and easing the livelihood. Local people use the forest for many purposes such as fulfilling their fuel wood needs for cooking and heating. Timber and poles are highly valued as commercial forest products, which are used for house and other building construction and making agriculture tools. In recent years, seven of the 10 studied CFUGs identified some non-timber forest products as commercial products such as fruits, vegetable, herbs etc. All the studied community forests supply timber to the users. Agriculture and livestock are the integral part of the household livelihood of the rural Nepal. So, there is huge demand for grass, leaf-fodder and leaf-litter. Leaf-litter is used for animal bedding and also used for compost fertilizer making. Particularly, users responded that fire wood, grass/leaf-fodder and leaf-litter have been increased significantly, whereas herbs and non-timber forest products have not been increased in the similar ways.

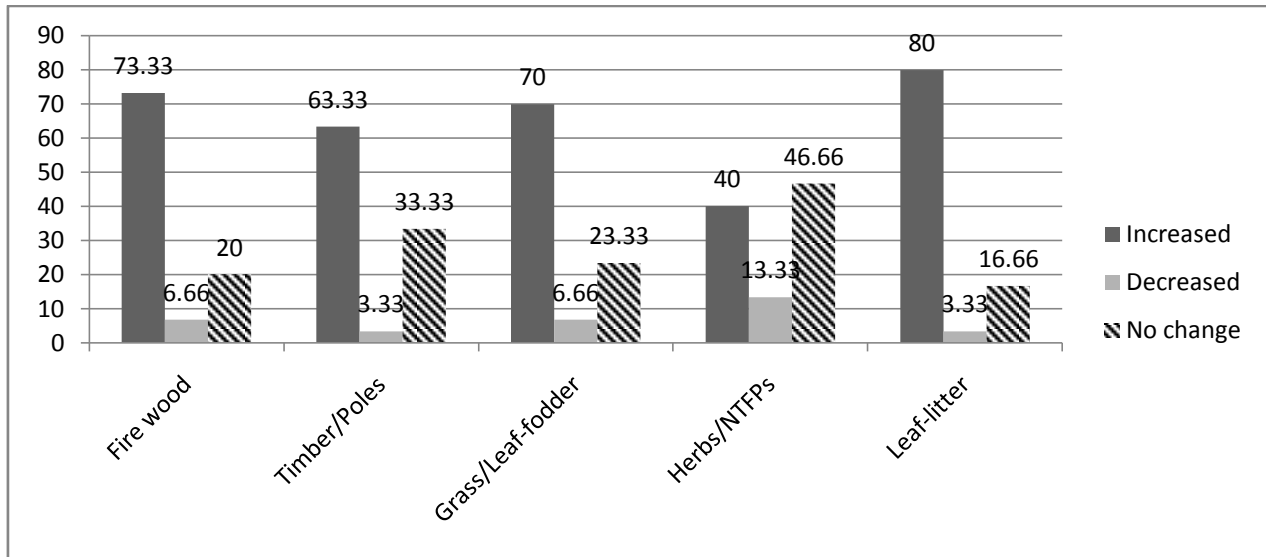


Figure 3:- Change in availability of forest products

CFUGs are legally autonomous to make decisions regarding the management action. Nepal made evident innovation in people's participation in forest governance practices (Ojha et. al, 2008). Forest resources belong to the CFUGs though the property (land) right belongs to the state. Most of the CFUGs selected for this study have clear procedure for operation and benefit allocation of the forest resources. Ideally, CFUGs practice the participatory approach and involve the women, marginalized group and poor in the decision making process (Bijaya et al., 2016; Pokharel et al., 2007). However, there have been some criticisms that CFUGs are not inclusive and elite group dominate in the decision making and benefit sharing process (Yadav et al., 2003; Bista et al., 2012; Pokharel and Nurse, 2004). The study found that CFUGs practice the democratic norms to elect the executive body for operation and management of the CF. It is a strong institution for social inclusion and supporting local democracy. CF program is considered as a vehicle for wider social-economic development of the community which helps for the improvement of community development such as school, drinking water, roads, irrigation etc (Yadav et al., 2003). Most of CFUGs contribute to build social infrastructure. Apart from financial support, CFUGs contribute in raising social awareness on health, education, and forest protection in local level.

The major gain from community forest is quality improvement of forest resources and improving the livelihood of the people. Many researchers (e.g., Pandit et al., 2011; Adhikari et al., 2007; Bijaya et al., 2016; Yadav et al., 2003), CFUGs and Government officials agree that there have been significant positive changes in forest quality since community forestry was introduced. Not only ecological benefit, community forestry program has contributed to improve the livelihood of the local people. According to in-depth national survey conducted by Nepalese Ministry of Forests and Soil Conservation, households in 137 CFUGs across the country mentioned that community managed forests have increased incomes of the rural poor, women and Dalits (marginalized group) (Pandey et al., 2015).

The study found that in CFUG, the community develops the management rules and gets approval from the District Forest Office. They do occasional planting, undergo silvicultural operations on a regular basis. In community forest, harvesting of timber is restricted, harvesting of grasses, leaf litter, fallen wood are generally permitted as per rules and regulations. Time to time CFUGs extraction and distribution or sale of the timber and non-timber forest products are CFUGs' major benefit sharing activities. Local people monitor the forest as a volunteer on a rota basis. CFUGs do not have rights to sell or transfer the land itself because property rights are protected by the governments/state.

After the intervention of the community forestry program, the forest conditions have improved. Similarly, water resources, biodiversity, forest productivity, greenery have also improved (Pokharel et al., 2007). Communities are focused on creation of good atmosphere to enhance the ecosystem services. Despite low commercial benefit from the forest, livelihood of the users has improved gradually as they have access to fodder for their cattle, timber for making home and fire wood for cooking and heating.

Conclusions:-

Community forestry is an appropriate participatory resource management approach to conserving and utilizing forest in a sustainable way. This program is successful in restoration of degraded land, improving forest condition, conserving biodiversity and supporting livelihood of the local community by providing forest products. After two decades of successful management practice by local communities, Nepal gets rapid growth on forest conservation.

In Nepal most of the communities are practicing passive management system that brings few outcomes due to lack of broad knowledge and management skills. Additionally, most of the CFUGs are not aware of potential of their forests. Shift from protection-oriented to market-oriented approach is another major issue that needs to be addressed. Due to conservation approach, revenue generation of the forest is very low and livelihood support from the forest is also less than expected. Benefits for the local users are equally important as conservation of the resources. It has been reported that elite domination on decision making process has suppressed the equitable benefit sharing and social justice, this issue needs to be addressed immediately. Community forest program is likely to be beneficial to mitigation and adaptation to address the consequences of climate change. Vegetation and greenery of the forest has increased after implementing the community forestry program that contributed to the increase of carbon stock and carbon sequestration.

CFUGs are conserving their forests and using resources in a sustainable way and improving their livelihood in the mid hills of Nepal. In nutshell, this study concludes that the CF program brought significant changes to the outlook of Nepalese forestry sector by reversing the previous tendency of massive forest degradation that has resulted into preventing negative consequences. The program has improved forest condition in terms of greenery and tree coverage area and contributed to the livelihood of the people in a sustainable manner. However, it has been recommended that market-oriented approach would help community to get more economic benefit than existing approach. Community led initiative in Nepal has set best example in forest conservation and this experience can be explored by other countries as well.

Acknowledgments:-

We are thankful to the Bachchu BK, Prabhat Bhattarai, Nawadeep Ajnabee, Kamal Basnet, Santosh Raj, Tufan Neupane for their valued helps in field research. We also express our sincere gratitude to Sanot Adhikari and Ramesh Bhusal and other experts for their highly valuable information and feedback.

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