



## Final Report

# ***Reducing vulnerability to climate change in rural Nepal by supporting local business development based on forest-land-management-renewable energy initiatives, Nepal***

**Grantee: NORDIC DEVELOPMENT FUND (NDF)**

**Local Partner(s): Wildlife Conservation Nepal (WCN) and Himalayan Biotrade Pvt. Ltd.**

**Other Partner(s): Skovdyrkerne, Denmark, Bio-Synergy Denmark**

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## 1. EXECUTIVE SUMMARY

Agroforestry systems and forest management of fodder and timber combined with the cultivation, harvesting, processing and marketing of Medicinal Aromatic Plants (MAP) play an important role for rural forest communities to adapt and mitigate climate change. Thus the promotion of agroforestry systems and sustainable forest management not only adds values in the Gross Domestic Product (GDP), but also helps the country achieve its Sustainable Development Goals (SDGs) directly on Climate Action (13) and Life on Land (15). The project mainly focused on 10 community forests of Nawalparasi district to promote a model for regional environmental well being through viable green enterprises. The main purpose of the project was to develop forest based women enterprise and to sustainably and wisely use of forest resources leading to climate resilience and economic development.

In order to promote forest restoration, NTFP production in the unused lands of Community forests and to strengthen the capacity of the women to come together as an institutionally independent groups or women enterprises, 10 women groups from 10 community forests of Sunuwal and Bardaghat Municipality of Nawalparasi district was identified and formed. Out of the 10 groups, 7 are officially registered as groups in their respective municipalities. They are economically independent entities which functions as enterprises and are currently running nature based business focussed on cultivation / harvesting / distillation of medicinal oil plants (Lemongrass, Citronella, Palmarosa and Wild Turmeric).

A total of 54000 saplings consisting of timber, fodder and leguminous tree and shrub species were planted in all the participating community forests of Nawalparasi and Chitwan district occupying 32 ha. Additionally, 185 ha of unused lands is also brought under MAP cultivation providing economic opportunities for women groups. The women groups have contract with Himalayan Bio Trade Pvt. Ltd to which they sell the essential oil extracted from the MAP. There are 4 distillation units in operation.

Refresher training on the sustainable harvest of wintergreen was provided to the Community Forest User Groups (CFUGs) of mountain areas of the previous project. Each year the CFUGs sell 125 litre. of wintergreen oil to different buyers in the market.

A total of 110 units of biogas plants were installed in the participating households of the 10 community forests. The 110 households were also trained on bio slurry management.

31 trainings focussed on organic farming, organic certification, good agricultural practices, entrepreneurial skills, sustainable harvesting, livestock management, Distillation unit operation and environment protection was conducted which was benefitted by 703 participants representing women groups and local communities.

Each community forest is unique and it was found that there is potential green business opportunities available provided incorporation of entrepreneurship and private sector engagement. The MAP production itself seems to have a huge potential. Though the production is slow, but the women led MAP business claimed to have progressive results. It further requires standardization and validation and a further support on management and business.

## 2. ASSESSMENT OF IMPLEMENTATION OF THE PROJECT

### 2.1 Achievement of Outputs and Objectives

Planned Objectives and Outputs	Indicator(s):	Achievement of the objectives and outputs:
<p><b>Objective 1:</b></p> <p><b>Consolidate women groups into a women enterprise for scaling up of climate friendly essential oil business, fodder plant production and cash crops.</b></p>		<p>10 women groups from 10 community forests of Sunuwal and Bardaghat Municipality of Nawalparasi district was identified and formed. These women groups were involved in the restoration of the degraded areas of community forests, cultivation, harvesting and distillation of Medicinal Aromatic Plants. Out of the 10 groups, 7 are officially registered as groups in their respective municipalities. They are economically independent entities which functions as enterprises and are currently running nature based business focussed on production of MAP (Lemongrass, Citronella, Palmarosa and Wild Turmeric). The group also provides soft loans to the members of the group. Each group collects savings from individual members and save it in their account. Each group was also provided with seed money also known as Green Capital Fund to run businesses that are nature based.</p> <p>The 7 women groups have been very active and are already exploring opportunities with the local municipalities and district forest office and were also able to secure grants of maximum 2000 EUR for their group from the local available funds.</p>
<p>Output 1.1: By the end of the project, economically and institutionally independent women enterprise functioning with members from 10 women groups from 10 community forest user groups of Nawalparasi.</p>	<p>Women groups formed, meeting Formal Registration, Bank accounts, Economic participation, income increase MOV: meeting minutes, photographic documentation</p>	<ul style="list-style-type: none"> <li>- 10 women groups formed from each participating community forests involved in various forest based activities</li> <li>- Out of 10, 7 groups registered officially as groups in respective municipalities and now function as enterprises. They have formal registration, their own bylaws and constitution and Bank accounts.</li> </ul>
<p><b>Objective 2:</b></p> <p><b>Increase ecosystem resilience through natural forest restoration and agroforestry systems to adapt to climate and mitigate its effects, including improved livestock management</b></p>		<p>A systematic mixed forest restoration was conducted for each plantation activity that was planned. A total of 54000 saplings consisting of timber, fodder and leguminous tree and shrub species were planted in all the participating community forests of Nawalparasi and Chitwan district. A total of 32 ha of unused and degraded land underwent restoration. For the reforestation activities the saplings were raised in the project nurseries in Chitwan and Nawalparasi which is now handed over to the respective</p>

<p>for increased milk production and biogas installation.</p>		<p>community forest. The nurseries now have the capacity and human resource to produce 50000 saplings each annually. The produced saplings are distributed and are also sold to local community and neighbouring community forests or municipalities. The guardian community forests were also able to secure grants to continue the operation even after the project ended. The nursery in Nawalparasi was able to secure a reinvestment fund of EUR 15.000 from the Government of Nepal by winning a competitive grant announced by Ministry of Forest and Soil Conservation. The grant has been provided for nursery management and operation and for the plantation of high value NTFPs such as lemongrass and Cinammomum sps. Also one of the women group of Sitapokhari Community Forest was able to secure EUR 2000 from the municipality development fund for the fencing of the planted saplings and restoration of the small lake near the plantation site.</p> <p>An agroforestry system was also introduced in all 10 community forests where trees and medicinal aromatic plants are planted together. Seven groups from 7 community forests planted medicinal aromatic plants, lemongrass, citronella and palmarosa and wild turmeric, in more than 185 ha of barren land. For this women groups formed were actively involved. A total of 195 kg of oil was produced and 3000 kg of wild turmeric tubers was produced which was sold to Himalayan Bio Trade Private Ltd. The tubers were also sold to the interested community forests which were interested to start wild turmeric cultivation. Even though the 2017 August flood created a massive damage to the cultivation but yet the women groups were able to regain loss and were able to make an income of EUR 4000. The Sixth milestone showed a remarkable production of oil of 66.5 kg. Although the pace seems slow it progresses very well and the women groups are encouraged to take this business further.</p>
<p>Output 2.1: Four CFUG's continue management of 1963 ha of restored forest from previous project to ensure growing carbon stock.</p>	<p>Four Community forest trained on wintergreen harvest, Photographic documentation</p>	<p>Sustainable harvest of wintergreen in Rasuwa and Makwanpur which was initiated during the first phase of NCF project is continued. Refresher trainings on sustainable harvest was conducted. The distillation unit was also transferred to a accessible place in Rasuwa. New buyers were identified for wintergreen oil. Each year around 125 litre of oil is extracted and sold. Inventory has provided a clear insight on the changes in the carbon stock. While the Community forests in Chitwan and Nawalparasi shows a remarkable increase, there has been decline in the carbon stocks of the community forests of Rasuwa and Makwanpur which can be ascribed to the earthquake after which massive landslide took place. Rasuwa and Makwanpur district are both highly impacted region. Many trees were also cut down post-earthquake for</p>

		reconstruction phase.
Output 2.2: By the end of the project, 82 biogas plants benefiting 82 HH of 10 different CFUGs in Nawalparsai district have been installed, reducing GHG emissions, contributing to reduced pressure on forest, and eliminating indoor pollution.	<p>7,5 tCO<sub>2</sub>e/year per biogas plant reduced.</p> <p>Cows are not roaming freely in the forest but are kept by the house, reducing pressure on forest.</p> <p>82 households have eliminated indoor pollution leading to less health problems from open fire cooking.</p> <p>3 hours per day saved from not having to collect firewood</p> <p>3 hours per day saved from not having to collect firewood each day.</p> <p>125 EUR of increased income per household per year from Bioslurry fertilizer sale.</p>	<p>A total of 110 units of biogas plants were installed in the participating households of the 10 community forests. The 110 households were also trained on bio slurry management. Based on the survey conducted after the installation of the units firewood saving is 275 tons/year, kerosene saving is 704 litre, / year and together with the methane abatement due to a controlled burning of gas, the average annual reduction of green-house gasses is 17,93 tons CO<sub>2</sub>-eq/yr. per plant equaling app 1.972 tons CO<sub>2</sub>-eq/yr. Each household underwent a slurry management training and based on the lessons learnt they were able to produce 192.50 tons /yr. of bio compost fertilizer which is being used in their agricultural lands.</p> <p>Fodder plantation in the barren lands of the community forest has made the availability of fodder easy. Indoor pollution from open fire cooking has reduced according to a survey conducted with the 110 households. They do not have to spend time to collect firewood. Though the bioslurry fertilizer is now mostly used in their own farm lands, it was recommended to each household to start a business where they can sell surplus as fertilizers.</p>
Output 2.3: By end of project period, milk production from Livestock enhanced among 5,000 CFUG households in the 10 CFUGs in Nawalparasi	<p>Agroforestry system established and Milk production increased by up to 30% with support of new planted fodder trees even during winter season. In milestone 5 about 500 households will begin to harvest fodder species.</p> <p>Among 5,000 households, income increased by 200 Euros per cow per year starting from Milestone 5, and continuing for over</p>	<p>Agroforestry system initiated in the barren lands of the community forests have shown a progressive impact. Tree and fodder species are planted systematically. Women groups from all the 10 community forests are able to harvest fodder species in milestone 5 and 6. It was also recorded that milk production has increased by 20 % with the support of new fodder species during winter (M6). 200 HH directly benefitting since they are the growers and the users. It is projected with the expansion and growth of the fodder trees 5000 CFUG households will benefit from the fodder trees.</p>

	<p>20 years.</p> <p>MoV: Milking of cows in winter season. Photographic documentation.</p>	
<p><b>Objective 3:</b></p> <p><b>Develop business acumen of local communities.</b></p>		<p>A new approach for business activities was introduced to the local communities. Women were mobilised to bring into use the barren lands of the community forests. Women groups were formed, introduced to Medicinal Aromatic Plants (MAP) cultivation, harvesting and distillation. Lemongrass, Palmarosa, Citronella and Wild Turmeric was selected as MAP. 31 trainings focussed on organic farming, organic certification, good agricultural practices, entrepreneurial skills, sustainable harvesting, livestock management, distillation unit operation and environment protection was provided. Women groups are officially registered. A five year contract was renewed with Himalayan Biotrade Pvt, Ltd. The women groups were also trained on broom grass making and many women have already started making broom and selling them in their local communities.</p>
<p><i>Output 3.1:</i> 14 CFUGs, 1 Women Enterprise, and 10 women groups (25 trainees per each training) receive training and skill building for behavioral change and entrepreneurial skill developed by end of project. (31 trainings).</p>	<p>All women members of each group + CFUG members will be trained. The total number of trainees per training is 25.</p> <p><i>MoV: Photographic documentation and report.</i></p>	<p>Thirty one trainings focussed on organic farming, organic certification, good agricultural practices, entrepreneurial skills, sustainable harvesting, livestock management, Distillation unit operation and environment protection conducted. A total of 703 participants which included both the women group members and the CFUG members has benefitted from the training.</p>
<p><i>Output 3.2:</i> 3.9 EU trade fair participation by HBTL representative.</p>	<p>Developing products, publications and display of products from the CFUGs at the fair. Travel and per diem covered by HBTL.</p> <p><i>MoV: Photographic documentation. Report</i></p>	<p>The products from the project such as the lemongrass oil, citronella oil, palmarosa oil and wild turmeric oil was promoted in Incosmetics Global Trade Fair in Amsterdam in April 2018. The participation in this fair helped our project partner to expand network as well as promote our project products. A short movie on our project was also developed and displayed during the fair. The movie focuses on the women's role in Community forest and their work.</p>

<p><i>Output 3.3: Facilitate organic Certification of project products (lemongrass, citronella, palmarosa and patchouli oils).</i></p>		<p>Organic certification audit and on site inspection for crops handling and processing of lemongrass, citronella, palmarosa and wild turmeric was conducted continuously for 2 years and will continue for another 3 consecutive years.</p>
<p><b>Output 3.4:</b> NTFP women enterprise business diversified and scaled up, benefitting 150 women and their households directly, and indirectly a total of 5,000 households in the participating CFUGS.</p>		<p>These women groups are now officially registered and are economically independent and can opt for nature based businesses that do not harm their forests. Two distillation unit was established and maintained and are functioning. Women groups are able to secure their own funds from municipalities, district forest offices, their own savings and the project seed money. They are now functioning as individual entities which has ultimately empowered 200 women representing 5000 CFUG HH . 703 men and women belonging to 10 community forests participated in trainings which was focussed on skills development on nature based business and behavioural changes for environment protection. In order to enhance their knowledge 3000 copies of books on cultivation of Medicinal Aromatic Plants, Fodder species of Terai region and organic farming was published and is distributed.</p>
<p><b>Objective 4: Explore possibility to create a reinvestment fund for women enterprise to promote local green business ideas.</b></p>		<p>The project was able to bring in a well known business and management consulting firm in Nepal to identify and explore possibilities to promote and expand local green business ideas. Each community forest is unique and it was found that there is potential green business opportunities available provided incorporation of entrepreneurship and private sector engagement. The MAP production itself seems to have a huge potential. Though the production is slow, but the women led MAP business claimed to have progressing results. It further requires standardization and validation and a further support on management and business.</p> <p>It was also clearly pointed out during the consultation with the stakeholders as well as on-site visit that the CFUGs and their members have their own set of strengths and weaknesses. Though the forest resources are similar, conditions and quantity are different from one another. This also means that they have their own market opportunities. There is also an inadequate intervention by private companies like HBTL. Private sectors have potential to sustain forest-based enterprises and link the NTFP and other related products to wider market benefiting all the parties involved.</p> <p>In order to assess the possibility of creating an reinvestment fund the community forests need to continue its impactful works such as women group strengthening, essential oil extraction, nursery support,</p>

		bamboo plantation, forest restorations with multipurpose trees and plants. Since each of the CFs have their own potential resources, the future projects can focus on specialized interventions that are aligned to their individual strengths. Enhancing meaningful participation of the members helping them to understand various facets of management and operations was also identified as a key. The roles and responsibilities of the committee members and user groups should be clearly oriented before beginning any intervention and reiterated continuously. The government line agencies and local government bodies are equipped with resources to support the entities such as CFUGs and its women groups. Access to the resource could add value to project interventions and also help amplify its impacts. Lastly, If more buyers like HBTL can be brought into the picture then this will increase competition among the buyers in turn benefitting the user groups and motivating them to produce more.
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## 2.2 Deviations from the planned Outputs and Activities

All the activities were successfully implemented. Instead of 82 biogas 110 units were installed. This was possible due to available grants from the municipality. The project intended to create an enterprise but due to the new federal system, there was a ban in the enterprise registration process that proved to be beneficial for the women groups. Instead, seven women groups out of 10 were registered as individual entity functioning as enterprises for any nature based activities by women in their respective community forests. Remaining three other women groups could not find appropriate and available land, could not recover from the effects of floods. They are at the moment more focused on planting multi-purpose trees in lieu with the project.

## 2.3 Achievement of NCF indicators

NCF indicators	Results
1. Number of beneficiaries reached (women/men)	Women: 3000 / men: 2000 <sup>1</sup>

<sup>1</sup>A total of 15000 households (HH) are members in the project's 10 community forests. They are divided into various forest user groups within the community forest and are involved in Timber, fodder and fuelwood collection, NTFP harvest and Medicinal Aromatic Plant (MAP) cultivation inside the community forests. Most of the households are only interested in timber which is opened annually by the forest for communities. It was found that only 30 % of the household members were involved in MAP cultivation and fodder collection. These 5000 were taken into account during the project period. The trainings, restoration, MAP cultivation and Biogas installation were only focused on 5000 direct beneficiaries. But on the long run it would benefit the 15000 HH.

2. Number of people with increased resilience to climate change (women/men)	Women: 3000/ men: 2000
3. CO <sub>2</sub> e emissions reductions (actual at project completion and expected during the lifetime of the project's mitigation investments)	average annual reduction of green house gas is 4.572 tons CO <sub>2</sub> -eq/yr.
4. Number of green business concepts tested	1 (Cultivation of lemongrass, citronella, palamarosa and Wild turmeric tested in 7 Community Forests)
5. Number of new decent jobs created (disaggregated by number of permanent (women/men) and seasonal (women and men))	Permanent jobs created: 200 women / 50 men <sup>2</sup> Seasonal jobs : 500 women / 450 men
6. Number of people with improved livelihoods/income-generating possibilities (women/men)	200 women / 50 men. Same as above
7. Number of multi-stakeholder partnerships developed	Partnership developed with 30 stakeholders  Municipalities : 4, Community forests : 14, District Forest Office : 3, Management and Consulting firm (BIRUWA), Biogas installation company (BSP Nepal Program), Company for DU renovation (Shine Hydro Pvt. Ltd.), Agriculture and forestry University, Rampur  Project implementation partners : Danish Forestry Extension (DFE), Wildlife Conservation Nepal (WCN), Biosynergy, Denmark and Himalayan Bio Trade Pvt. Ltd. (HBTL)
8. Amount of funds leveraged (actual project co-financing and possible secured future investments for scaling-up/replication)	

### 3. CLIMATE CHANGE

The project was able to address components of Nepal's NAPA prioritized activities for climate change adaptation under the top priority project profile 5 entitled *Forest and Ecosystem Management: Managing trees outside the forests in public and private land (agro – forestry practice); scaling up of biomass energy technologies for less fuel wood consumption; managing community based forest fire in mid hills and Terai and profile 7*

<sup>2</sup> The 200 women are the women involved in MAP cultivation who are also the member of the officially registered women group. The 50 men are the ones involved in harvesting and transportation and operation of the distillation units.

*titled Ecosystem management for Climate adaptation; promoting improved pasture land management techniques; conserving and promoting medicinal plants and NTFPs (NAPA 2010: 30).* A total of 32 ha of unused and barren lands was reforested with 54000 saplings of fodder and multipurpose tree species. More than 700000 saplings of essential oil bearing plants (lemongrass, citronella, palmarosa and wild turmeric) was planted in 185 ha of barren lands inside the community forest in an agroforestry system supporting the disadvantaged local small farming communities adapt to climate change. In addition to this another 32 ha of degraded land was planted. This initiative will potentially sequester app 2.600 tons CO<sub>2</sub> annually. 110 households were installed with biogas units reducing the emission of GHG by an annual average of 1.972 tons CO<sub>2</sub>-eq/yr. Both the restoration and biogas production initiatives has helped mitigate the effects of climate change through carbon storage and GHG emission reduction.

#### **4. DEVELOPMENT IMPACTS AND CROSS-CUTTING ISSUES**

“We all knew forest provides with oxygen and good environment but little did we did to conserve the forest, we were only taking out fodder, firewood without realizing that this abundant resource will decrease one day. This project has shown us the way, we are planting more trees, keeping livestock out of the forest, guarding the forest and at the same time generating income without destroying it but by bringing into use the empty lands inside the forest. Some of us have also installed biogas plants and even from that we can make money. We are now members of independent women groups. We can now talk with people and local authorities, have secured our rights and very happy.” Bimala Sinjali and Chandra Kumari GC, Member of Women Group of Sitapokhari Community Forest and Daunne Community Forest, Nawalparsai

“WCN’s support has helped 200 women of 7 community forests of Nawalparasi district in utilizing their free time by bringing into use the unused lands inside the forest by cultivating medicinal aromatic plants which has supported in their income. The program has enhanced their capabilities in making decisions developing their leadership skills and to voice their opinions. “ Kamal Pariyar, Member, Chisapani Community Forest Nawalparasi and Member, FECOFUN, Nepal

It was realized during the initial stages of the project that women from the participating Community forests still faced discrimination and violence in public and domestically. The project aimed in empowering the women while mitigating and adapting to climate change. Women groups were formed, officially registered in municipalities and were actively engaged in sustainable use and management of natural resources through forest restoration activities, developed alternative means of livelihood through the production of Medicinal Aromatic Plants and capacity building trainings have opened up possibilities for new economic activities. Women’s role was transformed from exploiters to managers of forests building an ownership to natural resources. The project has been able to promote empowerment of women economically for gender equality and their voices are heard in decision making within community forest structure. This also included a greater role within management of the official women groups thereby has empowered them to become independent and decision makers within households. Social resilience was built by linking

smallholders to the market and provided them with economic opportunities through for instance know-how on NRM, carbon sequestration and business development, which in the end has contributed to social resilience.

Many areas inside the community forests were kept barren. Mostly men had the leading roles in the executive committee of the forests. It was slowly developing as a political agenda. This project has enabled the women to secure their rights over the forests. The nurseries were able to implement forest restoration timely. Regular trainings and awareness has raised reforestation activities. Women are now exploring new economic opportunities based on nature.

## **5. ASSESSMENT OF THE RESULTS AND IMPACTS OF THE PROJECT**

### **5.1 Relevance**

*Assess the extent to which the project has been suited to the priorities and policies of the target group, local stakeholders and beneficiaries.*

The project is relevant to the present context of Nepal which is prioritising community forestry as a valuable component to sustainable development and addressing climate change issues. This project has provided the women groups in understanding their forests better and know about the countless prospects through which they can make their forests economically beneficial without damaging them. The project also allowed them to practice democratic decision making and gender sensitive approaches.

### **5.2 Effectiveness**

The assessments show that the project has been able to fulfil almost all its objectives successfully. The project was able to utilise the available resources in the community forests to have economic benefits It has opened many doors of opportunities for the CFUG to explore in order to be actively involved in the forests not only to protect it but to also to utilise and getting connected to the world. This project has transferred technology through introduction of appropriate low cost technology distillation unit (DU) and was also able to bring into used an abandoned DU so that local communities get higher benefit from their community forest. Beside this their traditional knowledge base is incorporated with scientific technology on the use of indigenous plants as well as other viable high value species like Wild Turmeric.

Wild turmeric was favoured over Patchouli (*Pogostemom cablin*) which also has a very high market value and is a new intervention in the essential oil production in Nepal initiated through this project. This initiative has not only increased their per capita income but also generated their adaptation skills.

#### Achievements

- Number of direct employments generated in 2 different nurseries and 250 women and men from the women groups and for the operation of Distillation unit and production of MAP depicts that the project has been highly efficient.
- Through two nurseries 54000 fodder and tree species planted in degraded lands of 32 ha of different community forests of Chitwan and Nawalparasi. The nurseries are handed over to respective community forests and are in continued operation with efficient manpower and have the capacity to produce 50,000 saplings annually from each nursery. A business plan was developed and based on which the nurseries are sustainable on itself.
- Enhanced the capacity of 703 community members through different trainings and on-job trainings
- Three distillation units maintained and one abandoned distillation renovated and brought into use and are in operation.
- Women groups are solely responsible for the production of the MAP through their registered groups. They are responsible for securing funds from local authorities, find new markets and explore new investment and opportunities. Contract with Himalayan Bio Trade Pvt. Ltd Renewed ensuring their products are purchased at competitive market price
- Installed 110 units of biogas, trained 110 household on bio slurry management

### 5.3 Efficiency

The project has been very efficient in delivering project activities within the allocated budget achieving beyond its objectives. With the allocated budget for 82 biogas units 110 were installed. This was possible due to contribution from local households and additional grants from local government. The project intended to create an enterprise but due to change in government system the enterprise registration process was halted. Instead, seven women groups out of 10 were registered as individual entity functioning as enterprises for any nature based business by women in their respective community forests with the same allocated budget. This project has also been able to bring an abandoned DU into use benefitting the project and local communities in essential oil production which otherwise would have required additional financial assistance in installation of DU or transportation of cultivated essential oil bearing plants to Chisapani CF where the project had installed DU. With the allocated budget for the cultivation of lemongrass, citronella and palmarosa, the communities were able to cultivate additional indigenous plants as well as other viable high value species like Wild Turmeric.

### 5.4 Impact

Impact on the communities: The impact has been very positive on the communities. It has promoted transparency, gender empowerment and sustainable business among the workings of the CFUG.

Local communities are now able to tap forest resources such as the unused land that were usually wasted due to lack of proper knowledge on their utilization. Today locals are benefitting more from the sustainable use of forest resource to fulfil their economic needs without damaging the forest itself.

With the economic output and jobs created by this project locals are more motivated and enthusiastic about conservation of community forest and its sustainable use.

Rather than organization some of the community forests and women groups were able to secure funds from local authorities after observing the impacts of the project activities. The nursery in Nawalparasi were able to secure funds for its operation after the project ended, the women groups were granted fund for local municipalities for the protection of the natural lake inside the forest and protection of the saplings and the community forest in Nawalparasi were also able to gather funds for the installation of additional 28 biogas plants adding up to 110 units.

Benefits to the organisation: Experience in NTFP processing and marketing, building capacity of the women groups, women empowerment, building network with local authorities such as municipalities and District forest office, Networks built with Community forests

## **5.5 Sustainability**

In the 10 community forests of Nawalparasi district the women groups were mobilised for the restoration and production of MAP in an agroforestry system. Seven groups successfully registered themselves officially as groups which are now functioning as an economically independent enterprises and are continuing selling of essential oil in the markets. The products, which are produced, have ensured market by the project involving business partner, HBTL. Now local women groups are linked with market and economic returns from the products they produce are ensured. Economic incentives have motivated women groups to replicate similar activities in new areas and to test new ideas. The revenue generated are distributed amongst members in the form of salary for their time contributed while collecting and processing of raw materials. They have created operating funds and are collecting deposits regularly from members. This existing institutional arrangement within the group has enabled the continuation of the entire activities even after project.

This project has focused its activities in different areas inhabited by ethnic communities like; Tamangs, Tharus, Chepangs and others who are marginalized from different social and developmental activities. This project has helped in developing social cohesion among different ethnic communities through a common cause of creating a carbon sink. Today both the nurseries in Chitwan and Nawalparasi are growing saplings and are marketing their products. Nursery in Nawalparasi was able to receive a grant from the Ministry of Forest and Soil and run its operation while Nursery in Chitwan was able to attract private investor. Their target is to produce more than 50,000 saplings each year. This will help sustain the nursery on the longer run.

Today, local communities are aware of climate change impacts and importance of forests due to regular interventions during project period. More than 700 individuals from local communities were trained on various trainings like; carbon management, agroforestry, organic certification, sustainable harvesting, distillation unit operation, bio slurry management and maintenance and nursery management.

110 units of biogas plants installed which has been successful in creating attention from other community members as biogas are smokeless minimizing health risk due to indoor air pollution and is more efficient in terms of fuel wood consumption and can also bring economic returns by the sale of bio fertilizers. The project has been receiving more inquiries for Biogas after the successful launch of the units in 110 HH.

54000 fodder and tree saplings planted during the project period have covered approximately 32 hectares and 706400 saplings of MAP have covered 185 ha of barren land scattered at different places of project sites. Potentially sequestering app 2.600 tons CO<sub>2</sub> annually. This will increase forest coverage and restore natural habitat for wild animals. This high value forest and fodder trees will act as carbon sink and also provides economic returns by sustainable use of natural resources. The easy availability of fodder trees has warded off the livestock from grazing from the forest. Random grazing is controlled, milk production has increased by 25 % due to mixed protein rich fodder plants.

## **6. POTENTIAL FOR SCALING UP AND FOLLOW-UP INVESTMENTS**

The intervention of this project has empowered women beneficiaries through their involvement in forest based economic activities. The women groups have been provided with various trainings and are well versed with MAP promotion and production. There is a strong potential of the project being scaled up and replicated. Women groups that are not in the project have shown interest and initiated similar projects in adjoining community forests. The project will continue even after the NCF support has ended. Further scaling of the MAP production will add value in increasing the economic opportunities. For this the registered official women groups are already seeking funds through themselves and local project partners. HBTL has also renewed the contract with the women group for the next 5 years which ensures the market for their products. The government line agencies and local government bodies are equipped with resources to support the entities such as CFUGs and Its women groups. Access to these resources could add value to project interventions and also help amplify its impacts. Both the established nurseries has continued its operation and their target is to produce more than 50000 saplings each year. The community forests through our collaboration initiated developing networks with other relevant stakeholders and were able to secure grant from the Ministry of Forest and Soil Conservation and a private investor. This has given the opportunity for the nurseries to scale up. The project partner has renewed its Memorandum of Understanding with the respective community forests and will be providing technical support for the nursery and will also continue to restore unused and degraded areas. In Nawalparasi, the municipality has shown a keen

interest in promoting more biogas units and has already assigned a fund for Biogas installation. The local company has been contacted and are working on identifying the households for installation.

## 7. LESSONS LEARNED

These kind of projects may not be viable without the knowledge of market. Creating linkages and identifying the market plays a significant role in the success of their intervention and it is given a priority. The MAP production has still not met the projected but is still not discouraging. It was also realised that such types of forest -based cultivation project is entirely dependent on the climatic condition and unprecedented weather conditions has also challenged the cultivation. Also, success of such projects cannot be measured within a time frame of 2 years. This forestry projects require a timeframe more than 2 years to assess its success which has been our argument. But this project has paved a way for the upcoming women entrepreneurs to utilise their free time and invest in activities with objectives. One of the challenges the women groups are facing is the lack of orientation towards business and management aspects of an entity. The groups need to breakdown operational cost so that market shocks and other internal factors can also be considered while pricing the product and projecting incomes/ expenditures. It has been observed that for sustained positive impact, the entities need mentoring in standardization of business and management orientation. In order to do so an orientation workshop was organized to help facilitate the women groups to develop a strategy for green capital fund (seed money) and to provide guidance on the proper utilization of the funds made available.

The women group also underwent a workshop where representative of Community forests user group committee and women groups were forged to formulate an annual financial plan for each group.

## 8. FINANCIAL SUMMARY

**Table 1. Project financing per partner**

Expenditures, EUR	Financing, EUR						Revenues from the project	Total
	NCF	Grantee	WCN	HBTL	BioS			
Grantee	125.272	53.938	0	0	0	0	179.210	
WCN	129.508	0	73.270	0	0	0	202.778	
HBTL	62.677	0	0	24.817	0	0	87.494	
BioS	33.568	0	0	0	23.051	0	56.619	
Total	351.025	53.938	73.270	24.817	23.051	0	526.101	

## 9. CONCLUSIONS AND RECOMMENDATIONS

### *Conclusions and recommendations*

The joint project intervention of Danish Forestry Extension (DFE), Denmark, Wildlife Conservation Nepal (WCN), Himalayan Bio Trade Pvt. Ltd (HBTL), Biosynergy, Denmark and Skovdyrkerne , Denmark has been successful in addressing issues such as governance, gender inequality, poverty and social discrimination. More importantly it was able to consolidate and strengthen women’s role in community forest management, promote forest restoration and manage forest and fodder tree nursery for the community forests. The women groups are registered and are functioning, but it still requires to standardize their management and business models so that the management and business practices are more efficient. The businesses can be a role model in community forest-based NTFP usage in Nepal provided they are standardized and make informed decisions based on the business and management intelligences. This will help to generate replicable and profitable enterprise with maximized management outputs through mainstreamed efforts.

#### **An Excerpt from the Monitoring and Evaluation done by Social Welfare Council (SWC)**

SWC is a government body that governs and monitors NGO programs and activities in the country. Every project needs to be approved by SWC before the implementation.

A mid and final M&E was conducted by the external experts and the report was presented to SWC and WCN. The monitoring and evaluation team found that all the planned activities were well implemented by the project team in the project implemented districts. It was found that these project activities have played an essential and complimentary role for the sustainable livelihood of the community. Though the people of different communities have become more optimistic, the regularity of the program is necessary for the sustainability of the Project. The livelihood program has left positive effect and the activities of the program have been successful to attract the community to become optimistic to complete the program with their upgraded income-generating alternative livelihood. The project has provided different types of Training (short and long term), new technologies of farming medicinal and aromatic plants, weeding management harvesting and storage and processing in distillation plants. Regarding the financial aspect i.e. making expenses accordingly as planned and gaining effectiveness on the project activities, it was found that the allocated budget was properly used as planned. The financial transactions of this project were governed by the asset of policies mentioned in the finance and administration guideline of WCN. It was observed that all the financial transactions were in line with the budget activities. Cost review authority, review policy, minimization of cash transaction and request for disbursement of funds. It shows that this project followed financial governance.

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**Annex 1**
**Project completion fact sheet**

<b>Project Name:</b>	<b>Audited numbers</b>		
<b>Country/ Region:</b>	Nepal	<b>Financing:</b>	
		<b>EUR</b>	<b>%</b>
<b>Nordic Partner:</b>	Danish Forestry Extension (DFE)	53.938	10%
<b>Local Partner:</b>	Wildlife Conservation Nepal (WCN), Himalayan Bio Trade Pvt. Ltd. (HBTL)	98.087	19%
<b>Other Partner:</b>	Biosynergy, Denmark	23.051	4%
	NCF grant disbursed	351.025	67%
	<b>Total</b>	<b>526.101</b>	<b>100.00</b>
<b>Classification:</b>	Combination		
<b>Project cycle:</b>	Contracted: Original Closing Date: 30/06/2019 Actual Closing Date: 31/12/2019		
<b>Project description:</b>			
<b>Key results:</b>	<b>NCF indicators</b>	<b>Results</b>	
	1. Number of beneficiaries reached (women/men)	3000 women / 2000 men	
	2. Number of people with increased resilience to climate change (women/men)	Same as above	
	3. CO <sub>2</sub> e emissions reductions (actual at project completion and expected during the lifetime of the project's mitigation investments)	average annual reduction of green house gas is 1.972 tons CO <sub>2</sub> –eq/yr from biogas plants. Another app 2.600 tons CO <sub>2</sub> annually will be sequestered due to the plantings. The sequestration due to rehabilitation of natural forest is not taken into account.	
	4. Number of green business concepts tested	1 (Cultivation of lemongrass, citronella, palamarosa and Wild turmeric tested in 7 Community Forests)	
	5. Number of new decent jobs created (disaggregated by number of permanent (women/men) and seasonal (women and men))	Permanent jobs created : 200 women / 50 men Seasonal jobs : 500 women / 450 men	
	6. Number of people with improved livelihoods/income-generating possibilities (women/men)	Same as above (5)	
	7. Number of multi-stakeholder partnerships developed	Partnership developed with 30 stakeholders  Municipalities : 4, Community forests : 14, District Forest Office : 3, Management and Consulting firm (BIRUWA), Biogas installation company (BSP Nepal Program), Company for DU renovation (Shine Hydro Pvt. Ltd.), Himalayan Biotrade Pvt. Ltd, WCN, DFE, Skovdyrene, Bio Synergy, Denmark, Agriculture and forestry University, Rampur	
	8. Amount of funds leveraged (actual project co-financing and secured future investments for scaling-up/replication)	....	
<b>Project performance:</b>	<b>Main Expected Outputs</b>	<b>Achieved</b>	<b>End-of-project status</b>
	Consolidation of women into groups, registration of women groups officially, functioning as independent enterprises	Yes	Functioning
	Natural restoration of forest, Agroforestry system established for MAP production, Livestock management, Milk production increased	Yes	Continuous
	110 biogas units installed, bio slurry management training conducted, Bio fertilizer sale increasing household income	Yes	Completed, Households are exploring the sale of

	Explore new investment or opportunities	Partly completes	fertilizer Dialogue with local authorities on progress, some are already able to secure funds from municipalities.
	Develop local business acumen for local communities	Yes	Business approaches developed by scaling up MAP production in 7 community forests
<b>Final beneficiaries:</b>	5000 households		
<b>Climate change impacts:</b>	<p>The project was able to address components of Nepal’s NAPA prioritized activities for climate change adaptation under the top priority project profile 5 entitled <i>Forest and Ecosystem Management: Managing trees outside the forests in public and private land (agro – forestry practice); scaling up of biomass energy technologies for less fuel wood consumption; managing community based forest fire in mid hills and Terai and profile 7 titled Ecosystem management for Climate adaptation; promoting improved pasture land management techniques; conserving and promoting medicinal plants and NTFPs (NAPA 2010: 30)</i>. A total of 32 ha of unused and barren lands was reforested with 54000 saplings of fodder and multipurpose tree species. More than 700000 saplings of essential oil bearing plants (lemongrass, citronella, palmarosa and wild turmeric) was planted in 185 ha of barren lands inside the community forest in an agroforestry system supporting the disadvantaged local small farming communities adapt to climate change. These initiatives will potentially sequester app 2.600 tons / CO<sub>2</sub> / annually. 110 households were installed with biogas units reducing the emission of GHG by an annual average of 1.972 tons/CO<sub>2</sub> eq. year. Both the restoration and biogas production initiatives has helped mitigate the effects of climate change through carbon storage and GHG emission reduction.</p>		
<b>Development impacts:</b>	<p>It was realized during the initial stages of the project that women from the participating Community forests still faced discrimination and violence in public and domestically. The project aimed in empowering the women while mitigating and adapting to climate change. Women’s role was transformed from exploiters to managers of forests building an ownership to natural resources. The project has been able to promote empowerment of women economically for gender equality and their voices are heard in decision making within community forest structure. Social resilience was built by linking smallholders to the market and provided them with economic opportunities through for instance know-how on NRM, carbon sequestration and business development, which in the end has contributed to social resilience. Mostly men had the leading roles in the executive committee of the forests. It was slowly developing as a political agenda. This project has enabled the women to secure their rights over the forests. The nurseries were able to implement forest restoration timely.</p>		
<b>Innovation, technology and learning:</b>	<p>This project has transferred technology through introduction of appropriate low cost technology distillation unit (DU) and was also able to bring into used an abandoned DU so that local communities get higher benefit from their community forest. Beside this their traditional knowledge base is incorporated with scientific technology on the use of indigenous plants as well as other viable high value species like Wild Turmeric.</p>		
<b>Partnership:</b>	<p>The project has been able to form a unique partnership with Community Forests user groups, Women Groups, Private companies and Civil Societies. The project was also able to develop networks with local authorities such as municipalities and district forest office.</p>		
<b>Sustainability and replicability:</b>	<p>Local women groups are linked with market and economic returns from the products they produce are ensured. Economic incentives have motivated women groups to replicate similar activities in new areas and to test new ideas. This existing institutional arrangement within the group has enabled the continuation of the entire activities even after project. This project has focused its activities in different areas inhabited by ethnic communities like; Tamangs, Tharus, Chepangs and others who are marginalized from different social and developmental activities developing a social cohesion among the different ethnic groups. Both the nurseries are now able to function independently with a target of 50000 saplings per year. The high value forest and fodder trees will act as carbon sink and also provides economic returns by sustainable use of natural resources.</p>		
<b>Lessons learned:</b>	<p><i>Lessons learnt during the milestones of the project have led us to few recommendations which are as follows:</i>  Creating linkages and identifying the market plays a significant role in the success of their intervention and it is given a priority. It was also realised that such types of forest -based cultivation project is entirely dependent on the climatic condition. Unprecedented weather conditions has also challenged the cultivation. Also, success of such projects cannot be measured within a time frame of 2 years. It has been observed that for sustained positive impact, the women group need mentoring in standardization of business and management orientation</p>		

**Annex 2      Pictures**

*Submitted separately*

**Annex 3      Other supplementary deliverables/documentation**

*Submitted separately*

