

FINAL PROGRESS REPORT

AGRO FORESTRY RESOURCE CENTER (AFRC)

Eastern Development region, Solukhumbu District, Deusa VDC



ECOHIMAL NEPAL

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Abbreviations

AFRC	Agro-Forest Resource Centre
DAFRC	Deusa Agro-Forest Resource Centre
VDC	Village Development Committee
HHs	Households
DDC	District Development Committee
DADO	District Agricultural Development Office
DLSO	District Livestock Service Office
DFO	District Forest Office
CBOs	Community Based Organizations
NGOs	Non Governmental Organizations
RARC	Regional Agriculture Research Center
WWF	World Wildlife Fund
F.M.	Frequency Modulation
NPR	Nepali Rupee
PACT	Project for Agriculture Commercialization and Trade
IEC	Information, Education, Communication
SWC	Social Welfare Council
OJT	On the Job Training
JTA	Junior Technical Assistant
PH	Potential of Hydrogen
CFUGs	Community Forest Users Group
RHC	Regional Horticulture Center
NPPC	Namuna Piglet Production Centre
ECD	Early Childhood Development
TGT	The Glacier Trust
UK	United Kingdom



A. Executive Summary

Deusa Agroforestry Resource Center (DAFRC) has been recognized as institutional platform for local community in adoption and application of improved agriculture, livestock and forestry practices. It is considered as local institution for supporting the livelihoods of rural farmers of Deusa Village Development Committee (VDC). DAFRC has been promoted as - sharing seed, seedlings and knowledge: farmer to farmer dissemination of agroforestry technologies for local community of Deusa, Waku and surrounding VDCs as well as districts in eastern Nepal.

The project has contributed in local agroforestry system by cultivating marginal areas of farmland for meeting the livelihood need of households. The project has supported in the agroforestry system; institution's intervention; diversity and preference of trees; benefits received by the households; resource pattern and the livelihood system. It can be observed the changes in livelihood priorities and opportunities that encouraged households to plant more trees on farms. The role of AFRC in increasing farm income, tree species diversity, improved breeding of livestock and knowledge on impacts of climate change is well recognised by the local households. The project has helped in meeting the livelihood needs of rural households, reducing the pressure on forest resources and conserving biodiversity.

Plantation of 79,250 saplings of fodders and forage in private and public lands has made tremendous contribution and created a path to reducing pressure on community and government-managed forests. The increase in cultivation of ornamental, medicinal, fodder trees and fruit tree species in private farmlands is the positive steps for pressure reduction in community forest as well as adoption of agroforestry for livelihood diversification.

All most households (HHs) have maintained trees in the farmland adopting agroforestry for future days to collect fuel wood, leaf litter and fodder from these trees for their subsistence. Apart from supporting local livelihoods, these type of efforts have contributed to diversifying livelihoods and increasing socio-ecological resilience against climate change.

The impacts of agroforestry have been diverse across the local communities. Awareness level of rural communities on climate change issues and its consequences has been increased and they are educated to take action to mitigate and adapt its effect through integrated agroforestry practices. The local communities have been aware of the economic and environmental benefits of agroforestry practices and had favourable attitude towards those practices. The local people have the perception that agro-forestry practices increased soil fertility, increased farm income and reduced the chances of complete crop failure and have realised that plantation of trees on the under utilised portion of the farmland has contributed in mitigation of soil erosion and land fail. Sequential or simultaneous production of fodder and grass, crop and vegetable and livestock contributed to increase in the overall household income. It is



noteworthy that these households have experienced improved greenery and saw increased role of farm trees to meet their need of fodder and firewood.

The project has inspired positive community impacts resulting in social, economic, and environmental changes in target area with enhanced technical knowledge in improved cash crops farming, plantation of varieties of seedlings (multipurpose tree species) and introduction of new farming technologies at community level. The farmers from neighboring villages and VDCs have observed the improvements and have spontaneously adopted the technologies and practices promoted. Community people are accepting AFRC as their own property and institution.

Gurukul teaching and learning practice had been appreciated with enthusiastic participation from the students of Deusa Secondary School. School students are very interested in learning in the centre so it could be a very good program for future to replicate. The demo nurseries, innovative practices and demo rain water harvest (plastic pound) have been the interests of the wider community. Visitors from different VDCs are increasing and expressing their interest in the concept.

Goal Achieved:

Aware rural communities on Climate Change issues and its consequences

Towards the end of the 1st phase of the project, local farmer's awareness and participation in agro forestry practices as well as their knowledge of the importance of trees in mitigating the impacts of climate change were assessed. They are very positive towards the changed scenario – transformation towards prosperous, Green Deusa.

Agro forestry has been perceived an example of a triple-win practice by local communities as it can support food security, support to mitigate climate change and contribute to adaptation of those changes. As such, agro forestry has been considered a climate-smart practice.

Knowledge and awareness level of local people of Deusa on climate change issues and its consequences has been increased. They have been educated through awareness raising programs organizing at local level. DAFRC is developed and promoted as centre for information of climate change and its effects, adaptation/coping strategies and knowledge dissemination. General knowledge on climate change and environmental degradation of local people of Deusa and Waku VDCs along with neighbouring VDCs has been enhanced through radio program – *Sajha Chautari*². The current major issues, such as climate change and its effects, its mitigation measures and adaptation strategies have been disseminated to local community by the use of radio programme.

¹ Means Common Ground/Platform



Sajha Chautari linking climate change effects with improved agriculture and livestock has been broadcasted with focus on delivering information and messages to local community to encourage improved behaviour for bio-diversity conservation and to discourage behaviour which degrades environmental assets. The radio has empowered local community by strengthening community voices and providing an accessible space for knowledge sharing between communities. The sense of empowerment that local people have felt by engaging them to build their local, institutional and organisational capacity.

It has scaled up the efforts to educate local community on climate change and its effects on their livelihoods. The programme has disseminated information about climate resilience farming practices, climate smart agriculture, water conservation technique, climate change impact on environment, gender equality, social inclusion and numerous other thematic topics. Local community have been empowered with communication and knowledge exchanged.

Local people have been educated and internalized the climate change issues and its consequences like increased episode of drought, increasing warming days, change in rainfall patterns (unpredictable - untimely and unusual rainfall patterns), and scarcity of fresh water due to shrinkage of springs/water sources and reduced cereal crop production etc. In addition, they are informed on ecological variability and biological change - different plant species are flowering and fruiting irregularly, fast maturity of maize and rice, new types of pests and short stalk of rice and wheat.

DAFRC has been a resource centre for awareness raising and knowledge sharing. Technical staffs have been providing information regarding effects of climate change and mitigation measures at local level. An occurred example of effects of climate change – hailstorms at DAFRC in February, 2016 has been witnessed by local people. They are becoming conscious and actively presenting curiosity on climate change.



Traditional belief vs Awareness

There was a large cliff and tree at Budidanda (nearby DAFRC). While constructing motor pave way through Budidanda, the cliff and tree were removed. Local people of Deusa used to worship the cliff as statue of God. After removal, when natural disasters/calamities occurred, they used to believe that it was cursed by God for their wickedness.

Such traditional belief has been changed- perception towards the causes of natural disasters has been improved. They have been aware that natural calamities have been occurring due to the effects of climate change.

A. Objectives Achieved:

- **Established a learning and sharing centre applying agro-forestry concept to address complex environmental, economic and social taboo**

A community based and community owned resource centre has been established. It is first community led resource centre in eastern Nepal. It is developed as learning and sharing centre on agro-forestry and climate change issues. It has been institutionalized as knowledge and resources acquisition centre at local level. The local people visit resource centre to be trained in improved agricultural practices and to be aware on natural resources management. Training – DAFRC as farmer school – is under conduction on weekly and monthly basis.

Local farmer groups have been institutionalized and strengthened to adopt conservation friendly livelihoods initiatives that reduce pressure on the forest. Technical knowledge and resources have been disseminated on regular basis to local people to make aware on the impacts of their activities on the ecosystems and to provide guidance for possible technological interventions to mitigate the impacts and improve ecological resilience. Innovative farming like mushroom farming and its consumption has been widely practiced by local people. Farming of mushroom is demonstrated and small income of Rs. 18480.00 from the sale of 90.9 kg mushroom has been generated by DAFRC. (**Mushroom production and sale record is in Annex 1**)

The resource centre has been equipped with food and accommodation facilities – kitchen, beds, furniture, improved toilet and bathroom, and safe drinking water facilities. Local farmers are trained in organizing trainings on improved agro-forestry practices at resource centre. (**Participation in Training is in Annex 2**) Technical resource persons – staffs and lead farmers - are available to address agro-forestry and environmental issues of local farmers.



Knowledge and information through books and laptops, improved vegetables seeds, improved agricultural practices and technologies, appropriated fodders and forage seedlings have been introduced at resource centre. Resource centre has been marked as technology and knowledge dissemination centre with practical initiative.

▪ **Development and Promotion of suitable strategies for the local resources mobilization**

Enrolment, engagement and participation through membership allocation throughout the VDC have developed an institutional platform for the sustainable local resources mobilization. Capacity of lead farmers and staff members has been built up to mobilize local resources in sustainable way. Annual plan, rules and regulations and procedures have been formulated at resource centre through participatory approach. Executive committee members and general members of DAFRC have been capacitated and trained to utilize resources – equipments, seeds, land etc in eco-friendly manner.

Local farmers have been trained in identification of availability and accessibility of local resources. On regular basis, In addition, they are equipped with knowledge and skills on local resources mobilization strategies. Training manuals and booklets have been developed to train local people in resources mobilization. The local farmers have been made familiar with ecological and economic importance of the agro-ecosystems and their adaptation for livelihood improvement while maintaining the natural balances. (A story of local women's success is in Annex 3) Practical dissemination of improved farming and agro-forestry practices including organic manure or liquid manure engaging local farmers at resource centre has promoted suitable methodologies for the local resources mobilization. Capacity of local people especially farmers have been trained in improved farming practices i.e. intercropping and manure preparation. (Detail is in Annex 4)

Local staff members as well as executive committee members have been trained in proper book keeping for financial resources mobilization and management.

▪ **Self-employment opportunities created**

Through the implementation and promotion of satellite nurseries, lead farmers focused resources (agri-materials) support; improved agricultural practices and commercialization, making availability of vegetable and fodders seedlings at resource centre, self-employment opportunities for local people have been created. (A success story of a local woman's self employment is in Annex 5) Production and sale of vegetables along with production and sale of seedlings establishing nurseries – both seasonal and off-seasonal at their farmyard by local lead farmers have generated livelihood options. In addition, with the technical support from AFRC, few local youths have been self-employed. (A success story of a local youth is in Annex 6)

▪ **Economic status of local population improved**

Agriculture and forestry options for livelihood enhancement of local lead farmers of Deusa VDC have been increased. Introduction of improved breeding for livestock productivity, improved vegetables seed support, application of improved agricultural practices - cash crops



and ornamental trees is the solution grounded by DAFRC. Improved breeding of goat and buffalo has been widely practiced. At total, 308 animals have been bred with improved breed. (Detail of improved breeding of their animals by local people is in Annex 7)

Agriculture and forestry focused interventions through farmer groups with the focus on increasing income for rural mountain people. Introduction and promotion of high-value agriculture production has supported in income generation of the poor farmers. Akabare Chilli and tomato farming has been commercially farmed by 42 lead farmers (Detail is in Annex 8)

Local farmers have been capacitated in inter-cropping, mixed cropping and cash cropping. They have been actively engaged in commercial farming with income generating motive. Likewise, 12 local farmers have generated income in small scale from the sale of chilli seedlings where improved seed was supported by DAFRC. (Detail is in Annex 9)

Distribution of vegetable seeds and seedlings to 54 local farmers (seed to 35 and seedlings 19 farmers) has encouraged them to have generated income from the production and sale of vegetable products. (Distribution of seed and seedlings in Annex 10 and Annex 11 respectively) Likewise, introduction of improved potato seed of 1619 kg to 86 local lead farmers' farms has ensured the better potato production (Detail is in Annex 12). Local farmers have been practicing improved cereal crops farming in assistance of DAFRC- in the project period; at total 113 farmers have successfully done improved maize and wheat production. (Cereal crops seed distribution record is in Annex 13). Local farmers have been pleased with the production increment - the improved seed has contributed in surplus income generation. (A story of a local women farmer is in Annex 14)

▪ **Contribute on mitigation and adaptation of climate change affects**

The pre-conditions of mitigation and adaptation of climate change affects have been created and promoted. School children along with local community people have been educated on climate change issues and its impacts on livelihood and food security. Seedlings of fodders, forage and forest plants have been produced at DAFRC and have been distributed and promoted at community level in minimum price.

Plantation of fodders, forage and forest plants on marginal and slopy land has contributed on mitigation and adaptation of climate change affects. Saplings of various fodders and forages species distribution has initiated steps for mitigation and adaptation of climate change affects by promoting "Go Green". (Sapling of fodders and forage distribution is in Annex 15). The attraction of local community towards plantation of forest plants in their private lands has positively hinted towards mitigation measures of climate change effects. During the project period, 192 households planted 14,156 seedlings of various fodders and forages species in their lands. Likewise, massive plantation through Post-Earthquake Recovery Project and individual farmers has motivated the local community in developing their village resilience towards climate change effects.



Awareness raising of local community on climate change through orientation and communicating climate change through radio has increased the accessibility of information and knowledge. Local community voices are strengthened, radio has provided space for knowledge sharing between local community and has disseminated information regarding vulnerability to climate impacts.

Activities carried out to achieve objectives:

1. Established a learning and sharing centre applying agro-forestry concept to address complex environmental, economic and social taboo

1.1 Coordination with district line agencies for implementation of agro-forestry strengthened

Regular coordination of local community with concerned district line agencies like District Development Committee (DDC) District Agricultural Development Office (DADO), District Livestock Service Office (DLSO), District Forest Office (DFO), their regional offices in Nele Bazaar has been established for optimum mobilization of resources. Coordination with community based organizations (CBOs) and Non Governmental Organizations (NGOs) with the purpose of requiring technical and financial support has been directed. Likewise, for publicity and promotion of agro forestry within Solukhumbu District and neighboring districts, coordination with 3 local FM radios has been done. Radio Program on climate change and role of Agroforestry to minimize was broadcasted in coordination with community radio Chomolungma base in Kangel Danda.

The summary of achievements through coordination is:

- Paulownia plants were introduced for the first time in Solukhumbu District in coordination with Paribartan Abhiyan Nepal (PAN) an NGO established by the people of Deusa VDC in Kathmandu to work for the welfare of their motherland.
- DAFRC received transportation cost support from DLSO in bringing improved breed of male buffalo from Pokhara to Deusa.
- Seedlings of fodders and fruits were provided free of cost by DFO that were distributed to local farmers.
- Technical knowledge on pig rearing and piglets' production was provided from Regional Agriculture Research Center (RARC) Sunsari District to local farmers who were visited to purchase piglets.
- Technical knowledge on nurturing improved breed male buffalo was provided from Animal Development Farm, Animal Production Directives, Pokhara, Kaski District to local farmers who were visited to purchase male buffalos.
- Model plastic pond at DAFRC was constructed in technical support of Dudhkoshi Upabasin Program (WWF)
- DAFRC got recognition in Solukhumbu and neighboring Districts because of broadcasting of AFRC concept through local F.M Radios stations; Solu F.M, Himal F.M. & Chamalunma F.M.
- A small library has been established by collecting Informative, Educative and Communicative (IEC) materials from national level organizations like Helvetas, Practical Action, ICIMOD, Nepal Agro-Forestry Foundation and other organizations.



1.2 Infrastructure and fixed property for sustainable operation

Necessary infrastructures have been constructed at DAFRC and has been developed as a learning and sharing centre. A 3-story house, a training and orientation hall with in the house, accomodation facility, seismic resilient kitchen, toilet and bathroom facility, drinking water facility with basic furniture has been constructed and developed. The capacity of DAFRC to organize in-house training, orientation and workshop has been built up.

While constructing house, community participation in landscape management, stone breaking, transport, wood cutting and transportation, building foundation digging, building construction till the finishing of the building was 1,344 man days. The local rate of labour is rupees 700 to 1,000 per day. The contribution was worth of more than rupees 0.94 Million rupees. [Detail of volunteer contribution is in Annex 16](#)

A solution based- carpentry, mason and plumbing training was organized at DAFRC and along with kitchen building and drinking water facility, following furnitures were developed. A detail report is in [Annex 17](#).

Table 1: Detail of furnitures

Number	Products				
	Chairs	Cupboard	Low Bed	Hanger	Stool
	6	5	5	5	12

All the infrastructures and resources have been constructed in the land of DAFRC, so, the legal ownership has been entertained by the local community. Till yet, DAFRC has 20.5 ropanies² land- 5.5 ropanies own (registered under DAFRC) and 15 ropanies under lease. The detail of land is as bellow:

Table 2: Detail of Land

S.N	Land From	Land in Ropanies	Remarks
A. Registered land			
1	Maina Kumari Rai	2	Free of cost
2	Ram Bahadur Rai	2	Free of cost
3	Harka Bahadur Tamang	1	Free of cost
4	Jit Bahadur Rai	0.5	Free of cost
Sub-Total		5.5	
B. Land under lease			
1	Ram Bahadur Rai	6	
2	Shree Prasad Rai	6	
3	Jit Bahadur B.K	3	Cardamom Nursery land
Sub-Total		15	

² 1 Ropani = 508.72 m²

Total land	20.5
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At present, DAFRC is equipped with basic infrastructures and resources for further activities implementation in post project situation. Approximately, assets worth NPR 4934919.93 is calculated with DAFRC (Detail of assets is in [Annex 18](#)). With the operation of accomodation facility, DAFRC has initiated income generation, till date, NPR 17740.00 has been earned. (Detail is in [Annex 19](#))

1.3 AFRC incorporated in VDC and DDC plan:

AFRC program has been incorporated in VDC as well as DDC plan. It has obtained VDC and DDC grant presenting its activities and progress. From the initial year, it has received from government line agencies. At total, NPR 19,14,000.00 has been received from local and district level government authorities and organizations.

Table 3: Detail of Grant Received from local bodies

Description	Fiscal Year 2070/71 (2013/14) – infra support (NPR)	Fiscal Year 2071/72 (2014/15)- Infra support (NPR)	Fiscal Year 2072/73 (2015/16)- program support (NPR)	Fiscal Year 2073/74 (2016/17)- program support (NPR)	Total (NPR)
Grant from Deusa VDC-	100,000.00	300,000.00	244,000.00	2,00,000.00	8,44,000.00
Grant from DDC- infra support	0.00	200,000.00	0.00	0.00	2,00,000.00
Grant from Project for Agriculture Commercialization and Trade (PACT) – piglet production	0.00	5,10,000.00	0.00	0.00	5,10,000.00
Grant from DLSO- for Grass Production Resource Center establishment	0.00	0.00	0.00	3,60,000.00	3,60,000.00
Total	100,000.00	10,10,000.00	2,44,000.00	5,60,000.00	19,14,000.00

1.4 DAFRC as Farmer Training Center

DAFRC has been organizing farmers training programs to teach improved farming techniques along with day to day practical knowledge about different topics of farming. The knowledge and practices on farm management focusing on diversified production of crops, vegetables and fruits has been disseminated organizing weekly farmers training programs at DAFRC. Local



farmers have been trained in improved agricultural practices, natural resources management and they are aware on various environmental and resources utilization issues.

Along with one day training and orientation program, DAFRC has been facilitating 2/3 days training. At total, 63 local farmers have been trained on on improved cattle shed management. (Detail is in Annex 20)

Besides, it has been the place for discussion and interaction among local farmers about forestry, agriculture, animal, environment along with use and experiment of technology.

1.5 Local Community Engagement

To engage local communities in DAFRC development, engagement and participation strategies have been developed and executed. With the slogan "One DAFRC, All Households", 304 households (this year new membership has been given to 47 households) have been granted membership. Among them, 141 members are female headed.

Table 4: Detail of Members

S.N	Particulars	Number	Remarks
1	Life Members of DAFRC (land donors)	4	
2	Executive Members of DAFRC	13	
3	General Members of DAFRC	278	
	Total	304	

Ownership towards DAFRC of local community has been increased and membership distribution has been emphasized to include all households of Deusa VDC. From the membership and renewal of membership, till yet, NPR 31,200.00 (each household, 100 rupees for membership and 50 rupees for renewal) has been collected.

1.6 Resource Learning Center for School Children- accelerated with knowledge on improved agricultural practices, environment protection and biodiversity conservation

DAFRC has been developed as in-house learning center for school children from grade 8 to 10 of Deusa Secondary School. Prior to enrollment in learning center, personal profile of each selected school children has been created.

Motivation to devote in agriculture commercialization and environment preservation among secondary level school children has been carried out through environment and agriculture focused education. School children in rotation are enrolled in inhouse learning. Knowledge of these school children on improved agriculture has been improved through facilitation of technical and theoretical knowledge through books, computer and field working – on the field-experience. Till the date, 33 students from from Deusa Secondary School have been provided opportunity. They have been educated and introduced with E-information through computer,

stitching, library class facilitation. More than 500 reading materials (book, IEC materials) have been made available in resource center for the children.

Progress in capacity development has been made through mentoring of the students. For example, the educated students are facilitating environment education to local communities. The students have been mobilized in the community for implementation of their learning and they are educating local people especially women on solid waste management and importance of kitchen garden.

1.7 Local farmers are institutionalized and empowered to promote agro forestry in their farm land

DAFRC has been a common platform for community people to share and promote agro forestry activities at local level. The community has formed an executive committee including representatives from all 9 wards of Deusa VDC. ([Annex 21 Name list of Executive committee](#)). Executive committee members are responsible for administrative, policy formulation and controlling. Executive Committee members meeting prepares implementation plan such as income generating, capacity building and knowledge sharing activities.

Before implementation of the project an educational tour was organized by EcoHimal to the executive committee members and other representative of DAFRC. The learnings from education tour in Makawanpur, Dhading and Kathmandu Districts shared in wide range to community members through different methodologies such as meeting informal sharing and household visit. The learnings on agro-forestry, cash crops promotion, institutional development, agriculture technologies has been replicated in their own land by participants of educational tour.

Likewise, the executive committee developed annual work plan and budget for the fiscal year. The committee members have been trained and oriented on planning, executing and monitoring. Similarly, DAFRC started procedure for the affiliation in Social Welfare Council (SWC), Kathmandu.

In order to enhance relationship and cooperation with educational institution, DFRC has provided the opportunities of On the Job Training (OJT) to 10 Junior Technical Assistant (J.T.A) and 1 social mobilizer from various educational institutions like **Jana Jagirti Higher Secondary School** of Sellari.

Table 5: Detail of Members

S.N	Name of OJT Students	Address	Remarks
1	Mr. Bhupendra Rai	Deusa 8	5 months OJT in DAFRC
2	Mr. Tul Bahadur B.K	Deusa 6	5 months OJT in DAFRC
3	Mr. Amar Rai	Deusa 3	3 months OJT in DAFRC
4	Ms. Doma Rai	Deusa 8	3 months OJT in DAFRC
5	Ms. Bimala Rai	Waku-1	3 months OJT in DAFRC
6	Ms. Susmita Rai	Deusa-5	3 months OJT in DAFRC
7	Mr. Kamal Rai	Lokhim-4	3 months OJT in DAFRC
8	Ms. Nirukesari Rai	Lokhim -6	3 months OJT in DAFRC
9	Ms. Sita Devi Magar	Okhaldunga, Jantarkhani-1	3 months OJT in DAFRC

10	Ms. Bhumika Magar	Kaku-4	3 months OJT in DAFRC
11	Ms. Purnima Rai	Deusa-6	3 months OJT in DAFRC

1.8 A Training Manual (agriculture practice, climate change, biodiversity conservation etc.) drafted and is in practice.

A holistic training manual³ (agriculture practice, climate change, biodiversity conservation) on improved agricultural practices, cash crops farming, organic manure preparation and management, professional methodologies for preserving crops from diseases attack, land management, small livestock management, nursery establishment and management, market arrangement for the products, etc has been developed and is in execution. It was prepared under the consultation of (Agriculture Management Expert) Mr. Indra Sharma Dhungana hired by EcoHimal Nepal to facilitate AFRC concept and its smooth operation.

1.9 Innovative interventions explored, demonstrated and practiced

a. Temperature measurement

DAFRC has established a system of recording of temperature in daily basis but due to technical problem and defect in Thermometer it cannot be continued We are trying to cooperate with meteorological department for further improvement and regularization of temperature and rainfall measurement.

b. Geological and hydrological survey to analyze soil nutrients, PH, Carbon and recommend appropriate crops

Geological and hydrological survey, soil sample test was done by a consultant Mr. Moti Lal Rijal, Assistant Professor of Geology Department of Tribhuvan University supported by Mr. Jamie Forsyth The final survey report yet to be received. The initial draft version of report is in [Annex 22](#)

1.10 Coordination and Cooperation with Community Forest Users Groups

AFRC through DAFRC has supported 6 community forest users group (CFUGs) in strengthening the capacity for monitoring and conservation of the forests. The CFUGs have been aware on the importance and need of conserving the natural resources. Yearly awareness raising on plantation and forest conservation along with coordination and planning meetings were organized.

Further DAFRC has provided forest users technical knowledge on conservation and management of plant species. Likewise, technical assistance is provided for establishment of forest trees and medicinal plant nurseries at local level. The project was successful in delivering knowledge and skills for the conservation of plant species

2. Development and Promotion of suitable strategies for the local resources mobilization

2.1 Off-seasonal vegetables farming in Plastic Tunnel/Poly House

Local farmers have been introduced and educated in farming off-seasonal vegetables in low-cost polyhouse in rainy and winter season. Farming technology like poly house farming has

³ It is in Nepali language



been demonstrated for better income in a short period of time with less labors. Local farmers are made aware that It reduces dependency on rainfall and makes the optimum use of land and water resources. In the period of 3 years, 13 poly houses have been supported to selected local farmers with technical knowledge and skill and 5 poly houses have been constructed at DAFRC for domestication. (Detail is in Annex 22a). Along with poly houses, they have been supported with other agri-materials towards the end of 2016. (Detail is Annex 22b)

Off-seasonal vegetable farming in poly houses have been started at local level for income generation and fresh consumption. Such practices have been perceived as model in the promotion of effectiveness of plastic tunnel for vegetable farming.

2.2 Rain water harvest (Water Conservation in Plastic Pond):

With the purpose of educating local communities in preservation and rational use of water resource, model rain water harvest plastic ponds have been constructed and demonstrated. With the slogan of "Save water, Save Lives", the project has applied innovative technologies and mechanisms for water conservation for crops and vegetables production in its farmyard. The demonstration on water storage through plastic pond construction at DAFRC has been highly appreciated in the locality and requested technical assistance and construction materials for its replication by local people.

Three plastic ponds were re-constructed and maintained at the land of Agro-forest resource centre, for the purpose of irrigation. The pond has the capacity to withhold about 60,000 liter water collection from the sky, water falling from the kitchen roof and through pipe.

2.3 Organic/Liquid Compost Preparation - Technical knowledge on Farmyard Manure, Compost Manure preparation and use and Cattle Urine Collection and its use

With the purpose of demonstration, DAFRC practised compost manure preparation from herbs and shrubs in pits. In that period, DAFRC produced 12200 (3000 in first year, 4500 in second year and 4700 in third year) kg of compost manure, awarded the local farmers on use of manure and urine to control insect and pest in their farming. 2000 liter of urine was collected (1500 in 2nd year and 500 in 3rd year) and 5100 liter of liquid manure (1200 in 1st year, 1700 in 2nd year and 2200 in 3rd year) was produced and used in the land around AFRC. At total, liquid compost preparation has been demonstrated for 12 times – each year 4 times. To prepare this liquid manure; locally available herbs, sorbs and decomposable resources decayed within pit collecting cattle urine and used as liquid manure

DAFRC provides technical support to promote the organic compost. 550 farmers were trained on liquid compost preparation. They were made aware about the use of animal wastages, urines, plants wastages through interaction, discussion, trainings, experimental learning technique etc. It has promoted the production of chemical free vegetable, fruits and other crops that benefits health, create clean and healthy environment as well as save money of farmers.

2.4 Mushroom Farming



At DAFRC, during the program period, total 132 kg Kanya Mushroom has been produced and distributed to 157 households at local level. It was initiated for the demonstration among local farmers. It is because mushroom farming give them quick profit. One of the attractive factors towards mushroom farming is the short time period between cultivation and harvesting where farmers don't require much more initial investment and can be grown with locally available resources. Mushroom farming has been promoted to attract youth of today's generation and better way to upheaval the economic status of smallholder farmers. Technology transfer has been a main motto of DAFRC.

2.5 Cardamom Nursery

Studying the suitability and possibility of cardamom nursery establishment, capacity building of local farmers has been done prior to establishment of nursery. They were capacitated on on site selection and general ideas on cardamom nursery establishment and management. Demonstration training on soil preparation, organic method of soil treatment and compost manure was conducted. Practical training on bed preparation, seed showing technique, mulching and irrigation was also provided to local farmers. A model cardamom nursery has been established in 3 ropanies of land under technical supervision of AFRC. Production of 1,00,000 seedlings is expected.

2.6 Utilization of the governmental Land

The bare land near the AFRC has been utilized and managed according to the planning of the AFRC by discussing with local villagers, local authorities, Schools and concern authorities. 6000 seedlings of fodder, forages, medical herbs has been planted in 20 ropanies of governmental land near the resource center, minimizing soil erosion which has created greenery, clean and healthy environment. Bare government land near the resource center has been utilized for the welfare of the community.

2.7 Cultivation of land with Power Tiller introduced and demonstrated

A power tiller for cultivation of land in AFRC and promotion of improved farming technology has been used in coordination with DADO. It has been used in cultivating land for nursery establishment. The cultivation of land by power tiller has been demonstrated as innovative farming practice.

2.8 Agro vet establishment

To fulfill the need - easy accessibility of medicine - of local community, an agro vet has been established. Till the reporting time, 250 animals were cured and prevented from likely bacteria. It provided medical treatment to animals which increased the involvement of farmers in Animal Husbandry and grass cultivation. With the advice of livestock technician, 47 farmers have improved their cattle shed.

2.9 Nursery production and plantation on lease land

12 ropanies of land – as nurseries have been cultivated for seedlings production, vegetable farming and plantation. Various species of seedlings have been produced. The details on Nursery Promoters is as below :

Table 6: Detail of Selected Nursery Promoters



S.N	Name	Address
1	Jung Bahadur Tamang	Deusa- 6
2	Raj Kumar Rai	Deusa- 3
3	Dilli Rai	Deusa- 3
4	Yuv Raj Rai	Deusa-1
5	Dundu Man Rai	Deusa- 2
6	Aaranjit Rai	Deusa-4
7	Dilli Sher Rai	Deusa- 7
8	Amar Rai	Deusa -3
9	Jayaman Rai	Deusa-4

2.10 Forest nurseries established - Income generated from production and sale of seedlings of various trees species.

Considering the local need and demand, nurseries of different species of tree species have been established. Establishment of forest nursery contributed in income generation utilizing bare land of AFRC. Improved technologies and practices on nursery establishment demonstrated among local farmers for promotion of forest nurseries. The local farmers, mostly from Deusa purchased the seedlings from AFRC and planted on their bare land.

Production of forest seedlings is satisfactory. At total, 79,250 seedlings of various species were produced and distributed at local level as shown in Table 7.

Table 7: Detail of Fodders, forages and fruits Seedlings Produced and Sold at Local Level

S.N	Particulars	2014	2015	2016	Total
1	Number of fodders and forage, fruits seedlings produced and sold from established forest nurseries	20,500	37,250	21,500	79,250.00

More than hundred thousand seedlings have been produced and is planned to distribute in upcoming April/May, 2017.

Table 8: Fodders and Forages Seedlings Production and Distribution

S. N.	Species of seedlings (fodders and forages)	Number of seedling production and distribution in 2014	Number of seedling production and distribution in 2015	Number of seedling production and distribution in 2016
1	Badulla Salla (Pinus roxburghii)	7655	11,000	770
2	Badahar (Monkey's Jackfruit)	230	2,200	290



3	Lapsi (<i>Choerospondias axillaris</i>)	3460	1800	36
4	Chiuri (Nepalese Butter Fruit)		1,200	638
5	Rithha (Soap nut)	870	150	
6	Uttis (Alder)	1270	2,717	400
7	Simal (Bombax)		1600	100
8	Chap tree		1000	140
9	Dhupi Salla (<i>Cyptomeria Japonica</i>)	4390	4500	2565
10	Patula Salla		3000	2068
11	Rai Khanyu (<i>Ficus semicordata</i>)	2100	2300	205
12	Newaro (<i>Ficus rosenbergi</i>)		1180	288
13	Naiper (forage)	450	2155	
14	Tejpatta - Cinnamon (it is a fodder and also a spice)		468	849
15	Kehedhar			
16	Kumiro			
17	Dhupilo		780	
18	Nepiyar, Amriso, Epil, Sincauli and others	75	1200	36
19	Pine			4787
20	Lakuri			300
21	Kimbu			555
22	Kaniya			157
23	Amla			171
Total		20500	37,250	14156⁴
Income from sale/distribute				

The production and distribution of fodders and forage nurseries established and quality saplings have been made available at DAFRC to support livestock development. The nurseries have been demonstrated for promotion and replication to promote agro-forestry in their land. Farmers have done plantation in their own land for fodders and forages production.

Besides, DAFRC has distributed fodders and fruits saplings in coordination with district line agencies. In coordination DFO, Solukhumbu, it has distributed 500 seedlings and 8 kg grass seeds of Clover and Rai Khannyu (*Ficus semicordata*) in 2014. Fodders, Forage and fruits

⁴ Including plantation of seedlings by DAFRC in its land



plantation in local farmers' land was carried out in coordination with DFO. 507 Ammriso- (*Tsanolaena Maxima*-broom plant) plantlets and 500 Nepiyar plantlets were planted in DAFRC land and around 600 Nepiyar plantlets are distributed to 6 local farmers for forage promotion. Likewise, saplings of fodders plants like *Choerospondias axillaris*, *Prunus nepalensis*, *Flemingia congesta*, *Alnus nepalensis*, *Hippophae rhamnoides* were distributed to local people to promote agro-forestry practices in coordination with DFO.

2.11 Income from the sale of multi-purpose (Paulownia, Rudraksha and Buddhachita) seedlings.

Paulownia plant was introduced to the local community of Deusa and surrounding VDCs in coordination with Paribartan Abhiyan Nepal (PAN) in 2014. Paulownia plantlets were purchased and distributed to local community people with nominal profit to DAFRC. Envisioning that the plantation of Paulownia⁵ can endorse agro-forestry system, it has introduced in such rural area as a trial. The saplings were purchased and transported from Kathmandu, Bhojpur, Shankhuwasaba, Fera and distributed the farmers. Also selling of Rudraksha and Buddhachitta was initiated from 2015.

Table 9: Sale of Ornamental and Multiuse plants

S.N	Species of Seedlings	Distributi on in 2014	Distribution in 2015	Distribution in 2016
1	Paulownia, Rudraksha, Buddhachitta	96	2189	2709
Income from Distribution in NPR		38,400	426855.00	561,815.00

Detail of sale of ornamental and multipurpose plants is in [Annex 23](#)

2.12 Income from the sale of fruit seedlings at local level

Procurement and distribution of fruit seedlings at local level in coordination with Regional Horticulture Center (RHC), Phaplu and DADO, Solukhumbu was carried out. About 2729 fruit seedlings have distributed to 158 farmers of Deusa along with Sotang, Kaku, Waku and Gudel of Solukhumbu district in the period of 3 years in coordination with RHC. By producing at DAFRC, 632 fruits seedlings have been distributed. (Detail is in [Annex 24](#))

Table 10: Distribution of Fruit Seedlings from DAFRC

S.N	Species of Fruit	Distributi	Distribution in 2015	Distribution in 2016
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⁵ Having the following benefits; grows fast, wood is light but strong, flowers are rich in nectar, leaves make good fodder for animals, deep-rooting, and is late-leaving and canopy is quite sparse so that crops understory is possible since it get both light enough to grow. Paulownia is a fast-growing shade tree that produces a lightweight timber; used in the making of moldings, cabinets, veneers, furniture and even musical instruments.



	Seedlings	on in 2014		
1	Litchi		40	
2	Pomegranate		23	
3	Orange			10
4	Peach	300	306	
5	Mango		113	116
6	Pear	300		
7	Grapes	70		
8	Persimmon	50		
9	Nuts	75		
10	Coffee			195
Income from Distribution in NPR		62,400.00	60,388.00	63,277.00

2.13 Improved cereals crops seeds (maize and wheat) introduced and production increased.

Improved varieties of maize seeds – Ganesh – 1, Mana-3 and Mana-4 have been introduced. With the introduction of improved maize seed, production of maize is increased. The diversification of crops is practiced and alternatives such as improve in cereals crop production has been initiated. Special focus is given in maize (corn) seed production and improve seed promotion. It is possible to increase 20% production only from the application of improved variety of seed. AFRC is against the concept of hybrid and always promoting foundation seeds in all crops.

300 kg of improved maize seed (Manakamana-4) and 35 kg of improved wheat seed (WK-1204) was distributed to farmers in order to promote improved seed and increase in cereal crop production in 2014. In 2015, 80 farmers in Deusa had cultivated improved maize seeds and increased production. Likewise, in 2016, 100 kg improved seed of maize have been cultivated by 34 farmers in Deusa VDC.

3. Self-employment opportunities created

3.1 Local people are aware and capable to generate income from cash crops cultivation

Cash crops' cultivation has been promoted in Deusa VDC for income generation of local farmers. The commercialization of cash crops has been done through demonstration, cash crops seeds support, poly house support along with technical input and awareness raising. Women farmers are more interested to gain technical knowledge on cash crops and has initiated cash crops farming.

Local people in Deusa VDC are attracted towards improved agricultural practices; cash crops cultivation, organic manure and farmyard manure management, intercropping and mix cropping, etc. Technical inputs in improved farming method have been provided by project staff members to local farmers. Seeds and seedlings together with technical knowledge has



been provided by DAFRC in a reasonable cost to farmers especially to the organize members. In 2015, improved seed of ginger, Akabare Chilly and other cash crops were distributed from DAFRC to local farmers.

Local farmers are encouraged in cash crops cultivation as a result farmers are able to produce more quantity than the normal crops like corn, millet in the same piece of land. In 2016, 1 kg ginger seed each to 37 farmers were supported as a sample cash crop production. Likewise, local farmers were provided with technical skills and seeds of cash crops such as Akabare Chilli, Cardamom, Ginger, Coffee and Turmeric. The production of cultivated cash crops has been supportive in income generation and day to day consumption. In average, local farmers were able to produce about 21 kg from 1 kg seed. In the duration of 3 years, 150 farmers have been benefited with improved seed and seedlings of cash crops. (Detail is [Annex 25](#))

DAFRC has identified and capaciated local farmers as lead farmers for commercial farmers. At present, there are 43 lead commercial farmers who are technically and institutionally supported by DAFRC. (Detail of farmers is in [Annex 26](#))

3.2 Pig Production Center and Pig Fattening

A well established Namuna Piglet Production Centre (NPPC) under technical supervision of DAFRC has been producing improved piglets- Parkhibas Black Pig. 30 farmers have been benefitted with improved breeding process. Local community has been receiving benefits from this centre and improved breeding of pig is progressive. NPPC has also been generating income from the sale of pig meat ([Detail is in Annex 27](#)). Till the date, 76 piglets have been sold from NPPC (22 in 2015 and 45 in 2016)

3.3 Fodder and forage Nursery Expansion

As per the demand from the Deusa Agro- Forest resource Centre, there was the expansion of fodder and forage nursery, where 7,000 plants were distributed and 15,000 nurseries of fodder and forage were expanded. This will support in livestock production and forest preservation.

3.4 ECD classes

To motivate the parents in agriculture and livestock, to empower them for free devotion in income generation, ECD classes at 2 local schools have been mobilized. Children of early childhood have been adopted to make their parents free to be involved in livelihood earning. At present, 14 children are adopted at ECD class.

4. Economic status of local population improved

4.1 Food Crops Expansion

Identifying the local needs and demands, 330 local farmers have been supported with cropping technologies and seeds of food crops such as Maize, Wheat, Paddy and potato. It has targeted to increase the production of food crops and to attract the local youth towards agriculture. 100 Kg of Manakamana- 3 (Maize seed) has been distributed to farmers. Technical support from



AFRC on cultivation, production and storage has provided, as a result production of maize has increased.

4.2 Seasonal and Off- seasonable Vegetable Farming

Farming of tomatoes, green chilli, mushroom, Jukini has been done at AFRC with improved technologies. It has been demonstrated to local farmers and oriented to farm off-seasonal vegetable with applying improved techniques. The success of farming has been shared with the community as to promote green vegetable farming for income generation.

External materials like poly bags, tunnel plastic, improved vegetable seeds were supported for vegetable nursery establishment. In addition, the new varieties of vegetables like *Jukuni* and *kurilo* have been also promoted through demonstration and selling seedlings. The varieties of the vegetables distributed in the locality were both seasonal and off-seasonal.

Table 11: Income from the sale of vegetable seedlings from the Nursery of DAFRC

S. N	Type of Vegetables	Sale of vegetable seeds and seedlings in		
		2014 (Pics of Seedlings)	2015 (in kg and pics)	2016
1	Bean	234	2.41 Kg	54
2	Pea	556	3.55 Kg	11
3	Carrot	580	2 Kg	14 packets
4	Potato		526.5 kg	21
5	Tomato	2232	119 Pcs.	9
6	Cabbage	1110	7250 Pcs.	442
7	Cauliflower	643	-	405
8	Broccoli	187	-	-
9	Chilly	-	-	20 packet 10 packets
10	Simcauli			60
	Total number of Seedlings or Seeds	5542	N/A	448
	Income Total (NPR)	8944	55,246	21367

Demonstration of off-seasonal vegetable farming in green house has been regularly done at DAFRC from the initial year of the project. Basically, tomato has been farmed in Plastic House for demonstration of improved agriculture farming. It has been replicated by local farmers in their farmland in the project area.

4.3 Animal Breed Improvement

Introduction of improved breeding has contributed in livestock improvement for nutrition security in the project areas. AFRC in coordination with District Livestock Service Office has introduced improved breeding of pig, buffalo and goat. It has provided opportunities for rural community for animal breeding and reproduction for a sustainable increase in food quality, food quantity, and food production efficiency. It is going to support in improvement of

breeding and increment in milk and meat production. Improved breed of animals have become the regular source of income for the improved breeding rearing farmers. The income generation has been started. The detail of the improved breed rearing farmers along with the current status of is given as below:

S.N	Improved breed of animal rearing Farmers	Animal	Address	Number of Breeding animals	Rate (NPR)	Total Income (NPR)
1	Net Kumar Rai	He-Bufferlo	Deusa-4	24	1000	24000
2	DAFRC	He-Bufferlo	Deusa-8	8	1000	8000
3	Katak Bahadur Rai	He-Bufferlo	Deusa-3	6	1000	6000
4	Sampurdhan Rai	He-Goat	Deusa-2	103	50	5150
5	Dilliser Rai	He-Goat	Deusa-7	17	50	850
6	Jit Bahadur K.C	He-Goat	Deusa-5	22	50	1100
7	Krishna Rai	He-Goat	Deusa-8	28	50	1400
Total Income generated				308		46500.00

Along with breeding support, animal health has been prioritized as major concern. Initiation of animal health check up has been done. The farmers have become aware of the animal health problems, that has solved by timely check-up and treatment. Till the date, 8 local farmers have taken services from DAFRC. (Detail is in [Annex 28](#))

4.4 Establishment of Piglet production center and piglet production in AFRC:

A model piglet production center has been established under supervision of AFRC. Established piglet production center called - Namuna Piglets Production Center- in Deusa-8 has been equipped with production center consists of seven rooms. It has started to generate income from sale of piglets as shown in table 12.

Table 12: Production and Sale of Piglets from Namuna Piglet Production Center

S.N	Piglet Production Center	Address	Owners Name	Amount supported /Rs.	EcoHimal support	No. of Piglets produced till date	No. of piglet sold	Total Income
1	Namuna Piglet Production Center	Deusa 8	Shree Namuna Piglet Production Group	35000	4 He-pig of family Dharane Kalo Bangur	76	68	542650

Along with improved breeding and cash support, the training on improved breeding, establishment of piglet production centre have empowered local community to raise livestock for earnings. Till the date, 76 piglets have been produced and 68 have been sold.

In addition, capacity of executive committee of production center has been built up for resources polling from concerned line agencies and organizations. They have been succeeded to obtain donation from Project for Agriculture Commercialization and Trade (PACT) and has



been a deal with PACT to provide more grant on the basis of progress achieved. Likewise, the management has been capacitated to use pig manure in the farm. Pig manure is used and promoted at local level.

4.5 Local farmers have been capable in proper cattle shed management

15 local farmers have been capacitated in cattle shed improvement and management. They have been capable in proper cattle shed management as well as compost manure use through conduction of 3 days training organized at AFRC.

4.6 Kitchen Garden at each household

AFRC has provided training to the farmers on seasonal and off seasonal vegetable farming. Necessary seeds and seedlings and agriculture materials are made available along with support and suggestion to make the kitchen garden at each household.

In Deusa, around 1000 households have been doing seasonal vegetable kitchen garden that has benefitted the health and nutrition of people along with supporting in income generation. Farmers have started to grow off seasonal vegetable in 13 plastic tunnels for sale. They have started to generate income from sale of green vegetable from their kitchen garden. For irrigation facilities, plastic ponds have been constructed and rain water collection has been practiced.

5. Contribute on mitigation and adaptation of climate change affects

5.1 Forest Nursery production and distribution

Plantation is essential to reduce soil erosion, so plantation on bare land was as prime focus of AFRC. As per the annual plan of DAFRC and geographical appropriateness, varieties of forest nursery seedlings were collected and distributed at local level. Total of one lakh and fifty thousand forest nurseries such as: Salla (*Roxburghii*), Chap tree, Cheuri (Nepalese Butter Fruit), Lapshi (*Choerospondias axillaris*), Lakuri, Aamala (*Phyllanthus Emblica*), Uttish (Alder), Rudraksha (ornamental tree), Pauloniya, Buddhichitra (ornamental tree), fooder, forage, medical herbs, fruits, and other various local multipurpose and multi-use plants was planted in bare/ marginal land, community forest, Public places with the support of grassroots organization and local community in order to prevent the landslide and to promote healthy environment.

Plantation helped in minimization of Climate change effect, control in soil erosion, and created greenery healthy environment as well as awareness has been raised among locals are making sustainable planning for their future.

5.2 Preservation of Forest and Plantation

Mountainous region of Nepal has been adversely affected due to the climate change. Adding more to it, the devastating earthquake of last year has affected it more. For the preservation of forest and plantation process, AFRC has been promoting with the approach of save tree by plantating saplings. About 10,500 saplings were planted in Deusa VDC in facilitation of AFRC.



The project distributed forest seedlings to the community people to encourage them for plantation – with “Go Green” approach. About 3500 Amriso seedlings, seedlings of Nettle, Wild raspberries and Reed has been planted on the identified bare land for mitigation of soil erosion.

5.3 Awareness level of community people on environment, climate change and its impact has been enhanced

Awareness level of community people on environment, climate change and its impact has been enhanced through conduction of awareness-raising programs and orientations. Ward-wise conduction of awareness raising programs helped in information sharing and discussion on environment. Established mini-library at AFRC has contributed in information sharing about current global environment issues. They have been educated on role of forest and environmental conservation for sustainable development of society. They are informed on the aims and objectives of AFRC, activities of AFRC and membership and its procedure.

Radio Program

In coordination with Radio Chomalungma, a weekly radio program “Sajha Chautari” (meaning common ground) has been producing and broadcasting on every Friday 6:00 pm in the issue of climate change and issues related to farming. It was a 30 minute program intended to create awareness among the farmers.

In the project period, 76 episodes were broadcasted on following issues, 18 episodes were not aired due to technical problems of station and radio. ([Sample translated section of report is in Annex 29](#))

Issues were:

- Agriculture commercialization
- Conesevation of forest and natural resources
- Livestock and income generation
- Plantation and its advantages
- Irregation and its importance
- Potato farming
- Soil erosion and mitigation measures
- Goat farming
- Cardamom farming and income generation etc.

In addition, the programme has been focusing in different issues which maximizes the scope of resource centre in other VDCs of Solukhumbhu district and its surroundings. The radio program has been playing a vital role in coordinating and information sharing. The programme has been widely appreciated by the local community and have been a communiation and information tool among local people.



➤ **Lesson Learned from Project**

- Community ownership and leadership is major milestone in success of the project
- Solution based training is milestone in institutionalization of community based organization
- Availability of seed, seedlings and production at local level motivates the local farmers for involvement in agriculture
- Demonstration of innovation and improved technologies encourages local farmers for replication
- Research experiments and small pilot demonstrations have so far are the potential benefits of agro forestry. Because most of such activities are still to be implemented, there is limited practical experience to promote widespread use of agro forestry technologies in such rural areas of Nepal.
- Much more applied research is needed, and priority should be given to the development of specific technologies that take into account climatic constraints and actual farming conditions of the target population.
- Encouraging farmers to set up their own nurseries and experiments emphasizing trainings to construct small nurseries on their farms using simple, low-cost seeding and other propagation techniques is necessary for sustainability of the project. It can be very beneficial to local farmers to grow seedlings for their own use; the more enterprising farmers even grow seedlings to meet demand generated by the projects.
- Increase in production of traditional food species (fruit trees, vegetables and root crops) to substitute for food imports, through promotion of adoption of smallholder and community-based agroforestry on underutilized sloping land in locations for which this practice is the 'highest and best use' of the land.
- The project cycle is long and needs much more time to get real result and benefit, so bit longer support and strong capacity building and produce skilled human resources is necessary for the sustainability.

➤ **Problems and Challenges in Project Implementation**

- Delay in building construction as per the plan due to lack of skilled human resources.
- Delay in materialization and operation of an in-house learning centre for school students from grade 8 to 10 due to lack of basic infrastructure facilities
- Limitation of human, capital and available resources.
- Lack of local academic personnel or consultant

Evaluation from Social Welfare Council:

Recently SWC has been completed a through evaluation of the AFRC and submitted a report. The report is very positive and considered a project as model and success project. Unofficial translation of the findings, recommendations and conclusion: