

EcoHimal Nepal
Integrated Sustainable Tree Cropping and AFRC Programme
Narrative Progress Report
1st Sep, 2017 to 30th November 2017

A. Background

The programme has been implemented since 1st August, 2017 in financial support of The Glacier Trust (TGT), UK in Deusa and Waku Village Development Committees (VDCs) of Solukhumbu district to promote commercial high value cash crops and tree cropping. The aim of the extended programme is to improve the economic and social well being of smallholders and ensure the environmental sustainability of tree crop systems in mountain villages. At the same time, pathways need to be identified that allow tree crops to contribute agricultural growth. This mission is accomplished through a broad public-private partnership of stakeholders who share a common vision. As a platform for collaborative innovation, the programme leverages local, regional and international expertise to develop technical, institutional, and policy innovations for addressing tree crop production constraints, market failures, and environmental issues that negatively impact smallholder livelihoods, the development of environmentally sustainable tree crop systems, and agricultural growth potential.

To overcome the food insufficiency and nutritional insecurity in target area, the programme has been focusing to shift agriculture from traditional cereal crops to high-value cash crops farming. The marginal land holding farmers in Deusa and Waku VDCs are encouraged towards commercialized farming for improved livelihood. In order to promote marginal land as source of income generation, local farmers have been oriented and trained on tree crop production.

In the programme area, especially in Deusa, the integration of trees into agricultural systems and agricultural diversification for adaptation to climate change has been highly prioritized. The applied agricultural diversification initiatives have great benefits for the provision of ecosystem services, adaptation to climate change-related stresses, and the productivity of agricultural systems. In future, the cultivated plants (fruits and cash crops) will be the sources of income and will reduce the vulnerability of households to climate change-related stresses and other events and changes that threaten local livelihoods.

B. Objectives Achieved:

Overall Goal

Sustainable rural livelihoods through the promotion of tree cropping and organized marketing of the produce

Local community and lead farmers are trained on improved technologies and different aspect of tree cropping and its impact on livelihood and environment. The level of understanding has been better at local level and tree plantation and care is increased. Quality improvement and market linkage is started with coffee in a micro scale. Better earning is already started from some cash crop production and local farmers are in line to adopt the concept of the project.

However; it is not the time to judge about the overall goal and it is in fact not in the control. We could only judge the trend.

The programme believes to reduce poverty and hunger and to promote inclusive growth and sustainable livelihood in rural areas, commercial tree cropping is needed. Well-planned and well-targeted tree-cropping promotion in small-scale farm land can help to reduce its dependency on outside assistance. The programme has focused on removing barriers (especially climatic conditions) to enhance the contribution of forest and trees to sustainable livelihoods.

Specific Objectives:

To raise families out of poverty through the promotion of tree crop production and the professional marketing of the produce

The programme has empowered and facilitated local communities to manage land and regenerate trees plantation. They have been made aware on inter - cropping of undervalued indigenous tree species with high value plants species. Agro- forestry and tree cropping has been promoted to raise small farm holders out of poverty with commercial "Plantation outside Forests" approach.

Generation of income from the production and sale of cash crops has been started. Those farmers got seeds support from project have started generating income. The income from the sale of produce is satisfactory. The net profit of harvest after deducting the expenses is good. (Cash crops' farming income and expenses is in annex 1)

To capacitate farmers on tree cropping technology and its extension and promotion

Local farmers have been skilled with tree cropping technologies with the purpose of benefiting them and increasing farm productivity in terms of yield and management efficiencies. Conducting practical demonstrations at field level, technical skills in tree crop production and management practices have been shared to local farmers.

Local households have been knowledgeable on the use of different trees they have grown on the farmland and have developed their own set of criteria for choosing what tree species to plant. They have been aware on on-farm tree diversity for the sustenance of their livelihood. High value plants such as Nuts have been promoted for plantation in their farm land.

A "Farmers to Farmers Visit" organized for the households interested in tree-cropping, provided training, technical and material support, encouraged farmers especially women farmers to have association with agriculture groups and to assist one another in producing plants and protecting trees on farm. In total 23 farmers doing inter-cropping have done exchange visits at model farmer's orchard. Promotion of tree cropping through knowledge sharing has been done at local level (Detail of farmers conducting knowledge sharing and passing is in Annex 2)

The agro-forestry and tree cropping technologies practiced in Deusa and Waku have been extended and promoted in other neighboring VDCs. Satellite nursery has been established and improved technologies of satellite nursery have been replicated in Tinla VDC of

Solukhumbu. In Tingla, 12 farmers are engaged in tree cropping under satellite nursery umbrella.

C. Outcomes/Results Achieved:

1. Approximately 200 farmers trained in tree crop production and supplied with appropriate tree crop planting materials.

Local farmer have been trained and the status of their application of acquired skills and knowledge in tree crop production technologies (climate change adaptation, organic farming methods, intercropping, pest Infestations and control, coffee farming, bio-incentive plantation) have been assessed. At total, 384 local farmers have been trained in tree crop production.

Farmer Field School in Sustainable tree cropping techniques										
S . N	Particulars	Participation in Farmers' Field School								Total
		Male		Female		VDC wise		Gender wise		
		Deu sa	Wak u	Deus a	Wak u	Deus a	Wak u	Mal e	Femal e	
1	Orientation on Climate Change adaptation	39	33	11	44	50	77	72	55	127
2	Training on Organic Farming Methods	37	3	33	9	70	12	40	42	82
3	Training on Pest Infestations and Control	16	11	7	8	23	19	27	15	42
4	Training on Organic Coffee Production and Processing Technologies	21	0	7	0	28	0	21	7	28
5	Training on intercropping farming technologies	32	3	29	9	61	12	35	38	73
6	Training on Bio-Incentive Plantation	20	6	6	0	26	6	26	6	32
Total		165	56	93	70	258	126	221	163	384

In total, 384 (258 in Deusa and 126 in Waku) local farmers have been trained. Among them, 163 are female farmers and 221 are male farmers. (Detail sheet is in [Annex 3](#))

2. About 30,000 tree crop seedlings planted.

In total, 21243 seedlings were distributed and planted by local farmers in coordination with Deusa Agro-Forest Resource Center (DAFRC), District Forest Office (DFO), Salleri and Regional Horticulture Center (RHC), Salleri. In total, 21243 seedlings/samplings and 161 kg seeds of different varieties of fodder/forage have been engrained by 249 local households in their marginal land and have intercropped with coffee and orange plants. The status of plants have been assessed and the result shows about 90% plants are active (stay alive) till the October, 2017. (Detail is in Annex 4)

D. Activities carried out:

❖ Assessment on existing tree crop farming in both VDCs

Primary survey, assessment on existing tree crop and identification of cash crops production areas was carried out by the agriculture technician. In addition, observation of existing cash crops production areas and discussion with cash crops producing famers was conducted in coordination with DAFRC. The detail assessment will be carried out to verify the data towards the end of the project.

❖ Institutionalization of formed farmers groups

13 agriculture groups (7 in Deusa and 6 in Waku) for cash crops production have been reformed. After formation/reformation, they have been oriented on rules and regulations of institutions. The members have been trained in "Go Green" promotion and supplied with the seedlings.

❖ Establishment of sound linkages with relevant district line agencies

The linkages of local farmers with district line agencies especially with Agriculture Service Center, Nele, DFO Salleri and Regional Horticulture Centre (RHC), Salleri has been established. They are frequently visited in district line agencies for seedlings request and technical knowledge. Especially lead farmers have been regularly in touch with technical resource person for technical ideas.

DAFRC is working together with Prime Minister Agriculture Commercialization Programme in the project area. Sound liaison has been established with District Agriculture Development Office (DADO), District Livestock Services Office (DLSO), Regional Horticulture Office and other like-minded organizations. The local communities under initiation of DAFRC have received agriculture tools and thresher for improved agriculture practices.

❖ Physical upgrading of the AFRC and hiring of one project dedicated staff

Deusa Agro-Forest Resource Center (DAFRC) has been equipped with solar and hot water system. Sets of solar hot water system was purchased and transported from Kathmandu to Deusa and installed. Likewise, Mr. Hari Kumar Karki has been assigned as senior agriculture technician to implement STC programme through DAFRC. A small servant quarter is under plan to construct. A projector has been supported to facilitate in training and workshop conduction at DAFRC. The advanced trainings can be run at local level. Moisture meter, 2 sets pf Bodyzo castrator and microscope are under plan to purchase.

The building affected by the land movement has been assessed by the engineer and under plan for retrofitting.

❖ **The undertaking of market and value chain research and surveys to identify most profitable tree crops for Solukhumbu district.**

In coordination with Prime Minister Agriculture Commercialization Program (it is implemented in Deusa and promoted orange plantation and production), a market and value chain research is under planned to carry out at local level. The finding of survey will support in verification of appropriateness of cash crops and nuts in our project area.

Study on potential areas for cash crops plantation was carried out during the initial phase of the programme. Technical ideas after feasibility study have been shared to programme management by the agriculture technician. In addition, interaction with coffee farmers has been done to assess their technical knowledge on coffee farming.

In collaboration with Helvetas Swiss Incorporation Nepal under Bhutan Mountain Hazelnuts project, orchards of hazelnuts have been established in Deusa. The planted seedlings' survival ratio is satisfactory.

Various meeting has been conducted and ongoing for the product marketing such as coffee, Goose Barry etc.

❖ **Procurement of seedling materials and production of a wide variety of the most suitable species for the two target VDC.**

To promote income generation and "Go Green" from the use of marginal land, seedlings of fruits, nuts, fodders and forages have been distributed to local farmers. 21,404 seedlings of have been distributed to 249 local farmers of Deusa and Waku. DAFRC have been supplied seeds of wide variety of fruits, forage and fodders for production at local level.

❖ **Training of at least 200 farmers in all aspects of tree crop production, through nursery management, land selection and preparation, nutrients requirements and crop management and special aspects of each species selected by the farmers**

In total, 423 local farmers have been trained in:

- ❖ Climate smart tree cropping techniques
- ❖ Organic farming methods
- ❖ Intercropping with coffee farming
- ❖ Intercropping technologies
- ❖ Bio-incentive plantation
- ❖ Pest Infestations and Control
- ❖ Products and market

Trainings on intercropping farming and tree cropping system have been conducted in the project areas with the objective of increasing the total production per unit area with same time, to increase on-farm income. The participation of trainees was mainly focused from coffee production areas.

In addition, training on intercropping farming mainly of cash crops and vegetables combining coffee and nuts was conducted. They were educated to get dual benefits from crops combination. The farmers have been encouraged to cultivate more than one crop

(intercropping farming). The farmers applying the intercropping technology acquire more profits from their limited lands than the single crop. The farmers will get dual production in one session of farming. Normally, if farmers plant coffee it demands another tree for shade. Project promoted the shade tree of fruits or fodder for additional returns.

❖ **Field extension and supervision of orchard and plantation development.**

Tree cropping techniques and practices have been shared to the farmers of neighboring VDCs by trained farmers as well as our agriculture technicians. A model satellite nursery on tree cropping techniques has been established in Tinla (nearby VDC) and local farmers of Tinla have been trained and oriented on satellite nursery establishment. Our agriculture technician has been supervising the plantation development and has been providing feedbacks and technical inputs.

❖ **Establishment of satellite nurseries for tree crops seedlings production.**

8 satellite nurseries (5 in Deusa and 3 in Waku) have been established for tree crops seedlings production. While establishing, the farmers were trained on tree crops (fruits and fodders) seedlings production. The plantation of seedlings in project area was promoted by buying the seedlings from 4 satellite nurseries. The satellite nurseries keeping farmers have started generating income from the sale of the seedlings.

❖ **Capacity building of farmers on pest management and diseases control**

42 local farmers (27 male and 15 female) have been trained on pest management and diseases control. Out of 42, 23 farmers are from Deusa and 19 from Waku. (Annex 5) They have been provided with knowledge and practical skills on pest infestations and control. Their status of application has been assessed and results found satisfactory.

Likewise, 20 local farmers have been producing Organic Fertilizer (OF) and are using in their farmyard. They are planning to generate income from the sale of surplus production. (Annex 6)

❖ **Establishment and demonstration/dissemination plots and blocks.**

Together with training on intercropping farming, 15 local farmers (12 from Deusa and 3 from Waku) have been selected and technically supported in intercropping model farming for demonstration at local level. Analysis has been done to find out best crop combination as per land equivalent. (Annex 7).

Seed of Cash crops and tree crops was provided by the project and farmers themselves managed local resources for model demonstration site preparation. Demo intercropping farming plots have been established with the aim of replication in wider range in local level.

❖ **Cultivation of marginal land for fodder and forage cropping.**

Different varieties of forage and fodders seeds have been provided to DAFRC for wide production of fodder and forage seedlings at local level. 500 kg seeds of different varieties of forage from Buddha Nursery (Sanga, Kavre) purchased, transported and distributed to small land holding farmers.

❖ **Purchase of necessary processing equipment for the new cooperative for the most popular products.**

In total, 8 pulping machines (this year and last year) have been introduced in Deusa and Waku. In addition, other equipments; moisture meter, coffee machine, grinder, Pruning saw, sketcher etc. are under plan to make available at local level for proper coffee processing. They are mobilized and used under control of DAFRC and local farmers had plump their coffee with the machines at DAFRC. More than 1,000 kg coffee plumped through the plumping machines.

❖ **Establishment of contacts with major cooperatives and local and export buyers in Kathmandu.**

The market contacts of local farmers under management of DAFRC for coffee and cash products sale in Kathmandu has been established. The contacts of local farmers in Kathmandu have been established in coordination with Helvitas Nepal and other coffee buyers in Kathmandu. EcoHimal is supporting in each step of market channel providing necessary input wherever necessary.

This year, linkage is set up for marketing of local farmers' production in Kathmandu. Coffee production will be supplied in Kathmandu in coordination with Nuwa Estate Coffee Pvt. Ltd. Regular meetings by project management with the proprietor is on-going for coffee supply.

E. Monitoring and Evaluation of the project:

The project management has conducted several visit and observation of nurseries available in Kathmandu, Kavreplanchowk and Lalitpur. Project implementation guidelines and orientation on conduction of activities (especially trainings and orientation in field) was delivered to the responsible staff by the project manager. The monitoring format and guidelines were provided to staff and used to share the progress using prescribed format and feed backs on the implementation for effectiveness and tracking the progress.

Co-Director Dr. Morgan Philips along with Programme manager and TGT supporters have visited project area in November 2017 and done side to side monitoring with direct observation. TGT supports were satisfied with the work done in the project area and appreciated, local community, EcoHimal and TGT for the initiative.