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Full Length Paper

Assessment of Sacred Himalayan Landscape Program: A case study of Rasuwa District, Nepal

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The study aims to assess biodiversity conservation in the Sacred Himalayan Landscape particularly focusing to Rasuwa district. The participatory approach and methods was used during the study. The large majority of the respondents have found happy (98.63 %) with the programs due to improvement of sustainable livelihoods of the poor people, conservation of species and ecosystem conservation, sustainable forest management, Climate Change Adaptation activities, alternative energy and conservation education and capacity building of women, men, youths, indigenous nationalities and conflict affected people. However, there has been a still 20 per cent ultra poor and marginalized group of people excluded from the benefit sharing of mainstream development process. In the project areas, around 55 per cent participation of women has found in the program and decision-making process at households, community and municipal level. The conservation work together with local communities is facilitated, wildlife crime control unit was established, and capacity building of government staff and local communities has been enhanced. There has been budget gap and limited activities, poor coordination, duplication of program have been noted. There has been focused on local institution development towards sustainability of programs. There is a need of capacity development of local institutions.

Keywords: Biodiversity conservation, Sacred Himalayan Landscape, ecosystem, sustainable livelihoods, Climate Change Adaptation

1. INTRODUCTION

1.1 Background

Sacred Himalayan Landscape (SHL) Program include Taplejung, Panchthar, llam' Terathum, Dhankuta, Sankhuwasabha, Bhojpur, Udayapur, Solukhumbu, Khotang, Okhaldhunga, Sindhuli, Ramechhap, Dolakha, Kavrepalanchowk, Sindhupalchowk, Rasuwa, Nuwakot; Kathmandu' Dhading, Gorkha, Lamjung, Kaski, Myagdi, Manang and Mustang. The SHL builds upon the priorities of national governments in the region for landscape level conservation in the Eastern Himalayas. The MOFSC [Ministry of Forest and Soil Conservation], Nepal Biodiversity Strategy, 2002, [1] clearly emphasizes the need for development of biological linkages between the Kanchenjunga Conservation Area to Makalu Barun National Park in the west. Likewise, the National Biodiversity Strategy and Action Plan emphasize trans-boundary biodiversity conservation and biological corridor development in the landscape. Extending from Kaligandaki River in western Nepal through the Kanchenjunga region in Sikkim and Darjeeling in India to Toorsa Strict Nature Reserve in western Bhutan, the SHL links l4 protected areas of Nepal and India that connects 39,021 km^2 of natural ecosystems in Nepal, the SHL covers 18 districts and an area of nearly 29,000 km^2 and includes five protected areas, namely Langtang National Park, Gaurishankar Conservation Area, Makalu Barun National Park, Sagarmatha National Park and Kanchenjunga Conservation Area. The most of southern boundary of the landscape follows the Watershed boundaries of the Koshi river basin and the northern boundary follow the international boundary with China. The SHL is contiguous with the qomolongma Nature Preserve in the Tibet Autonomous Region (TAR) of

People's Republic of China and also connects to the Bhutan Biological Corridor Complex in the east. In the west, the SHL has the potential to connect to the Manaslu Conservation Area and the Annapurna Conservation Area. Western boarder of SHL has been redefined with Kaligandaki River in the west based on the scientific evidences [2]. The programs aims to conserve the rich biodiversity enhance local livelihoods needs and sustain diverse cultures and traditions in the Sacred Himalayan Landscape. The project has been implemented with the coordination with major Government agencies and civil society organizations. The study has focused on Rasuwa District particularly Langtang National Park.

1.2 Objectives of the study

The objectives of the study are to:

1. Explore the level of changes made by the project and analyze the extent to which the achievements have supported the program goals and their objectives, and

2. Analyze the program effectiveness-longitudinal effect and community of the project activities/services as well as the scope and extent of the institutionalization of the program; explore the cost- effectiveness of the project activities.

2. MATERIALS AND METHODS

This is a longitudinal study to the sampled population. A longitudinal study captures data over a period of time to understand the long-term effects of changes in products, processes, or environment. The study was carried out in the project areas by selecting a purposive sample of respondents from a defined population and administered a semi-structured questionnaire to them. In addition to review of project documents, direct observation, focus group discussion, key informant interview, case study and basket of Participatory tools and techniques were used to capture the quantitative and qualitative information from the respondents.

The participatory approaches and methods were adopted by involving the project stakeholders primarily the direct right holders in general using a combination of qualitative and quantitative tools for data collection. A greater focus however was put on the qualitative methods regarding primary data collection. The gender equality and social inclusion was also taken into account while carrying out the evaluation study. Appreciative inquiry was also adopted while discussing with marginalized people to dig out the positive and areas for improvement aspects of the project's outputs, outcome, impact and social status and position of marginalized group of the people in the society. The triangulation methods have been used to verify the information. The information has been analyzed based on trend over time and pattern over space. The study was conducted in June- July 2017.

3. RESULT AND DISCUSSION

The study has focused in SHL Program’s outputs, outcomes and impact at different level. The program progress analysis and evaluation of various activities on the basis of target, achievements, review of literatures, program progress reports, happiness mapping, score ranking, direct observations, case studies, focus group discussion, interview with key informants etc have been presented below. The study has focused on trend over time and pattern over space in order to map out the changes over the program period. This is a long-term program that overlaps the impact of program activities and multiple factors involved for the changes.

3.1 Effectiveness and Impact

The Sacred Himalayan Landscape and National Conservation Program Area have been smoothly implemented in the program areas. The program have brought positive changes in the lives of women, men, children, Dalits, ethnic groups, youths, and conflict affected people including marginalised communities.

3.1.1 Happiness Mapping of Rightholders' Perception towards the Programs

When asked about the perception towards SHL with respect to overall program performance, the respondents have scored 827 (70.38 %), 332 (28.25 %) and 16 (1.36 %) for very happy, happy and unhappy (poor) respectively. The large majority of the respondents (98.63 %) have rated very happy and happy with the programs because of the improvement of sustainable livelihoods of the poor people, conservation of species and ecosystem conservation, sustainable forest management, Climate Change Adaptation, alternative energy and conservation education and capacity building of women, men, youths, ethnic groups and conflict affected people. The happiness mapping tool was used to map out the perceptions towards happiness of the people (Table 1).

A total of 50 corn seeds assumed as 100 per cent were given to every respondent. A total of 24 persons participated in the exercise in order to score the performance of SHL conservation program with the support of various funding agencies. The community perception was mapped out based on their direct observation, experience and best judgment of the respondents. This was measured in relative terms. The frequency represents the scoring of the respondents on set parameters.

Table 1: Happiness Mapping of Stakeholders towards SHL Programs

Parameters	Frequency	Percent
Very Happy	827	70.38
Happy	332	28.25
Unhappy	16	1.36
Don't Know	00	00
No Response	00	00
Total score	**1175**	**100**

Source: Field Survey, 2017

3.1.2 Score ranking of major conservation activities

The score ranking tool was used with the participation of three types of respondents that include community women, men and government staff members to measure the effectiveness of key program activities of SHL in the communities (Table 2).When asked on which program activity is most popular in the community that the respondents ranked first for species and ecosystem conservation and conservation education and capacity building, ranked second for sustainable livelihoods, ranked third for sustainable forest management, ranked fourth for climate change and energy, ranked fifth for planning, monitoring and development, ranked sixth for policy and advocacy, ranked seventh for fresh water according to the direct observation, experience and judgment made by the respondents based on the increased forest coverage, conservation of endangered species (plant and wildlife) and ecosystem, improved income and resilient livelihoods, leadership development, increased social status of direct beneficiaries/rightholders and increased women self-esteem in the society.

A total of 10 seeds of corn were distributed to each respondent to judge the popularity of the key program activity at the grass root level. A total of 44 participants included women, men and government staffs in the score ranking exercise across the sample areas. It should be noted that higher the score greater the performance during the score ranking by respondents. The community perception was map out based on the judgment of the respondents. This was measured in relative terms.

Table 2: Score Ranking of Key Program Activities by Stakeholders

Key Program Outputs	Women	Men	NGOs/Gov	Total Score	Avg. Score	Rank
1.Sustainable Forest Management	98	182	53	333	7.56	**III**
2.Species and Ecosystem Conservation	109	182	57	348	8.0	**I**
3.Climate Change Adaptation and Energy	109	172	51	332	7.5	**IV**
4.Freshwater	104	158	50	312	7.1	**VII**
5.Sustainable Livelihoods	112	166	57	335	7.61	**II**
6.Policy and Advocacy	107	158	52	317	7.2	**VI**
7.Planning, Monitoring and Development	106	161	59	326	7.40	**V**
8.Conservation Education and Capacity Building	112	176	60	348	8.0	**I**

Source: Focus Group Discussion, 2017

3.2 Sustainability

Sustainability is a major issue of the most of the development projects in Nepal due to high incidence of poverty, weak management capacity and poor governance system. In this project, the implementing partner organization Ministry of Forest and Soil Conservation, Department of Forests, Department of National Park and Wildlife Conservation and local civil society organizations has taken measures for the continuation of the Sacred Himalayan Landscape and National Conservation of Priority Area issues in the future.

3.2.3 Impact in Brabal village Rasuwa, Langtang National Park Buffer Zone

The score ranking tool was used with the participation of women and men of sustainable village in Brabal, Thuloshyaphru, Rasuwa to measure the impacts of key program activities of SHL conservation at the communities (Table 3) level. When asked on before and now situation mapping what was the changes observed in the community that the respondents scored the main impacts of program in plant, people and wildlife.
A total of 10 seeds of corn (assumed to be 100 per cent) were distributed to the leader of the group to judge the changes. The focus group discussion was used that included women and men members of sustainable village in the scoring exercise. Each group member was allowed to participate in the discussion before scoring in the before and now situation. It was noted that higher the score greater the performance during the score ranking by the respondents. The community perception was map out based on the judgment of the respondents. This is being measure in relative terms.

Table 3: Impact on Brabal, Rasuwa, Langtang National Park Buffer Zone Users Groups

Parameters	**Before (August 2012)**	**Now (June 2017)**	**Difference**	**Reasons**
1.Forest Conservation	6 (60 %)	9 (90 %)	3	Increased dense forest Controlled grazing Mess wire fencing
2.Wildlife Poaching Control	2 (40 %)	9 (90 %)	7	Controlled wildlife poaching due to increased community awareness Declared as no go zone (red panda zone)
3.Sustainable Livelihoods	1 (20 %)	7(70 %)	6	Increased income generation Created self-employment Controlled crops damaged by wildlife
4.Interrelationship between Plant, Wildlife and Human-being	2 (40 %)	6 (60 %)	4	Established good relationship between wildlife and human-being
5.Leadership Development and local institutional development	2 (20 %)	8 (80 %)	6	Developed local leadership Increased women awareness Developed local institutions
6.State of Poverty	9 (90 %)	3 (30 %)	6	Reduced direct poverty and suffering because of self employment creation within the community such as Chiraito trading, vegetable farming etc

Source: Focus Group Discussion, Rasuwa, 2017

Monkey and wild boar has not been controlled successfully through mess wire fencing due to weak base and open space in the rural road. There is a need of PCC in the base of mess wire to control wild boar entry in the farming areas. However, monkeys easily cross the mess wire.

3. 2. 4 Prey-base populations of snow leopards in increasing trend

The population of blue sheep was found to increase in KCA by 16.8 % from 1,167 individuals in 2007 to 1,404 individuals in 2012. Similarly, the population of Himalayan tahrs increased by 48 % in Sagarmatha National Park (from 189 individuals in 2010 to 281 individuals in 2012), and by 19 % in Langtang National Park (from 331 individuals in 2009 to 394 individuals in 2012). Direct count method was employed to update the population status of the prey species. WWF Nepal has been supporting DNPWC to periodically update the status of priority species and species of special concerns within Protected Areas [3].

There has been motorable road facility in the village. Local people have constructing the RCC building for shelter as earthquake reconstruction. They have declared the red panda conservation area to nearby hill. The numbers of tourists have been increased in the village. There has been increased household income due to chiraito farming, potato cultivation in two seasons and vegetable farming etc.

Mr. Phinjo Tamang has expressed his positive views toward SHL program. "Now, our village has become like heaven due to increased bundle of facilities. Development has gained the momentum in our village. I earned NPR 250,000.00 (two hundred fifty thousand) last year. This money has been used for children education and other for household consumption. However, we have not yet received the proper market price of the agricultural produce. Government should provide marketing facility of our agricultural produce" says Phinjo Tamang-55, Chairperson of Sustainable Village Coordination Sub-Committee, Thuloshyaphru, Rasuwa, buffer zone, Langtang National Park, July, 2017.

In the Thuloshyaphru, there has been formed the anti-poaching committee to conserve the red panda, deer, snow leopard etc. They have done patrolling 4 times per year. WWF, SHL has provided tent, utensils, GPS, compass, sleeping bags to anti-poaching committee. The local youths have been organized for this job. This is good initiative taken by youths that lead to sustainable forest and wildlife conservation. WWF, SHL program should boost the spirit and morale of the local youths by providing incentives, award, skilled base training for livelihoods.

Mr. Tamang put forward his views on anti-poaching work supported by WWF Nepal. "I am enjoying in anti-poaching job to save red panda, and musk deer. The foreign tourists visit our village to see red panda. For me, wildlife conservation work is very important. I am doing volunteer job for the cause. However, we need skilled base training like guide training, carpentry, mansion work, and nursery raising training for livelihoods" says Mr. Nakpu Dorje Tamang-38, Thuloshyaphru, Rasuwa, Langtang National Park, 2017.

Similarly, chairperson of agriculture cooperative, Timure, Rasuwa expressed her valuable response toward SHL. "we have received benefits from buffer zone programs particularly the vegetable farming, small irrigation scheme, drinking water supply in cooperative building, plantation, gas distribution to cooperative members (NPR 1800/cylinder). There has been changed the life style of villagers after the distribution of gas cylinder that include easy to cooking food, saved the time for not fetching the fuelwood, conserved the forest as well. Now, people have stopped the use of fuelwood for cooking purpose. We are organized in the cooperative with the support of buffer zone program. However, there is a need of office assistant to keep the proper book of account, scaling-up of gas cylinder distribution from 100-200 cylinders" says Ms. Pasang Tamang-33, Chairperson of Agriculture Cooperative, Gosaikund Rural Municipality-2, Rasuwa, 2017.

3.2.7 Impact on Pairebeshi, Rasuwa, Buffer Zone of LNP

WWF Sacred Himalayan Landscape program was initiated in this community in 2006. The buffer zone program has been popular in the community. It has launched commercial vegetable farming through plastic tunnel; cattle shed improvement, biogas plant, water source protection, wildlife water pond construction, supported to rehabilitation program for earthquake affected people, construction of check dam to control landslide, fire control program, eco-club formation, environmental awareness etc. However, after Gorkha Earthquake 2015, the local people have demanding the infrastructure development program (shelter construction) in order to rehabilitation of earthquake survivors.

The score ranking tool was used with the participation of women and men of Pairebeshi, Laharepauwa, Rasuwa in the buffer zone of Langtang National Park to measure the outcome and impacts at community level. When asked on before and now situation mapping what were the changes observed in the community, the respondents scored based on the main impacts of program in plant, people and wildlife using certain socio-economic and environmental indicators (Table 4).

A total of 10 seeds of corn (assumed to be 100 per cent) were distributed to the group leader to map out the changes observed in the community. The focus group discussion was done that included women and men members of the Buffer zone Forest Users group in the exercise. Each group member was encouraged to participate in the discussion before scoring. It should be noted that higher the score greater the performance during the score ranking by the respondents. The community perception was mapped out based on the judgment of the respondents. This is being measured in relative terms.

Table 4: Impact on Pairebeshi Buffer Zone Forest Users Groups, Langtang National Park

Outcome Indicators	Before (August 2012)	Now (July 2017)	Difference	Reasons
Forest Conservation	4 (40 %)	9 (90 %)	5	Increased dense forest Constructed the checkdam Increased awareness Broom grass plantation in the landslide area Controlled grazing
Wildlife Poaching	9 (90 %)	1 (10 %)	8	Decreased wildlife poaching significantly Increased community awareness
State of Poverty	5 (50 %)	2 (20 %)	3	Increased self-employment Commercial vegetable farming Saving & credit schemes Reduced direct poverty
Interrelationship between Plant, Wildlife and Human-being	2 (20 %)	8 (80 %)	6	Increased awareness to forest conservation Wildlife conservation Established good relationship between wildlife and human-being
Leadership Development/Local Institutional Development	2 (20 %)	8 (80 %)	6	Developed local leadership Increased women awareness Developed local institutions

Source: Focus Group Discussion, Rasuwa, 2017

"The buffer zone program is fully owned by the local community. This program is popular among the women and poor people because it has brought the changes in the lives of poor and vulnerable groups of the community with the support of basket of program activities related to sustainable livelihoods and biodiversity conservation. In the future, SHL program should focus on earthquake affected households reconstruction, homestay, 'sustainable village program', *Ghale Ghadhi, Kamare Gadhi* protection for ecotourism" says Mr. Uttam Thapa (July 2017), Chairperson, Laharepauwa Buffer Zone Forest Committee, Langtang National Park, Rasuwa.

Similarly, the perception of local women representative towards to SHL program has been mapped out that includes:

"The buffer zone program is useful for us because it has increased people awareness, conserved forest and wildlife, supported in livelihoods and income generation to make a difference in the life of women and poor men. However, we need further support on commercial vegetable farming, leadership development training, bamboo and broom grass plantation in landslide affected area" says Ms. Gyanu Thapa Magar-39 (July 2017) chairperson, Pairebeshi Community Forestry User Group, Uttarganga Rural Municipality-4, Rasuwa.

3.2. 8 Technical Sustainability

The technical sustainability is the intervention of farmers' managed technologies in order to increase income and resilient livelihoods of the local people by considering the species and ecosystem conservation. A case study has been presented below (box 1).

Box 1: Pipalbot Pond Irrigation users group, Dhaibung, Rasuwa

The Kalika *Dharmik* Forest group Dhaibung, Rasuwa was formed with the support of SHL program. It has a total of 500 members and eleven executive committee members to lead the group. A pond irrigation scheme was constructed in Pipalbot in the capacity of 102,000 lit water that supported by WWF, SHL program in response to climate change adaptation. A total of 30 HHs have received benefits from the pond irrigation scheme that irrigates 7.5 ha area. There has been changed in the productivity per unit area significantly after the pond irrigation completion. There has been increased income of NPR 35,000 per year per Ropani (now in 2017) area as compared to NPR 16, 500 income per Ropani per year (2013). There has been increased total NPR 2,775,000 (NPR 2.75 million) income per year from the same land. The small irrigation schemes can contribute a lot to increase income of the smallholder farmers that lead to food security and sustainable livelihoods (Table 8). This is regarded as good strategy in response to climate change adaptation measure. This program should be scaled-up in the years to come to make a difference in the lives of climate vulnerable community.

3.2.3 Financial Sustainability

The financial sustainability of the program and local institutions is crucial aspects for long lasting. In the project areas, there has been formed Buffer Zone Forest Users Groups, Buffer Zone Forest Users' Committees, agricultural cooperatives, saving & credit groups, commercial vegetable farming using plastic tunnel, livestock enterprises, poultry farming, dairy industries, NTFP based enterprises and ecotourism (homestay) program activities have been operated with the local leadership. The National Parks also allocated about 30-50 per cent income to buffer zone community development. The public hearing or public auditing events at Buffer Zone Forest Users groups and Buffer Zone Forest Users Committees organized in order to promote financial transparency and to control and prevention of misuse of resources. However, there is a need of capacity development of executive committee members in this regard.

3.3 Efficiency

The Sacred Himalayan Landscape and National Conservation Priority Area have been envisaged for long term program planning until 2050. However, the midterm evaluation has been focused for the period of August 2012 - June 2017. There has been completed most of the program activities as planned. The WWF program team, partner organizations and Government of Nepal, Ministry of Forest and Soil Conservation, Department of Forest and Department of National Park and Wildlife Conservation have done satisfactory performance.

3.3.1 Impact of Gorkha Earthquake 2015

There has been challenged faced by the Program Management Team due to the Gorkha earthquake of 25 April 2015 and its aftershocks resulted in huge loss of life, injury, and economic damage in 31 districts (Central and Western Regions) of Nepal, affecting all sectors. The post disaster needs assessment (PDNA) estimated the value of damage and loss at $7,065 million, a large proportion of it housing [4]. While reconstruction will take many years and more investment, there is a great opportunity to ensure that building back is not only 'better and safer' but also greener, ensuring healthy ecosystems for disaster risk reduction and natural resources for resilient livelihoods and economic prosperity [5].

Geological and hydrological impacts

The earthquake induced at least 2,780 landslides and many ground crakes in 31 districts, significantly damaging settlements, infrastructure, agricultural land, forests and water resources; the frequency of landslides was three times greater than that before the earthquake. A large avalanche in Langtang valley destroyed Langtang village and flattened nearby forest. Water resources changed in some areas, with reduced or no flows in some, and new sources starting to flow in others. Freshwater ecosystems in the Koshi and Gandaki basins were affected by increased amounts of sediments, and a few rivers were temporarily blocked by landslides. Risk of downstream flooding is increased due to deposition of large amounts of sediment.

Impacts on forests and biodiversity

An estimated 20.2 per cent of forest cover in the affected areas was lost, mainly pine forest and sub-temperate forest [4], it will take many years for many sites to stabilize and vegetation to reestablish, and there is a risk of invasive species establishing. Seven protected areas were severely affected, and their management and that of community and government forests was disrupted, with risk of increased illegal extraction. Some wild animals are known to have been killed directly by the earthquake; others are likely to be affected by landslides restricting their ranges and the earthquake occurring during the main breeding season. Loss of NTFP or access to them has significant impacts on local livelihoods, as does the disruption to tourism [5].

Impacts of solid waste and hazardous materials

A huge amount of debris was generated from damaged buildings. Hazardous waste released into the environment included medical wastes that was haphazardly disposed of; electrical wastes; chemicals from laboratory spills; industrial chemicals; and petroleum products. Lead and mercury were released including lead in paint, posing long-term health hazards. Some toxic chemicals will end up in ground water or rivers; some are persistent pollutants [5].

Project implementations has been done under co-management system where government representatives deputized as a project lead and play critical role in ensuring co-ordination with local level authorities and partners on the ground whereas central level project steering committee and project executive committee provides policy guidance and support with strategic direction in implementations. WWF has organized the transboundary meeting with China and India as well in order to solve the transboundary issues related to illegal trade of wildlife and fire control etc.

China-Nepal Memorandum of Understanding (MOU) on cooperation in the field of forestry and biodiversity conservation (2010) is under implementation through the support of WWF particularly in organizing local level transboundary meetings. A local level transboundary meeting between China (Tibet Autonomous Region-TAR) and Nepal was organized on 25th April 2015 in Dhunche, Rasuwa, Nepal. The meeting delegates discussed about the cross-border conservation issues particularly forest fire and illegal wildlife trade in the border areas [6].

An event of regional trans-boundary meeting between India (Sikkim) and Nepal organized on 17 February 2014 in *Gangtok*, India to enhance trans-boundary cooperation. The meeting decided to continue cross-border joint monitoring to identify and address conservation issues; and strengthen information and communication systems between the two countries to stop poaching and illegal trade of wildlife and plant parts. Snow leopard research in Nepal and red panda research in India was shared in the meeting and agreed to collaborative research on flagship species through common understanding on methodologies and information sharing [7].

3.5 Gender Equality and Social Inclusion (GESI)

The WWF team has developed a more comprehensive reference GESI policy; build CBOs' implementation capacity, enhance understanding on gender and conservation, and promote an enabling environment to achieve higher impact. WWF Nepal's future focus envisaged on building the capability of local natural resource management institutions by helping in their human resource Development and providing training and orientation to local resource persons, respective project staff, social Mobilizer and implementing partners in the landscapes programs, and performing periodic social and gender auditing of all targeted activities [6].

The Forest users Groups, Buffer Zone Forest Users Committee and agriculture cooperatives are the backbone of the SHL conservation programs. There has been changed in the traditional gender roles of men and women where women farmers participate in the community meeting whereas men go to jungle to fetch fuel wood and fodder. At present, this has been a normal phenomenon in the society. The gender issue has been taken into account in the assessment-design-implementation-monitoring of SHL programs. In the project areas, the participation of women (around 55 per cent) in the development process has significantly increased particularly in decision-making process at households, community and municipality level. There has been narrowing down the gap in traditional gender roles and division of work in women and men. However, women have still more engaged in domestic chores whereas men have focused more in seasonal migration and plough the land. In case of access to and control over resources, women have also increasing greater influence within household and even in the community level resources due to the positive impacts of the conservation programs. The Buffer Zone Forest Users Groups and Buffer Zone Forest Committee have greater roles to increase women awareness and organizing in the groups. There has been significantly increased an

articulating and bargaining power among the women to claim the rights with duty bearers particularly with municipalities and district line agencies. The work load of the women has been reduced due to access to drinking water; grain mills, road transportation facility and increased gender awareness etc. However, the patriarchal social structure is still dominating in the society. The promoting gender equity and social inclusion in real sense is challenging work for civil society organisations at the community.

3.6 Lessons Learnt

The following lessons learnt have been drawn during the study:

- Forest and wildlife conservation program should go together for species and ecological sustainability. However, local people should be in the centre of biodiversity conservation.
- Plant, animal and human inter-relationship is important factor for the ecosystem/ecological sustainability.
- The ecotourism activities particularly the homestay has become the means of income generation of the local indigenous people. This is the good linkage between biodiversity conservation and economic development. The local people have realized that wildlife and forest are the good source of income through ecotourism. Now, the local indigenous people have established love and affection with wildlife, forest and river.
- Regular trainings, review and reflections workshops and positive response from project staff is needed for the capacity development of Ban Heralu, community based anti-poaching unit, rapid response team members, youths in order to boost the morale for biodiversity conservation.
- The sustainability is only possible where there is link the biodiversity conservation works with livelihoods of indigenous people. The forest and wildlife are closely linked with local people's livelihoods. So, we could not undermine the local people in order to forest and wildlife conservation.
- The mobilization of local youths (women and men) for the conservation of forest and wildlife is instrumental. There is need of linkage between self-employment generation of youths and biodiversity conservation works in order to sustain the species and ecosystem.
- The biodiversity conservation work is the fun rather than burden to the state, community and professionals. People can enjoy in biodiversity conservation works.
- People, plant and wildlife should live together with co-existence and they should love each other if there is no threat for their life, livelihoods and habitat. People, plants and wildlife are the creation of Mother Nature. The conservation workers always should think as integrated approach not in isolation.

4. CONCLUSION

The large majority of the respondents are being happy with the programs due to improvement of sustainable livelihoods of the poor people, conservation of species and ecosystem conservation, sustainable forest management, Climate Change Adaptation, alternative energy and conservation education and capacity building of women, men, youths, ethnic groups and conflict affected people. However, it is yet to be strong enough and large coverage to make a difference in the life of poor and marginalized people. There has been a still 20 per cent ultra poor and marginalized group of people excluded from the benefit sharing of mainstream development process. There is a need of special plan and programs in order to address the real needs and priorities of the ultra poor and marginalized groups to make a difference in their lives. This is challenging jobs for the government and social development agencies including biodiversity conservation workers.

In the areas, the participation of women (55 per cent) in the development process has increased particularly in decision-making process at households, community and municipal level. There has been narrowing down the gap in traditional gender roles and division of work in women and men. However, women have still more engaged in domestic chores whereas men have focused more in seasonal migration. The migration of youth to foreign countries for employment has become a major demographic phenomenon, affecting local level resource management. These factors have forced a change in gender roles, increasing the number of women-headed households and compelling women to take on a greater role in natural resource governance.

The conservation work together with local communities is facilitated, wildlife crime control unit was established, and capacity building of government staff and local communities has been enhanced. There has been budget gap and limited activities, poor coordination, duplication and overlapping of program have been noted. In the

program areas, human-wildlife conflict, wildlife crime and encroachment of forest are the challenges faced by the implementing agencies.

It is better to figure out the significant changes over the period of time and disseminate with comprehensive reports to stakeholders for wider sharing. The community based monitoring system particularly in wildlife poaching control, control illegal logging, and marketing of NTFP based enterprises need to be strengthening. There is need of local level lobbing and advocacy works as well in the changed political context.

There has been focused local institution development such as agriculture cooperatives; non-timber forest products based small industries; community based anti-poaching units, community forestry users groups, buffer zone forestry users committees, supported to build community buildings, eco-clubs in order to link the biodiversity conservation with resilient livelihoods towards sustainability of programs. It should be need of capacity development of local institutions through support of office assistant in order to maintain book of account, regular training, exposure visits, and result based monitoring and evaluation etc. There has been support in the promotion of culture and indigenous knowledge in order to facilitate the ecotourism in conservation sites.

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