

# **Endline Report of UNNATI Project**

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## ACRONYMS

ADS	Agriculture Development Strategy
ASC	Agriculture Services Centre
CARE	Cooperative for Assistance and Relief Everywhere
CEAPRED	Centre for Environmental and Agricultural Policy Research, Extension and Development
Coop	Cooperative
DADO	District Agriculture Development Office
DDC	District Development Committee
DWCO	District Women and Children Office
EU	European Union
FG	Farmers' Group
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GESI	Gender equality and social inclusion
Ha	Hectare
HHs	Households
ICT	Information communication technology
KII	Key Informants' Interview
MoAD	Ministry of Agriculture Development
MTR	Mid term review
NPC	National Planning Commission
NRs	Nepali Rupees
US\$	United State Dollar
VDCs	Village Development Committees

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## EXECUTIVE SUMMARY

With the overall objective to increase income and livelihoods through vegetable production and marketing by small holder farmers residing along the BP Highway, UNNATI project is implemented by CARE Nepal in partnership with CEAPRED under the financial support from European Union and CARE Denmark. Though the project was planned from December 2012, the project functionally executed from March 2013 to end of December 2015 in six VDCs of Sindhuli and Gauribas VDC (now part of Bardibas Municipality) of Mahottari Districts. As a part of the project activities, the project initiated an endline evaluation to review the progress and achievements made so far, analyze the working approaches, identifying the gaps and capturing lessons learning against the core project areas namely commercial vegetable production and marketing, institutional building, women empowerment and climate change. Taking considerations of the ToR the consultant team reviewed the relevant documents, designed detailed methodologies, carried out data collection, validated the data, analyzed the data and finally prepared a report primarily based on qualitative information. Since interactions were made with a limited number of beneficiaries and KIIs, the report is entirely based on their responses.

The endline evaluation inferred that the project is relevant to communities' level, districts levels development endeavors along with coherence with the national development agendas. The project contribution is highly appreciated by the district level governmental organizations like DDC, DADO and DWCO for demonstrating visible effects like establishment of institutions at local level and supplying fresh vegetables to district headquarters from the project sites. Vegetable farming has contributed to consumption of fresh vegetables, on-farm income generation, and increased savings along with easy access to credit and established the financial and business institutions in village level to cater beneficiaries' financial and technical needs. The endline evaluation team noted features like experts provision on cost sharing basis, well experienced team of staff, long experiences of implementing institutions on vegetable commercialization, office sharing by project management and implementation teams and close coordination with related stakeholders to make the project more efficient. The project was successful in organizing more than 1,200 small holder farmers in 50 groups (34 in Sindhuli and 16 groups in Mahottari districts). These groups are linked with four agricultural and/or multi-purposed cooperatives. Direct marketing by the cooperatives was not evident in all areas but the target was achieved through the linkages made by the cooperatives with vegetable traders. Women participating in training observed to be more than 50%. Almost all beneficiaries appreciated the service extended by cooperative. Four vegetable collection centres are under direct control of the cooperatives but an effective and efficient mechanism for inputs and outputs marketing is not yet established. All beneficiaries got the training on organic vegetable farming practices. All the beneficiaries have been using improved (both open and hybrid) seeds of vegetable crops. The irrigation target was met by lift irrigation, water harvesting pond and drip irrigation. Well capacitated agro-vets were observed at Sindhuli and Bardibas. Local agro-vets also received training and came into the formal registration system. All respondents positively evaluated the service of local agro-vets. Because of all these activities, it could be concluded that all anticipated results were delivered at a high level of quality as per the plan. Only in the case of vegetable marketing, the approach had to be slightly modified in order to achieve the target.

Vegetable sufficiency through maintaining vegetable kitchen gardens was found effective. And about three fourths of the beneficiaries produced vegetable sufficient for the year with more than 100 gram per capita per day consumption. More than 80% of the respondents

reported that they have started growing vegetable in semi-commercial and commercial level and 80% of them gave credit to the project as a great source of inspiration. The average income of commercial farmers was about Rs 150000.0 and women farmers were earned roughly a half of men farmers. 44% of the respondents reported that they do not use chemical pesticides. Exactly one third of the respondents mentioned that vegetable traders (business men) are the source of market information. Marketing by self is the most dominating sole system (24%), which was followed by retailer (20%). Household survey showed almost equality on the decision making for vegetable cultivation activities. The majority (58%) of the respondents sent their children to community schools and about one third sent children to boarding schools. In totality, women involvement in leadership positions in groups and cooperatives was found more than 50%.

The equity issues addressed by the project are categorized according to economical, ethnic/caste and gender issues. From focal group discussions it was revealed that few farmers have earned more than 200 thousand NRs per annum from the sale of vegetables. Dalits of Gwaltar cluster and Majhi (deprived minority ethnic caste) clearly mentioned that working together in equal footing has further narrowed down the caste or ethnic discrimination in the society. It was further revealed from the discussion that women were empowered to participate in the decision making in vegetable value chain. Additionally, from the women focus group discussions the women stated that their status had increased remarkably in household and societal level. Since the project has intervened in all phases of the value chain process, the project is expected to show a high level of sustainability. The majority of farmers groups are registered in DADO and all of them are linked to the cooperatives. Capacity building of beneficiaries will help them to become more sustainable in accessing funds and services and they have already starting to get matching funds (in Gauribas cluster).

The evaluation findings proved that the project was implemented successfully and delivered all expected outputs with quality. The factors, which make the project successful, are useful lessons learned and will be replicated in similar type of projects in similar kind of socio-economic settings via CARE Nepal support. The positive learning from the project includes: appropriate project location for commercial vegetable production, selection of appropriate commodity, intervention in the entire value chain, need based social interventions, development of local institutions, promotion of environmental sound practices, consideration of climate change issue in agriculture, capacity building of beneficiaries and other value chain actors, facilitation of and support to beneficiaries for ownership, incorporation of gender issue and its acceptance, and synergy through resource sharing. An ambitious project planning and a high rate of staff turnover should be considered a useful learning too from the project.

The endline evaluation found that all the planned results were delivered at a satisfactory level to fulfill the anticipated objectives. Fine-tuning of the activities and change in the project sites were observed as per the local demand and appropriateness. Sharing of technical as well as administrative issues and support to each other in a professional manner was observed between CARE and CEAPRED employed staff, as they were working in equal footing as an UNNATI team. Hence, the project was implemented by CEAPRED in a very smoothly manner. . Not only from the the project implementation staff, the consultant team did not realize any grouse regarding project implementation from the beneficiaries and stakeholders sides. The project performance and its progress were found highly satisfactory as the project delivered its anticipated results except direct vegetable marketing through

cooperatives. Taking into consideration the project results and views of respondents, recommendations are put forwarded grouping it into three areas, i) implementation modality aspect, ii) marketing aspect and iii) technical aspect. The issues to be considered to improve the implementation modality includes farmers' categorization based on scale of production, tailor-made-training approach, diamond trial approach demonstration, gray water utilization and output based incentive schemes. Based on the findings, technical recommendations namely exploitation of specific micro-climates, diversifying the use of beneficial agricultural microbes, maintenance of postharvest quality and postharvest loss reduction, plant based home garden approach instead of kitchen garden have been made. The marketing aspect includes more focus on cooperatives strengthening, awareness to basic cooperative principle to all, business interaction meeting among market actors, production planning for all the year round supply and maintenance of farm inventory.

## 1. INTRODUCTION

### 1.1. Background

Nepal has long history of execution of the periodic development plans but its effect is not prominent in the country's economy. The average annual income of the country is very low (US\$ 730) and about 1/4<sup>th</sup> of the population are living under the national poverty line (World Bank, 2014). Farmers of the country fall under the low income group and agricultural labour income is less than US\$ 140.0 (NPC, 2010). Agriculture is the predominant livelihood option of the majority (about 65%) of the population, which generates about 33% of the gross national products (MoAD, 2014) despite of low performance of the sector. Involvement of two third of the population for the generation of one third of the national GDP clearly demonstrates that the Nepalese agriculture system is dominated by subsistence farming. Majority of subsistence farmers are struggling to feed their family all the year round from agricultural related activities. Traditionally farmers are focusing on growing cereals to fill the stomach. Emphasis on carbohydrate rich food consumption by the subsistence farming households led to very low consumption of fruits, vegetables and animal based foods. Priority on low quality bulky food rather than nutritious quality foods have resulted in rampant under-nutrition in the country. Nepal has been putting efforts to fight against the mineral deficiencies by supplying fortified tablets since long, and the promotion of food- based nutrition is a recent approach for combating under-nutrition problem. Support on food-based nutrition production through vegetable farming to subsistence farmers has become a effective tool to fight the malnutrition along with quick income generation, in the recent decades.

Horticulture in general and vegetable in particular is one of the fast growing sub-sectors in Nepal. In the current decade (2005 - 2014) the vegetable growing area and its productivity increased by 29% and 14.9% respectively (MoAD, 2014). The increase in vegetable production is due to the high income generation per unit area and time, employment generation and expansion of road networks (Thapa, 2009). Opening of the North-South roads, connecting mountain to plain, has played an instrumental role to exploit climatic variability within a very narrow zone for the production season expansion of vegetable crops. The vegetable production is further supported by the use of new technologies, which has also contributed to widen the production season. In many rural areas of Nepal, commercial vegetable farming has made dramatic changes in farmers' economic conditions. In the same line CARE Nepal, in partnership with CEAPRED and with the financial support from European Union (EU) and CARE Denmark has implemented the UNNATI project since December 2012 (functionally from March 2013). The overall objective was to increase income and livelihoods through vegetable production and marketing by small holder farmers<sup>1</sup> residing along the BP Highway (Dhulikhel to Bardibas). The project was implemented in six VDCs (Jhagajholi Ratamata,

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<sup>1</sup> Farmers having 0.3 to 0.5 ha of land

Purano Jhagajholi Ratamata, Baseshwor, Bhimeshwor, Bhuwaneswori and Kuseshwor Dumja) of Sindhuli and Gauribas VDC (now under Bardibas Municipality) of Mahottari Districts.

UNNATI, a three-year project, had a plan to carry out its end-line evaluation at the end of its project life. The main objective of the endline evaluation was to review the progress and achievement till date, analyzing the working approaches, identifying the gaps and capturing lessons learned based on the core project areas, which include commercial vegetable production and marketing, institutional building, women empowerment and climate change.

## **1.2. Methodology**

The consultant of the evaluation reviewed the available documents, developed the study tools, carried out data collection, participatory validation of the data, data analysis and reporting based on the terms of references (Annex I) of the endline evaluation. More precisely, the following specific activities were carried out during the course of evaluation.

- 1.2.1. **Literature review:** First, project documents like project proposal, baseline survey, value chain report, progress reports and external consultants' (Coop, GESI and mid-term) reports were appraised. Then a more critical review was paid to the project logical framework so as to get clear understanding of the project objectives, outputs and activities along with their indicators and means of verification. Documents related with project implementation and progress reports (such as the yearly operation plan and progress reports) were also collected during the field visit for review and triangulations.
- 1.2.2. **Instruments design:** The consultant prepared a draft checklist of guide questions for the execution of focus group discussions, key informants interviews and other stakeholders as mentioned in the ToR. A structured questionnaire was developed for the household survey. All the checklists and questionnaires were shared with the UNNATI project team for comments and suggestions. Upon having the comments on the guide questions and performing mock test of questionnaire, they were finalized (Annex II) and translated into Nepali for field data collection.
- 1.2.3. **Planning workshop for data collection:** With the objectives to become familiar with the project and the evaluation task, a day-long planning workshop was organized at UNNATI field office for the enumerators. First, the Project Officer of Unnati briefly highlighted about the project and progress made so far based on internal assessment. The consultant systematically went through each and every lead question and clarified all the listed questions to the enumerators. A mock test of questionnaire interview was carried out among the enumerators, and questions were redesigned as per the given suggestions.

- 1.2.4. **Data collection:** Quantitative primary data was collected through structured questionnaire administration to 200 (50 in each cluster) households of the beneficiary residing in Nepalthok cluster (Kuseshwor Dumja VDC), Jhangajholi Cluster (Jhangajholi Ratamata and Purano Jhangajholi VDCs), Gwaltar cluster (Bhimeshwor, Baseshwor and Bhuwaneshwori VDCs) in Sindhuli district and Gauribas cluster (Bardibas municipality) in Mahottari district. The respondent households were selected using stratified (male and female) random sampling. Qualitative primary information were collected from the direct beneficiaries by organizing 3 focus group discussions (FGD) with females, a mixed group and cooperative members in each cluster. Additionally, one FGD was executed with the project team. Interviews of key informants were carried out from four agro-vets owners, four vegetable traders, one agriculture service centre and two Agri-product Market Centers. Furthermore, 12 case studies were carried out encompassing female and male commercial vegetable growers, village resource nursery owners and farmers having plastic houses. Interactions, with district level stakeholders such as District Development Office (DDC), District Agriculture Development Office (DADO), Women and Child Development Office (WCDO) and District Cooperative Federation at Sindhuli Madhi, were also carried out.
- 1.2.5. **Data analysis and reporting:** Questionnaires administrated at household level were analyzed using SPSS 12.0 statistical package. Information collected from the focus group discussions, key informants interviews, reports and data supplied from the project and line agencies, and direct observations was critically examined by the team. Relevant and necessary issues were identified and extracted based on the analysis, and presented in the report.

### 1.3. Limitations of the study

Very limited evaluation period has resulted speedy execution of the task. There was a plan to perform pre-test of questionnaire before finalizing it but instead a mock test was carried out. Technicians deputed on Agriculture Service centers were not available during the time of visit and there was no luxury to wait for them to respond but contacted only one. The evaluation season was coincided with paddy threshing, potato planting and wheat sowing season, which resulted in a relatively low level of participation in the full time focus group discussions. This has further resulted in low participation of beneficiaries, who are far from the sites of our focus group discussion. The evaluation team members prepared this report taking views of limited key informants at each cluster, which is one of the strong elements of this report. The consultant has limited time (only three days were planned) in the field to give sufficient time for information triangulation through transact walk but different sources were checked to do so.

## **1.4. Interviewee profile and the evaluation team**

### **1.4.1. Evaluation team**

A team leader having extensive experiences on implementations of research and development projects of vegetable farming was selected by UNNATI project of CARE Nepal for the purpose of endline evaluation (Annex III). The lead consultant was supported by four agricultural graduates, and four lead farmers from the respective communities, to act as enumerators. A major responsibility was given to the agriculture graduate enumerators for the quality assurance of the collected information. One of the graduate enumerators supported the lead consultant for data entry for the statistical analysis. The project manager of UNNATI project backed up for planning and technical inputs from a distance. The site based project management team of UNNATI project extended their full support for planning, coordination and logistic management to the evaluation team during the field study. Site based project staff of the implementing partner arranged the venue and time upon discussion with the enumerators for focus group discussion. They were also involved to take time for key informant interview and guided the enumerators to find the randomly selected households for questionnaire administration.

### **1.4.2. Details of the interviewee profile**

A total of 200 questionnaires were filled and views of about 200 farmers were captured during the course of field studies. Personal interactions were made with district level officials of the Government of Nepal, cooperative federation, agro-vet owners, vegetable market actors, DADO technician and selected farmers. Key issues were also discussed with the project management and implementation team. List of the participants presented in focus group discussion and other contacted individual (except household survey respondents) during the evaluation is presented in Annex IV.

## **2. FINDINGS**

### **2.1. Relevance of the project**

The overarching objective of the UNNATI project is considered to be significant because it matches the development objectives at micro, meso and macro levels. In the local level the project is directly responding to the pertinent necessities of agrarian society, which is struggling for more on farm income generation. While examining the district level relevancy, vegetable farming is one out of four prioritized sectors among the agricultural value chain in Sindhuli district. More precisely, 22<sup>nd</sup> district council meeting of Sindhuli district passed an agendum to develop commercial vegetable production sites along the BP highway road corridors. National agenda of food and nutritional security, import substitution and agriculture commercialization

are also contributed to by the project. Not restricting to the national perspective, the project laid some stones for the achieving Millennium Development Goals. In this connection the project is directly contributing to Goal No. 1 (eradicate extreme poverty and hunger) and Goal No. 3 (promote gender equality and empower women). Furthermore, the project is indirectly associated with the Goal No. 2 (achieve universal primary education), Goal No. 4 (reduce child mortality), and Goal No. 7 (ensure environmental sustainability). The project's necessities are still valid in the recently promulgated Sustainable Development Goals. The project is directly contributing to Goal No. 1 (no poverty), Goal No. 2 (zero hunger) and Goal No. 5 (gender equality). Likewise, project indirect contribution can be linked with Goal No. 3 (good health and well-being), Goal No. 4 (quality education) and Goal No. 8 (decent work and economic growth).

The project is implemented adhering the many current plans, policies and objectives of agricultural development in Nepal. The current development plan has regarded cooperatives as one of the four pillar of development. Very recently the Agriculture Development Strategy (ADS) was launched, which is the guiding document of agricultural development of Nepal for next 20 years (2015 - 2035). The ADS has identified four key elements namely commercialization, competitiveness, governance and social inclusion. The project has encompassed all these issues while cultivating vegetable crops. 'Vegetables' is within the top-ten important value chain identified by the strategy document. Hence, the project is completely relevant in the national context and to the downward streams.

DDC and DADO have appreciated the action of vegetable commercialization in the context of having top priority to horticultural sector in the district. Furthermore, they have rated high level of relevancy to vegetable commercialization because of one among four prioritized agricultural commodity for the district. Despite being very close to the capital, Sindhuli is in the lower side of the development index. Since vegetable commercialization is proved to be a vehicle for economic upliftment, its necessity is regarded very high. In the context of high level of vegetable import in the district, production in local level is highly appraised for import substitution and availability of safe vegetables.

The beneficiaries found vegetable production very relevant to their situation for income generation, consumption of fresh vegetable for extended period time, healthy food and realizing a new livelihood option. Introduction of new crops, varieties and training to off-season production is regarded very important for means of household income generation. Maintenance of kitchen garden at household level contributed for dietary diversity to small holder farming households. Since women are responsible for arranging vegetables for cooking, the kitchen garden is regarded as a tool for women empowering. The working approach adopted by the project is found to be relevant for inclusive development. Targeting small holder farmers and women headed household (> 50%) is a pro-deprived action. Women's participation in technical and leadership

trainings and encouraged involvement in decision making positions are necessary actions in the male dominated society for the equitable development of both genders. Functional saving and credit management through groups and cooperatives has made women farmers' lives much comfortable in the society, where access to cash is one of the most challenging parts.

## **2.2. Effectiveness of the project**

Statistical reports of the current decade reveal that vegetable production in Sindhuli district is increasing in a very slow pace. Since the project covered very small area of Mahottri district, it is illogical to use district data for this purpose. An increase in production of vegetables does not mean that the products go to the supply chain. The value chain study commissioned by the project reported that only 20% vegetables come from the local producers in the local markets in BP highway road corridors at the time of project initiation. However, interactions with agri-market managers and vegetable traders revealed that it has increased to around 40% (it does not mean that the increase is only from the project sites). Two vegetable traders in Sindhuli primarily involving in marketing of locally produced vegetables. Government officials particularly District Development Committee and District Agriculture Development Office (DADO) expressed the need of agriculture commercialization projects and UNNATI has taken lead for vegetable commercialization in some parts of newly opened metallic road corridor. DADO technicians categorically appreciated the efforts made on vegetable commercialization along with establishing the example that a virgin site can be converted into semi-commercial site within a three year project frame. Realizing the importance and progress, DADO Sindhuli has joined hands with the project for four irrigation schemes. Likewise, DCWO expressed their appreciation for increase in number of women taking responsibilities in social organizations in the project sites. Furthermore, market actors of Sindhuli Madhi reported that significant quantity (upto 1 ton/day) is entering the market from the project sites contributing more than double volume of the local produces as compared with the past three years.

All (100%) of the beneficiaries received the seed support and trainings on different components of vegetable cultivation. The trainings were found highly effective as the beneficiaries confirmed adoption of new technologies in vegetable farming. The project could be rated effective for nutritious vegetable diversity (consumption rate doubled) to the beneficiaries and increasing household incomes through vegetable sale. In the context of irrigation water scarcity in the project areas, introduction and demonstration of drip irrigation was found highly effective to the commercial vegetable growers. Cultivation of vegetable crops in both conditions, small or large scale - were found to be effective in the project intervention sites. Vegetables kitchen gardening has greatly supported to the consumption of fresh and safe vegetables for an extended period of time to all year round. To the commercial growers, selling of vegetable became an option to increase their household income. Access to cash

income made positive impact on education (timely arrangements of books and stationaries), medical treatment and buying and consumption of quality food. More importantly, access to cash has greatly capacitated the poor households because of mandatory deposit in the groups and cooperatives. It is revealed from the discussions that money deposited in the group becomes a powerful means for increasing the level of dignity. It was humiliating to ask for loan from the merchant where one had to pay higher rates of interest. It was also evident from the discussion that borrowing money for common social events and household affairs from the local money lenders has almost stopped. The savings are primarily used for the purchase of agricultural inputs and spent for better education (sending children for private schools, purchasing stationaries, sending children for tuition classes).

### **2.3. Efficiency of the project**

Activities planned during the project formulation were appropriate to meet the technical and marketing needs of beneficiaries for vegetable commercialization in the project sites. However, a few activities were added by the project team in order to ensure the fulfillment of anticipated outputs. It is revealed from the evaluation that the added activities were well suited to the beneficiaries. Training related with vegetable farming followed by inputs distribution has increased the efficiency because of its proper and efficient utilization. Promotion of locally available materials for improving the soil nutrient and pest management has increased the efficiency in terms of investment and return to the farmers from vegetables sale. Sound project management was observed at the field level and necessary guidance was provided from the country office of CARE and headquarters of CEAPRED. To make the project cost effective in its implementation level, experts like GESI were placed in CEAPRED headquarters for the technical backstopping on a cost sharing basis. Smooth communication in all levels was noticed. It was more evident at the implementation level where the project management and implementation team worked in the same building and utilizing the common available facilities like meeting hall. Use of motorbikes for local transportation and hiring local cars for long distance travel are regarded efficient approaches to maximize the use of available funds. Provision of irrigation is the top priority of farmers and this issue was also raised during the endline evaluation. The effort and resource invested on the lift irrigation both in Roshi and Sunkoshi rivers did not yielded the good results.

### **2.4. Project achievements/benefits**

The project left many positive benefits to the beneficiaries at household level and society level by introducing new agricultural technologies (including climate resilient), establishment of inputs and outout networks and strengthening the local

institutions. Since only the project results are under control of the project execution team general benefits were analyzed taking references of indicators listed in the project logical framework (Table 1).

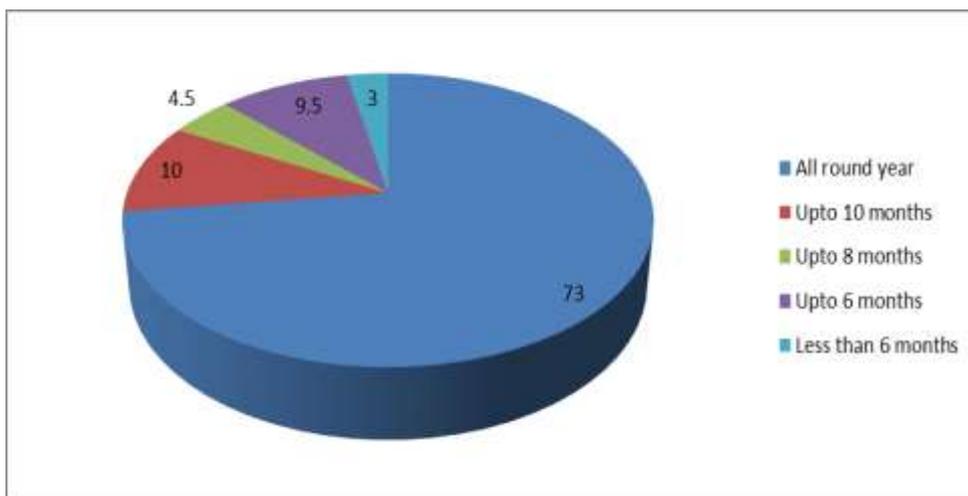
**Table 1.** Achievements made against the stipulated indicators in the project log frame

Expected Results	Indicators	Comments
1.1. One thousand two hundred vegetable growing households are organized in well-functioning farmers' groups and cooperatives.	<ul style="list-style-type: none"> <li>▪ 1200 small-hold households organized in 50 farmers' groups</li> <li>▪ 50 farmers groups of small-hold farmers linked with Agro-cooperatives</li> <li>▪ 60% of total vegetable produced by farmers sold to cooperatives</li> <li>▪ 100 (50 women) small farmer committee members and 20 (10 women) cooperative executive board members trained in effective groups and cooperative management, respectively</li> </ul>	<ul style="list-style-type: none"> <li>▪ 1216 small holder farmers organized in 34 groups in Sindhuli and 16 groups in Mahottari districts.</li> <li>▪ All 50 farmers groups of linked with 4 agro and/or multi-purposed cooperatives</li> <li>▪ Direct marketing by cooperative was less but achieved the target through the linkages made by the cooperatives.</li> <li>▪ Women farmers trained as per the plan</li> </ul>
1.2. Four farmers' cooperatives are providing high-quality services to their members and linking them to the market.	<ul style="list-style-type: none"> <li>▪ 90% of the target farmers experience improved market access</li> <li>▪ 90% of small farmer members of the cooperatives positively evaluate the services of the cooperative</li> <li>▪ 4 vegetable collection centres are managed by cooperatives and function effectively</li> </ul>	<ul style="list-style-type: none"> <li>▪ Market access increased but coop marketing is not properly established.</li> <li>▪ Almost all beneficiaries appreciated the service extended by cooperative</li> <li>▪ 4 vegetable collection centres are under cooperatives but effective functioning mechanism is not properly established</li> </ul>
2.1. 1200 small holder farmer households are capacitated in vegetable production.	<ul style="list-style-type: none"> <li>▪ 1200 farmers of small holder trained in organic vegetable farming practices</li> <li>▪ 1100 farmers of small holder farmers started using improved seed of vegetables</li> <li>▪ 300 small farmers provided with sustainable access to micro irrigation (drip &amp; sprinkler, trader pump)</li> </ul>	<ul style="list-style-type: none"> <li>▪ All beneficiaries got the training in organic vegetable farming practices</li> <li>▪ All the beneficiaries have been using improved (both open and hybrid) seeds of vegetable crops</li> <li>▪ The target met on lift irrigation, water harvesting pond and drip irrigation. Lift irrigation were out of order during mid-line evaluation</li> </ul>

<p>2.2. Local dealers and agro-vets provide high quality input supplies to small scale farmers</p>	<ul style="list-style-type: none"> <li>▪ At least 5 agro-vets/ local dealers provided quality services to small holders</li> <li>▪ 30% increase in the number of farmers satisfied with the services provided by Agro vets/dealers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Well capacited agro-vets observed at Sindhuli and Bardibas. Local agro-vets received training and registered</li> <li>▪ All respondents positively evaluated the service of local agro-vets</li> </ul>
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The anticipated results of the project were delivered by the project as per the plan. But in the case of vegetable marketing, the approach was slightly modified so as to achieve the target. Fresh vegetable marketing was carried out by making linkages with vegetable traders. Cooperative coordinated the growers to harvest the products in sizable quantity on the day fixed by the traders. Cooperative marketing was very ambitious in the new sites where project initiated the cooperative formation and its mobilization. The old cooperatives could not materialized the formal vegetable marketing through cooperatives because they didn't have their own collection centres.

Vegetable sufficiency through the maintaining vegetable kitchen garden was found effective where about three fourths of the beneficiaries produced vegetables sufficient for all year round (Figure 1). The impact made by the project is considered highly satisfactory as beneficiaries having vegetable sufficiency more than 10 months were 83%.



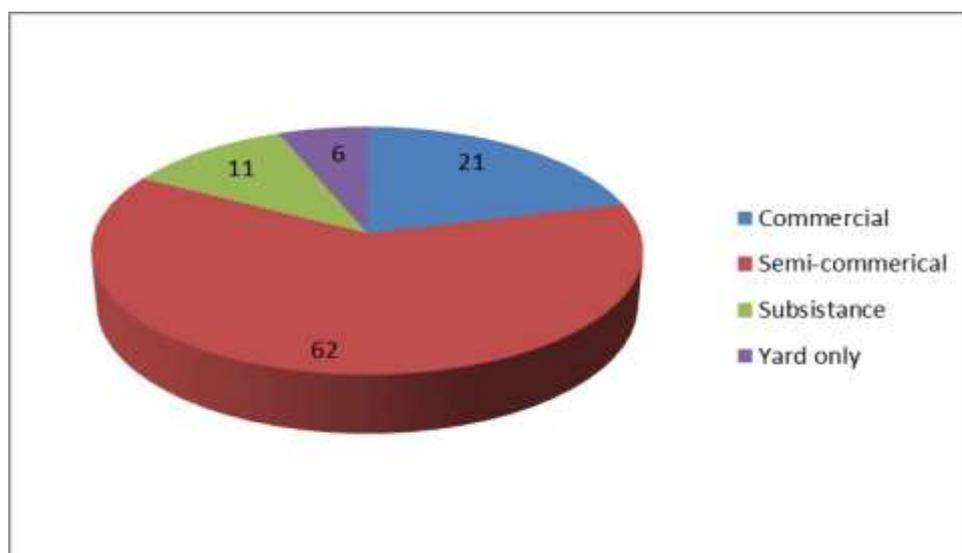
**Figure 1.** Contribution made by kitchen garden on vegetable supply

Availability of fresh vegetables is not merely sufficient for contribution to family food and nutrition. Table 2 shows that per capita per day consumption was more than 100 gram. Hence, household survey also supported that the project has contributed for food based nutrition support to household level.

**Table 2:** Family size, land holding and vegetable consumption

VDCs	No. of Sample HHs	Average HH Size	Land holding (ha)	Vegetable consumption (gm)
<i>Sindhuli District</i>	150	5.84	0.40	816.55
Kusheshwar Dumja	50	6.18	0.46	616.00
Jhangajholi Ratamata	40	5.33	0.43	648.72
Purano Jhangajholi	10	6.27	0.39	577.27
Bhimeswar	3	4.33	0.33	1066.67
Basheswar	22	7.27	0.45	988.64
Bhuaneshwari	25	5.64	0.35	1002.00
<i>Mahottari District</i>	50	6.48	0.37	615.31
Gauribas	50	6.48	0.37	615.31
<i>Total</i>	200	6.16	0.39	715.93

Table 2 further elucidated that the project beneficiaries are small holders having less than 0.5 ha of land. Even with the limited land, farmers showed encouraging attitudes on the scale of vegetable production. More than 80% of the respondents claimed that they have started growing vegetable in semi-commercial and commercial level (Figure 2).



**Figure 2.** Farmers' perception on scale of vegetable cultivation

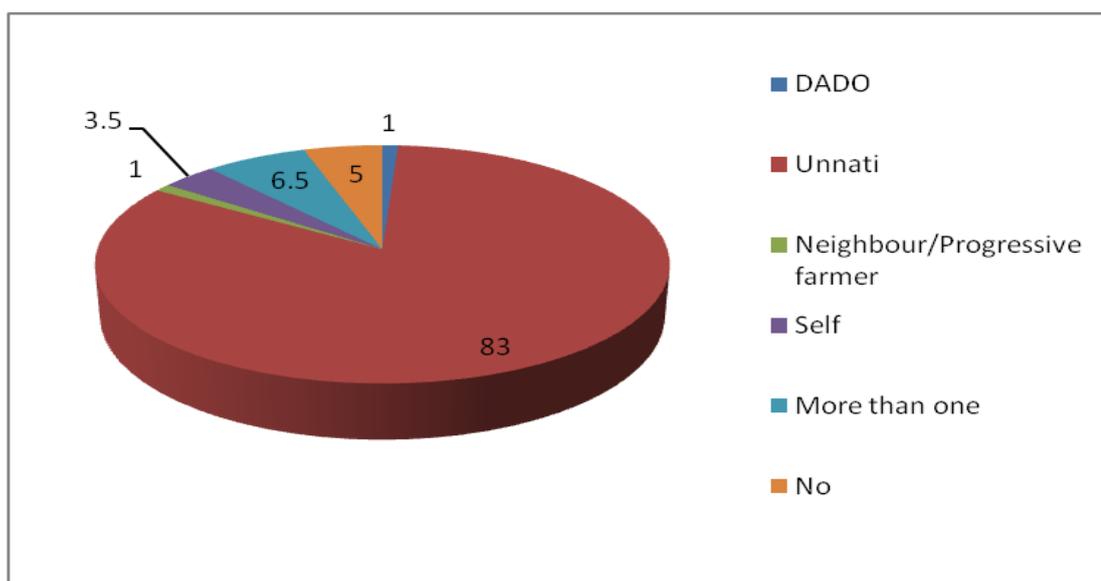
In connection with the inspiration for commercial vegetable farming, more than 80% of the farmers gave credit to UNNATI (Figure 3). This clearly elucidates that the project made good impact to be beneficiaries.

**Table 3.** Average annual income (NRs) of the commercial vegetable farmer

District	Cluster	VDCs	Commercial male farmer	Commercial female farmer	Poly house farmer (60 m <sup>2</sup> )
Sindhuli	I	Kusheshwor Dumja	200000	100000	24000
	II	Jhangajholi	150000	70000	22000
	III	Gwaltar	250000	85000	15000
Mahottari	IV	Gauribas	70000	40000	28000
Average			150000	73750	22250

Source: Key informant survey 2015

Income, earned by commercial vegetable farming in the project site, was found very encouraging. Table 3 shows that female farmers earned roughly a half of male farmers. The return from plastic house was found very encouraging too, since average income from polyhouse of the same size in Kathmandu valley is Rs. 30000.0



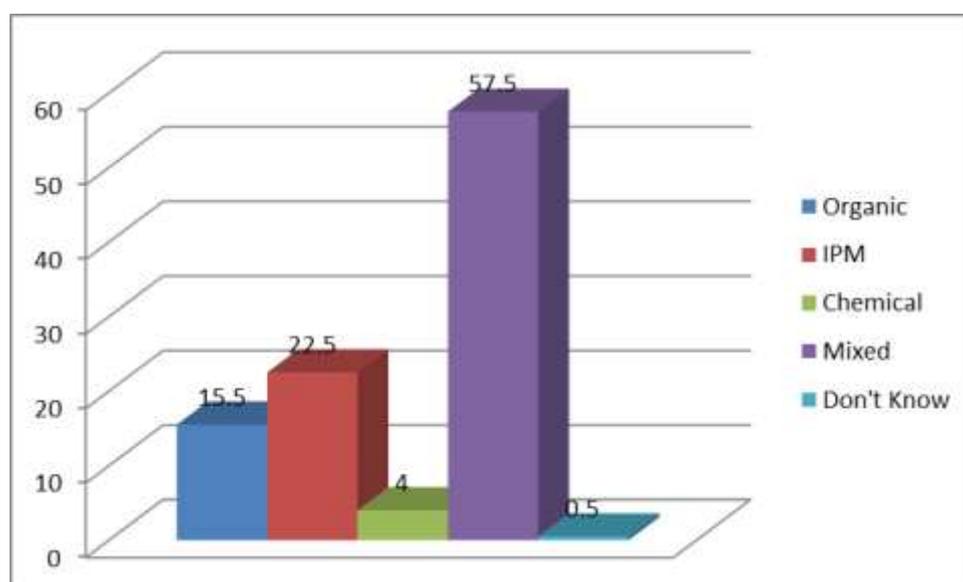
**Figure 3:** Source of inspiration for commercial vegetable production (%)

Concerning the production practices, it is evident that the project has focused on safe vegetable production. 44% of the respondents reported that they do not use chemical pesticides (Table 4). But it is unclear why the majority of the farmers are reluctant to use chemical fertilizers, as the majority of the economically important vegetable crops demand high level of plant nutrients.

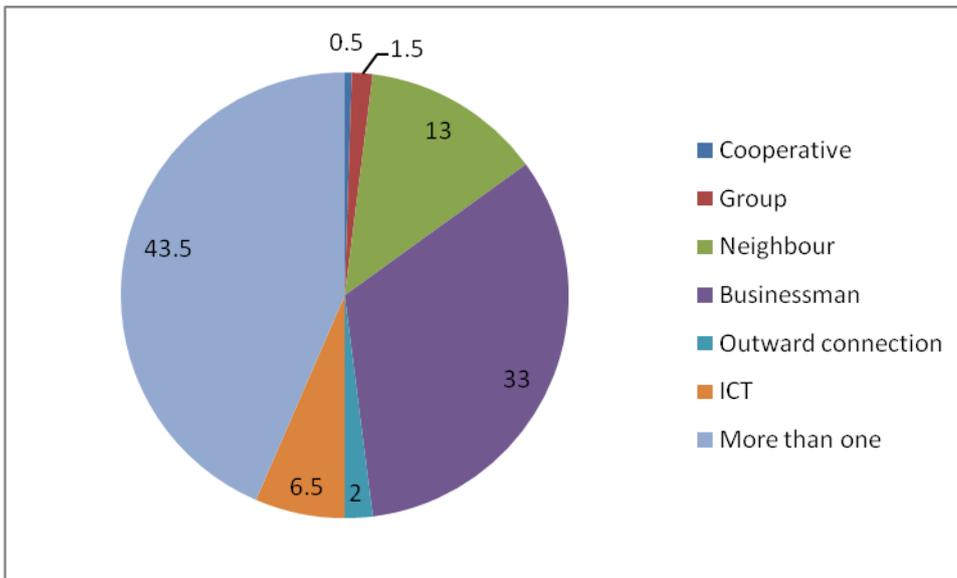
**Table 4:** Use of chemical fertilizer, compost (except home) and chemical pesticides

VDCs	No. of Sample HHs	Chemical fertilizer		Compost (except home)		Chemical pesticides	
		Yes	No	Yes	No	Yes	No
<i>Sindhuli District</i>	150	115	25	34	106	87	63
Kuseshwor Dumja	50	37	3	6	34	23	27
Jhangajholi Ratamata	40	35	5	13	27	25	15
Purano Jhangajholi	10	8	2	0	10	5	5
Bhimeshwor	3	1	2	0	3	2	1
Baseshwor	22	12	10	8	14	11	11
Bhuwaneshwori	25	22	3	7	18	21	4
<i>Mahottari District</i>	50	22	28	7	43	25	25
Gauribas	50	22	28	7	43	25	25
<i>Total</i>	200	137	53	41	149	112	88

In the case of production practices, farmers do not have clear understanding about it. Figure 4 elucidates that majority used mixed type, which could also be regarded as IPM based system if the chemical pesticides were used as the last resort.

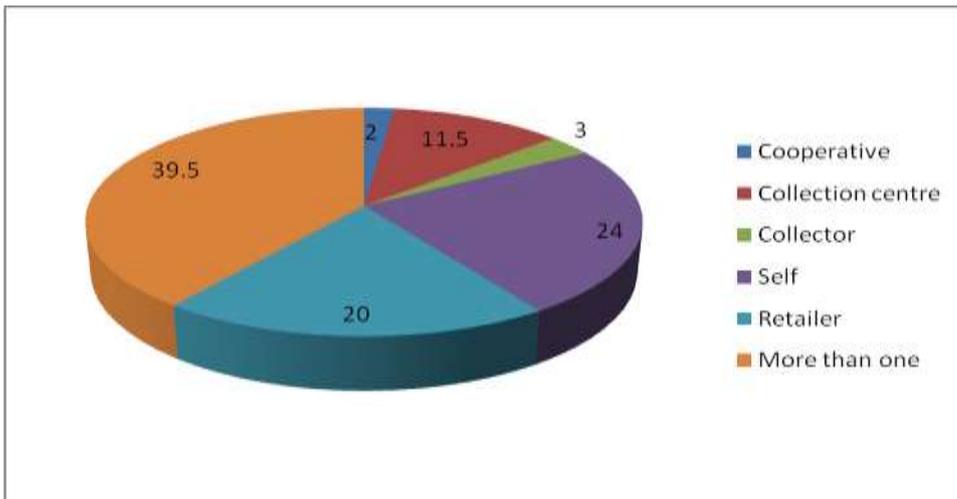
**Figure 4:** Production practices of vegetables in the project sites (%)

Market and price information is one of the critical issues of commercial vegetable farming. Exactly 1/3<sup>rd</sup> of the respondents mentioned that vegetable traders (businessmen) are the source of market information (Table 5). Very negligible (2%) respondents were only depended on cooperatives for the information. Despite new approach, 6.5% farmers reported ICT as means of getting market information.



**Figure 5:** Sources of market and price information (%)

Similar with the market information, respondents have not yet realized the marketing system established by the cooperatives. Even adding up the figures of cooperative and collection centres, the percentage is going to be less than 15% (Figure 6). Marketing by self is the most dominating sole system (24%) which was followed by retailer (20%). If farmers have time and market at the vicinity, this is the most effective way for higher return.



**Figure 6:** Selling mode of vegetables (%)

Response of gender involvement in vegetable farming showed the clear gender involvement differentiation in two activities (Table 5). Land ploughing is the men's job and organic manure /FYM carrying is the women's task. Other a bit gender sided activities are purchasing of inputs and pesticide application, which are the men's jobs.

**Table 5:** Gender involvement in vegetable farming activities (respondent number)

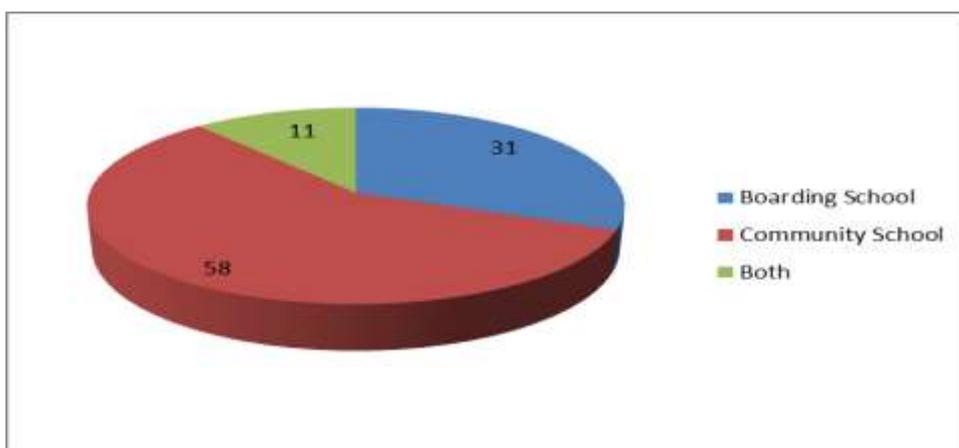
Particulars	Female	Male	Both	Not responded
Agri input procurement	26	72	100	2
Land ploughing	2	183	13	2
Land labeling	67	7	123	3
Compost transportation	118	7	73	2
Nursery preparation	40	26	132	2
Seed sowing	28	6	164	2
Irrigation	18	24	156	2
Pesticides application	18	51	121	10
Intercultural operation	23	4	171	2
Stalking	21	29	148	2
Harvesting	21	3	174	2
Grading	19	11	159	11
Transportation to market	28	12	149	11

Gender empowerment aspect seems to be effectively implemented in the project sites. The household survey showed the almost equality on the decision making for vegetable cultivation activities (Table 6).

**Table 6:** Decision making by gender in vegetable cultivation activities (No)

Particulars	Female	Male	Both	No
Agri input procurement	20	34	144	2
Selection of crop and variety	26	26	145	3
Selection of area	24	20	154	2
Intercultural operation	21	7	170	2
Insect pest management	22	25	151	2
Harvesting time	22	11	164	3
Market	22	27	145	6
Price fixation	22	23	149	6
Children education	16	6	175	3
Social expenditure	17	5	176	2
Foreign work	10	7	166	17
Jewellery purchase	25	4	165	6
Land and livestock purchase	14	6	178	2
Credit	14	8	176	2
Leadership	23	11	160	6
Training	34	6	157	3
Medication	24	20	154	2
Family planning	10	6	170	14

The information generated from the focus group discussions are very much aligned with the household survey report. Thus it can be inferred that project become successful to deliver the planned outputs related with the gender empowerment.



**Figure 7.** Children's schooling of the respondent households (%)

Majority (58%) of the respondents sent their children to community schools and about one third sent their children to boarding school (private school). 11% respondents mentioned both (Fig 7), which represents sending children to boarding and community school.

In addition to formation and mobilization of groups and cooperatives, project's efforts on women leadership development were found very effective (Table 7), where female involvements in leadership position were more than 50% in totality.

**Table 7.** Gender involvement in leadership positions in groups and cooperatives

Position	Gender		Total	Female (%)
	Female	Male		
Group chairperson	23	27	50	46
Group vice-chairperson	35	15	50	70
Group secretary	29	21	50	58
Group vice-secretary	31	19	50	62
Group treasurer	32	18	50	64
Coperative executives	22	24	46	47.8

More than 45% women farmers' involvement in all leadership positions clearly indicated that leadership training targeted to women farmers had made them confident and capable to lead the local institutions.

## 2.5. Changes brought by the project

The positive changes made by the project have already been discussed aforesaid. Table 8 presented hereunder summarize the main changes found after the project implementation.

**Table 8.** Comparison of some criteria between baseline and endline

Criteria	Baseline	Endline	Comments
Change pertaining to objective 1:			
Existing of farmers group	NA	50	Remarkable change found
Formation and/or mobilization of cooperatives	2	4	Two established and 2 strengthened for more focused on agriculture
Beneficiaries trained on cooperatives organizational and financial management	NA	>20	Necessary component for better management and broadening the leadership base
Service extended by cooperatives	Chemical fertilizer	Chemical fertilizer, improved seeds and marketing	Portfolio expended for input and output marketing
Existence of vegetable collection centres	None	11.5 % of respondent sell through collection centre	4 collection centre constructed and started to use
Member in cooperatives	8.6 %	28 %	Membership base increased by more than three folds
Average saving in groups per month	Rs 10	Rs 60.46	Dramatic changes in saving
Involved in groups since	NA	2.6 years	Clear evidence of group formation
Change pertaining to objective 2:			
Linking farmers group to DADO	NA	50	Registered to DADO
Linking cooperatives to district federation	0	4	Formal linkage with cooperatives
Commercial vegetable farmer	0	21 %	Remarkable progress converting to commercial grower
Semi commercial vegetable farmer	21%	62%	Semi-commercial will have potential to be commercial
Use of chemical fertilizer	61 %	68.5 %	Natural to be in commercial growing
Use of chemical pesticides	NA	56 %	
Male selling vegetable to market	84 %	14 %	Clear sign of women involvement
Average vegetable consumption per diet	NA	715.93 gm	Sufficient enough for family consumption
Area (ha) in Sindhuli	2163 (2011/12)	3245 (2013/14)	Cultivated in 600-2500 m <sup>2</sup> area per HH in project sites
Production (mt) in Sindhuli	22251	30029	Increased
Yield (mt/ha) in Sindhuli	10.3	9.254	Need more interventions as productivity was variable in the project sites
Area (ha) in Mahottari	7045	9555	500 – 1230 m <sup>2</sup> area coverage in project sites
Production (mt) in Mahottari	89109	123153	Increased
Yield (mt/ha) in Mahottari	12.6	12.889	Productivity was generally higher in the project sites

Two new cooperatives were established at Gauribas and Gwaltar and two already established cooperatives at Ratamata and Nepalthok were further strengthened by the project. More importantly, all of them were formally registered in 2015. Membership of cooperatives increased by about three folds and they expanded portfolio inputs and outputs marketing. More than 20 beneficiaries were trained on cooperative management. The average duration of association in group was 2.6 years, which proved that the majority of groups were formed by the project. All 50 groups linked to cooperatives and registered in DADO too. Vegetable consumption increased to sufficient level. All semi-commercial farmers of the baseline (21%) upgraded to commercial level and 62% of beneficiary farmers believed that they are now semi-commercial<sup>22</sup>. In the context of safe vegetable production, uses of chemical pesticides by 56% respondents seem to look critically. The selected criteria related with the outputs showed that the project left the clear marks of impact on commercialization of vegetable farming and institutional development.

## **2.6. Equity**

The equity issues addressed by the project can be categorized economical, ethnic/caste and gender. Economic class differentiation is one of the features of rural society of Nepal. Small holder farmers have very limited cash income generation opportunity and they do not have sufficient food production to feed their family. These farming households have to rely either on wage labour, or taking loan from the merchants. Raising farm income through the sale of vegetables directly uplifts their status by not having dependency on local merchant. Furthermore, more cash generation through sale of vegetables narrow down the gap between local rich and the poor. It was revealed from the discussion that few farmers have earned more than NRs 200 thousand per annum from the sale of vegetables. The diversified ethnic group from the so-called upper cast and lower caste (Dalits) are united in one group or cooperative for the common goal. Dalits of Gwaltar cluster and Majhi (deprived minority ethnic caste) clearly mentioned that working together in equal footing has further narrowed down the caste or ethnic discrimination in the society. Considering the importance of women labour force in agriculture (43% as reported by FAO), the project has categorically focused on strengthening and expanding women roles. Despite women's involvement in vegetable farming, their involvement in marketing was minimum in the past. It is revealed from the discussion and also showed by the household survey that women empowered to participate in the decisionmaking position vegetable value chain. It was clearly revealed from the women focus group discussion that their status increased in household and at societal level. More precisely, project statistics showed that women are more than 50% in cooperative executive position. It was briefed at Gauribas cluster that even the women leaders are able to get fund for collection centre improvements from the VDC regular budget.

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<sup>22</sup> Semi-commercial growers have integrated farming system with more focus on one value chain for cash income generation to meet their household need.

## **2.7. Sustainability of the project**

Acceptance of the project by beneficiaries and the concerned stakeholders is the key element of project sustainability. The UNNATI project was found to be well accepted by concerned stakeholders like DDC, DADO and DCWO chief/representatives of Sindhuli district and the project beneficiaries. Appreciation and acceptance by the leading governmental institutions having access and power of budget allocation is a clear indicator of sustainability. Realizing the efforts made by the project, DCWO assured to make regular contact of the groups mobilized by the UNNATI project. Acceptance of the project by beneficiaries is a positive indicator for its continuation. In addition to the acceptance, capacity buildings of beneficiaries in knowledge and skills of vegetable farming will be instrumental to carry out commercial vegetable farming and its marketing. Self-help groups of beneficiaries, which were formed and mobilized by the project, are observed to be capable to maintain records and holding meetings in regular basis. Strengthening of community groups and managing saving and credit by the group itself is a clear sign of financial sustainability. With the limited savings these groups are able to fulfill the basic monetary necessities of the members for agricultural inputs and purchase in need. This clearly indicates that even farmers could purchase expensive hybrid seed of vegetables even if they do not have cash at hand. Since the project has already linked the groups formed and/or mobilized at village level with the cooperatives, farmers have access to bigger loans.

Intervention along the entire value chain is one of the strengths of the project and this leads to the high chance of sustainability. Interventions on the software part like leadership training and exposure visits had made the leader farmers confident on continuing vegetable cultivation and marketing. On the other hand, follower farmers were not much confident because of their low level of understanding. All the cooperatives have already prepared their business plan and all of them have placed inputs supply and vegetable marketing in top priority. High level of sustainability can be expected in the case of established inputs and outputs marketing though all the four cooperatives are not to be equally active and fulfilling the commitments as promised. There is small doubt on the fulfillment of the commitments by the Gwaltar cooperative. Presence of agro-vets at local market and connections with the vegetable traders in all locations prove that there is high chance of the system running even with mediocre service of cooperatives. But the issue of high rate of marketing margin and low return to growers may arise again. Proper marketing system, assured quality input supply and better technical back-stopping are pivotal for sustainable vegetable farming. Technical backstopping seems to be a main challenge at this point of time. Beneficiaries could continue vegetable farming based on the knowledge and skills they acquired during the project period, whereas the introduction of new technologies

and the ability to tackle the new problems would be a challenge. The problem of agricultural technicians could be tackled in two ways. Firstly, the farmers groups could lobby for JTA to be deployed in each VDC (as a preparatory activity of ADS) to work with them. It is not going to be difficult for them as a cooperative had already got support from VDC during the course of collection centre construction. Secondly, cooperative could hire agricultural technician from the contribution of output marketing. Along with the increase in sale volume, the cooperative will have more income and they could hire experienced technician providing good salary. For the interim period UNNATI can handover seed money to the cooperative for salary to an agricultural technician to bridge the gap between project termination and cooperatives becoming technically capable.

Since climate change become a challenge to the farming communities of Nepal, the project had duly considered the issue in order to minimize the shocks. Its relevancy is much higher in the context of project site where rain-fed farming is predominant. Training on climate change to beneficiaries made them aware about the upcoming threat and measures to be taken in future to minimize the shocks. Demonstration of climate smart technologies like drip irrigation, plastic house and bio-pesticides are examples of climate risk management strategy. The project had promoted simple and appropriate technologies based on low external inputs like bench nursery, use of cattle urine, organic manure etc. Because of it, these technologies are easy to understand, sustainable and highly replicable. The promotion of safe vegetable farming with minimum use of external inputs is environmental friendly approach, which ultimately leads to the environmental sustainability. In addition to environmental sustainability, the project become successful in making beneficiaries more independent on financial activities because of cash income through the sale of vegetables, which was reported anonymously by the beneficiaries. Increase income and saving and technological options will be helpful to make the system more resilient.

## **2.8. Lessons learned**

Since the project fulfilled all the targeted indicators, its achievements can be rated as **highly successful**. There are key responsible factors, which contributed to the success of the project. These factors are briefly described below considering and prompting for the successful project implementation in future of the similar nature.

*Project location:* Project location is appropriate for the commercial vegetable farming because of metallic road connection. The sites are within the range of 100 km to snow capping hills, frost laden mid hills and flooding terai. Not only the road connectivity, project areas are mostly rainfed with less rainfall. Low rainfall intensity and frequency are good for vegetable farming but simultaneously demands more water requirements for irrigation. FGD has shown that the irrigation need is the most critical issue for vegetable commercialization even after the project support for irrigation.

*Appropriate Value chain:* Commercial vegetable farming is proved to be boon to the farmers of road access areas for economic upliftment. Prioritized cereal based farming in the project sites is not going to be much beneficial to them. Earlier studies have proved that vegetable value chain is highly economical for high rates of return. That is why, ADS has put vegetable in top ten priority value chain.

*Appropriateness to target beneficiaries:* Nepalese farmers in general are poor but there are different strata of farming households within communities. Among them, the project has targeted the households belonging under the lower strata having average land holding of 0.39 hectare. Because of the most important production factor and fixed assets, land holding is regarded as one of the most important indicators of well being. The lower strata farming households are the section of society desperately trying to improve their quality of life in terms of food and nutritional security, access to education and health services. Commercialization of vegetables along with efficient marketing system will help the farmers get higher income per unit area of land and ultimately support the quality life of family members.

*Value chain approach for intervention:* The project implementation modality encompasses a holistic approach from software to hardware development. Social mobilization, capacity building (technical and social) and institutional development approaches are the key elements of the project and makes the project sustainable and integrated. Higher production and productivity are not merely sufficient for anticipated return until the products gets the reasonable market price. This is only possible by linking the production to end markets. Since the project has planned for a complete value chain (inputs arrangements to marketing even up to boarder market), it is hoped that beneficiaries will get better return from vegetable farming. It is also revealed from the review that beneficiaries appreciated the approach and are confident about the sustainability.

*Need based institutional development:* Despite the devolution approach of the government, public sector institutions are practically functioning at district headquarters level. All the project sites are far from the district headquarters. More specifically, Gauribas is adjoined with Sindhuli and Dhanusha districts and VDCs belongs to Sindhuli are adjoined with Ramechhap district. Local level institutional development like strengthening local agro-vets and cooperatives minimize the location disadvantage of the sites.

*Need based social intervention:* The project has mainly concentrated its efforts in Sindhuli district. Despite being very close to the capital city, the district falls under the low level of the country's development index. Poverty also hinders to the access to public services and taking leadership in the society. Capacity building of beneficiaries and incorporation of gender and social inclusion issues as an integral part of the project has made it more suitable to the societies of the project sites.

*Promoting environmentally sound practices:* The project has categorically focused on organic production but it is virtually impossible to do so by the project because of mandatory provision in organic guideline to wait for 36 months as conversation period. Hence the project team has made it pragmatic by adopting good agriculture practices. Focus on IPM based vegetable farming and promotion of local organic materials has made the project environmentally sound. IPM based vegetable cultivation practices means that the project is promoting maximum use of local resources like FYM, cattle urine, local botanicals etc. In the context of haphazard use of chemical pesticides in Nepal, the proposed production system has assisted safe food production and is also friendly to the environment. Development endeavors with environmental concern is the prime concern of the current world including Nepal.

*Consideration of climate change on agriculture:* Climate change and its affect on agriculture is a burning issue of the current decade. Studies have proved that vulnerability due to climate change is higher to small and marginal farmers because of their low risk bearing capacity and greater impact due to small shocks. In this context, the project has rightly inserted the climate change issue as a part of intervention to the beneficiaries. Shifting of planting time (off-season production), moisture conservation technology, plastic house technology and adoptive varietal selection will help farmers to become aware on climate smart agriculture.

*Capacity building of the beneficiaries and value chain actors:* Earlier efforts on vegetable production and marketing were in bare minimum level in the project sites because of far-away from the district headquarters. Since vegetable farming demand specific technical know-how and skills training to the beneficiaries is pivotal for its commercialization. However, frequently organizing such training to the beneficiaries simultaneously increases the participation load. In family labour shortage situation, farming undertakings are hampered by the participation in the meeting and trainings. Despite these situations, beneficiaries have positively taken the software part planned by the project. Capacity building of other value chain actors of vegetables like agro-vet owners, cooperatives and traders has added value for local capacity development because of high quality services along with inputs and outputs marking. The success of value chain depends on the increased efficiency of all value chain actors.

*Facilitation to beneficiaries for ownership taking:* The project is designed in such a fashion that beneficiaries take ownership of the project interventions. Enthusiasm on collection centre construction and their future plan for its expansion demonstrate the beneficiary's seriousness on the intervention. Interactions with the beneficiaries revealed that they are happy to provide their contribution in kind and there was no grievances of curtailing subsidy. For example, subsidy is being reduced by 25% each year on seed. This clearly demonstrates that beneficiaries have been accepting the activities from their heart. Furthermore, beneficiaries are very optimistic about the use of collection centres even in the case of delayed construction.

*Incorporation of gender issue and its acceptance:* Since project has focused on positive discrimination to women considering the gender imbalance in the society, the male member of community has positively taken the gender balance issue. It is revealed from the interaction of the male members of beneficiary's households. Not only from the project beneficiaries, appreciation was also recorded during the field visits by the non-project beneficiaries. Construction of collection centers and establishment of drip irrigation drastically reduces the workload of women as carrying vegetables and weeding is regarded as women's' role in agriculture.

*Synergy through resource sharing:* The project has adopted mechanisms to share resources with other stakeholders for greater benefit. Sometimes it is difficult to cater the pertinent need of the beneficiaries if a development project stands alone. The best examples, which created synergies, are irrigation schemes at Gwaltar, Jhangajholi and Nepaltar clusters in partnership with District Agriculture Development Office. Resource sharing mechanism not only generates the synergy, it also make project effective, efficient and sustainable. For example, irrigation scheme at Baleni was beyond the capacity of the project and DADO's contribution has made it possible.

*Ambitious project planning:* The project sites consisted of very virgin sites like Haibarbesi to small local markets like Ratamata, where transactions of small quantity of vegetables were in practice. Establishing the complete value chain for vegetable from its early stage (kitchen gardening) to marketing up to the boarder markets is a daunting task in the new sites within the period of three years. This has put intense pressure to the project team as well as to the beneficiaries in the stipulated time. Even with the best try, marketing upto the boarder market could not achieved.

*Turnover of project coordinator:* A high rate of staff turnover was observed and four Project Coordinators served the project in three-year period. It takes a new staff member a few months to understand the project and its modality, which slows down the processes and pace of momentum. The high rate of turnover also creates spaces for losing institutional memory. Time bound commitment for the service period could be made with the staff in order to minimize the high staff turnover ratio

### **3. RECOMMENDATION**

The endline evaluation found that all the planned results are delivered to fulfill the anticipated objectives. A high level of flexibility was observed as the project VDCs were changed (Bhuwaneswori and Baseswor VDCs are along the Puspahal Midhill Highway) upon having discussion with district based other development partners and many sub-activities were formulated as per the demand and appropriateness. Sharing of technical as well as administrative issues, and giving support to each other in a professional manner, were observed between CARE and CEAPRED employed staff

and they were working in equal footing as an UNNATI team. Hence, while the project is implemented by CEAPRED, CARE was providing monitoring and management support in a very professional manner, ensuring a partnership of confidence. Likewise, project beneficiaries and stakeholders were also appreciated the project activities and its implementation modalities. The staff performance and the project progress are found highly satisfactory as the project delivered its anticipated results with some limitations on vegetable marketing through cooperatives. Taking the project results and views of respondents into consideration, recommendations are put forwarded for future considerations in the similar technical and socio-cultural circumstances.

### 3.1. Implementation modality aspect:

*Farmers categorization based on scale of production:* Kitchen/home garden is small scale of production primarily for domestic consumption. Home garden always promotes the nutrient dense vegetable crops with diversity in species and plant parts used. On the contrary, commercial farming is a market oriented production system, which always focuses on limited lucrative vegetable crops. Since the project has specific objective to promote organic vegetable farming, it seems extremely difficult to produce organic vegetables from the project site within project period. Crop productivity will go down during the early stage of conversion from conventional to organic farming and project outputs will be seriously hampered. Experiences showed that there will 10-15% yield decrease in the case of extremely serious planning and about 30% reduction if only compost applied. Increase in income through commercial vegetable farming and growing few selected commodities may not directly contribute to the vegetable consumption. Hence, incorporation of kitchen garden will help to meet the objective to increase household level vegetable consumption in a sustained way. General principle of kitchen garden is to produce fresh vegetables for a family all the year round with a balance proportion of different parts of vegetables. To meet this purpose there should be planning of nutrient dense vegetables with sufficient diversity. In such case both categories of the farmers could not accommodate in the same technological and inputs interventions. Thus it is suggested to categorize farmers into two broad groups and plan the action as per their demand and market outlook.

*Tailor-made-training approach:* Capacity building at grass root is highly essential to make them confident on technical and social issues. Since project beneficiaries have low education level, understanding of the imparted knowledge and skill is not an easy undertaking to them. Hence, it is advisable to revisit the training approach and shift to a tailor-made approach rather than slot basis. A specific technique or skill is demonstrated and practiced during a slot in the tailor-made approach. This not only gives the clear information and skills to undertake a specific issue/technology but also make the farmers comfortable in managing their time since it doesn't take long time.

*Diamond trial approach demonstration:* A market oriented production system demands new variety, season and techniques appropriate to the specific location to get better return. Knowledge and skills or experiences of similar conditions cannot be exactly replicated in all sites due to differences in microclimates. Since the project has already experienced failure of Razma bean in Nepalthok cluster and Snow Crown cauliflower in Jhangajholi Ratamata, Nepalthok and Gwaltar clusters it is advisable to test the new technologies before practicing in wide scale. Since poor and marginal farmers have less risk management capacity (risk analysis and coping strategies), they would not like to adopt the technologies, which are not absolutely convincing to them. To get rid of this problem and generate quick impact by the short duration development project, diamond trial<sup>3</sup> approach demonstration should be recommended by adopting ‘seeing is believing’ theory.

*Gray water utilization:* Irrigation water was reported to be the most limiting factor for the maintenance of good kitchen garden. In this scenario, formal tie up of gray water collection and utilization would be helpful for substantially minimize the irrigation problem.

*Output based incentive schemes:* Our development modalities adopted so far are inputs incentives, either free or with the matching funds. It is recommended to provide special incentives based on the outputs. The outputs would be the total production of vegetables or area coverage or diversified crops all the year round in the case of kitchen garden.

### 3.2. Technical aspect

*Exploitation of specific micro-climates:* Despite being situated in the hill region, the agro-ecological conditions even of Sindhuli district are much closer to Terai. If not properly planned for specific markets, vegetables produced in the project sites would have critical competition with terai products. Despite similar climate with terai, it has few benefits over terai like no cold wave in winter, no water logging in rainy season and low rain fall in rainy season. With proper planning and exploitation of these benefits, more return could be expected from the commercial vegetable farming.

*Diversifying the use of beneficial agricultural microbes:* Good agriculture practices for vegetable farming have to focus on the use of beneficial microbes. But its use was found very limited to Jeevatu and EM. It would be better to use other beneficial microbes like *Rhizobium spp*, *Micorrhiza spp*, *Bacillus spp*, *Beauveria spp*, *Tricoderma spp* for soil fertility and pest management. Farmers would not be much interested on their own because of high cost at the initial stage. But the present

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<sup>3</sup> Diamond trial consists of four treatments namely i) improved variety with improved farming techniques, ii) improved variety with farmers existing farming techniques, iii) local varieties with improved farming techniques, and iv) local varieties with local farming techniques.

development project could be capitalized to make them habituated. For the sustained supply system, either cooperatives or local agro-vet owners should be capacitated for its proper handling.

*Maintenance of postharvest quality and postharvest loss reduction:* A postharvest training and distribution of plastic crates to cooperatives were executed in relation with the postharvest loss reduction. Since postharvest aspect of agriculture is not much on the priority in this country, more focused interventions are recommended right from the production system for quality maintenance and during the course of handling. Farmers of Gwaltar cluster had already bad experiences of the problem of poor postharvest handling of pea and cauliflower. Considerations of postharvest aspect from the beginning will have better image of the sites for its product quality and low level of postharvest loss. The better product quality and low rate of loss will ultimately give the better return to the farmers. In this connection, it is worthwhile to mention here that the hill produces (from the project site) are getting Rs 5-10 per kg higher price than that of Terai produce in Sindhuli Madhi. Not only to the growers, postharvest knowledge and skill is equally important to traders so as to reduce losses and keep the products in high quality. In this connection, recommendation is made to organize training to vegetable traders on grading, packaging, postharvest standard, and food safety (no harmful microbes and chemical contamination /residue less than threshold) at the production sites.

*Plant based home garden approach instead of kitchen garden:* Recent research proved that home garden has much more advantage than that of just being a kitchen garden. Rather than focusing only on home garden, plant based home garden promotion is recommended in these project sites. Incorporation of periodic harvesting crop and multi-part consumable crop like dolichus bean and drumstick will add value to kitchen from nutrition and availability perspectives.

### 3.3. Marketing aspect

*More focus on cooperatives strengthening:* Highly capacitated cooperative for inputs and outputs marketing was envisioned in the project documents. Two new cooperatives are registered and capacity of the old owns have considerably increased. But they are not truly functioning as planned in the project upto the endline evaluation. The reason behind are physical (collection centre recently completed) and economical (insufficient seed money for inputs trading and hiring good manager). Support for seed money and a good manager for system establishment is recommended for the strengthening of cooperatives.

*Awareness to basic cooperative principle to all:* It is recommended to organize cluster level training at least to group executive members to broaden the leadership base by making aware about the principle of cooperative. Realization and internalization of the principles by all shareholders will create pressure group for the executives to work

seriously for institutional development. Many successful agricultural cooperatives in Nepal are relying on the same leadership for many years. For example, Charaudi Coop chairperson has been taking the leadership since two decades upon accepting request from the members<sup>4</sup>.

*Business interaction meetings among market actors:* To discuss about the vegetable marketing issues and receive feedback from the traders' side, it is suggested to organize periodic business interaction meetings involving traders from domestic markets (Dhalkebar, Janakpur, Banepa/Balkhu/Kalimati/Manthali/Charikot), if possible from border markets (Sursand /Jayanagar / Sitamadi) and inputs suppliers (agro-vets based in project areas and district headquarters) with the cooperatives.

*Production planning for all the year round supply:* The project sites have full potential for the all the year round fresh vegetable production. East-West and North-South road connection has further increased the market potential of the project sites. Despite these potential, seasonal productions are coming up in the market. Sindhuli Madhi based vegetable traders mentioned that they are dealing with Terai products with reluctance because of not having year round supply from the hills. Thus, cooperatives with the help of farmers' groups should make a clear production plan for the year and have supply keeping in mind for the final destination of vegetables. Hence, it is recommended to update the business plan of the cooperatives in every alternate year taking considerations of markets and supply assurance.

*Maintenance of farm inventory:* Commercial vegetable farming is like a business. Without appreciating this fact, farmers always look for higher price than that of last season. The issue of the low market price of cabbage was raised in all sites but actually the price of cabbage was about double of the production cost. This kind of problem from farmers' side was come out seriously because of not having production record. Hence, it is strongly recommended to maintain the farm inventory and fix the minimum price based on the production cost.

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<sup>4</sup> Personal communication with Mr. Thapaliya, Chairperson of Charaudi Cooperative, Dhading

## ANNEXES

**Annex I:** Terms of Reference (TOR) of consultant for endline evaluation of UNNATI Project, CARE Nepal

### I. BACKGROUND

Nepal remains one of the poorest countries in the South Asia region, with about 25 per cent of the population living below the national poverty line. The decade long armed conflict has significantly impacted the country's economy. The investment in economic growth has not been adequate. The Nepalese economy is primarily based on agriculture which contributes about 33 per cent to GDP. About 66 per cent of the population living in rural areas depend on agriculture for their livelihoods. The average annual income of Nepal is very low (US\$ 540), and less than US\$ 140.0 per agricultural labour.

Most rural households derive their income from agriculture or related activities such as small scale cereal or vegetable farming and livestock rearing. Due to the limited availability of arable land, their harvests are marginal. The harvest from the small areas is not enough to provide food to families throughout the year. Average vegetable consumption in Nepal is low (less than 100 gram raw vegetable per head per day). In remote rural areas the consumption is even less. Malnutrition and undernourishment is chronic in rural areas of the country. The result of chronic malnutrition is reflected is anaemia among women and children.

Nepal's rich agro-ecological diversity provides the opportunity to produce a wide range of vegetables that have tremendous domestic demand and potential to export to neighbouring countries. The mid hills of the country are suitable for growing vegetable all the year round, unlike the Terai and plain areas. Such off-season vegetables generate high prices during the rainy season in Terai districts and the bordering Indian market. Commercialization of agriculture with meaningful participation of women farmers is essential to ensure economic growth, food and nutrition security. It has been proven that vegetable production offer 5-7 times more economic return than cereal produce on the same piece of land. With this increased income farmers will be able to purchase more food.

The main guiding policy and strategy for agriculture is the Agriculture Perspective Plan (APP) 1995-2015. It emphasizes the diversification of agricultural production by harnessing the comparative and complementary advantages of the country. The plan identified vegetable production as one of the six priority sectors. Despite low productivity of vegetables (12.00 mt/ha) it contributes approximately 10 per cent of annual GDP. Inclusive growth in the agricultural sector has a great potential to generate employment and contribute significantly to poverty reduction in Nepal. By including female farmers in an empowering manner, the process also has the potential to uplift women in Nepal and foster gender equality.

Globalization and the advent of new communications and transportation technologies have given new momentum to migration especially for bettering the livelihood for a massive number of people around the globe. The situation of Nepal isn't much different; Nepal isn't isolated from global trend of migration. Today, Nepal is primarily a source country for children, women and men who are migrated to other South Asian countries, the Asia-Pacific

region, Middle East countries, the Americas and Europe. Historically, it has been men who migrate while women have been left at home with an increased burden of work. Observing the increase in status and the positive benefits that come with migration, women have been motivated to increase their standard of living and improve their lives. However, women have also been increasingly pressed to migrate to escape poverty, discrimination and gender-based violence.

Various reports claim that there are about 70,000 Nepali women migrant workers working in various international foreign labor markets. Annually, Nepal receives approx US\$ 1.5 billion as remittances and the contribution of women migrants make up about 11 per cent to this figure. In total, remittance has more than 17 % contribution to the GDP of our country. As per various research data the number of women traveling to gulf countries, namely- Saudi Arab, Dubai, Oman, Lebanon and Kuwait- in search of job opportunities is rising.

Till 2010, some 982,200 Nepali people have migrated to foreign lands (3.2 % of total population). 68.2 % of Nepali migrants are female, while 13.8 percent are refugees. In terms of exodus of education manpower, Nepal is ranked at fourth position in South Asia. In 2011, the country received US \$ 3.5 billion as remittance, which accounts for 23 % of the country's GDP.

Migration has a positive effect on both sending and receiving countries, opening up new possibilities of social, cultural and economic benefits. Migrants who return to their communities often bring new skills and a new world outlook while remittances may contribute to the development of the country. However, migration may also have negative outcomes, such as when migrating persons end up being trafficked. As the trends of migration only continue to increase with the impacts of globalization and deeper economic interdependence, it is vital that state, civil society organizations, communities and individuals work together to ensure safe migration that ensures the human rights of all migrants.

By considering the above fact of the tremendous potentiality of fresh vegetable production and marketing in the country, CARE International in Nepal has designed Unnati Project in close collaboration with partner NGOs Center for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED). CARE Nepal has received grant from European Union (EU) for implementing the Project. This project has formally started from December 2011 and goes to December 2015. Areas close to BP Highway in two districts Sindhuli and Mahottra are selected to implement the Unnati Project. The project will be implemented in 4 VDCs/cluster of the selected districts.

### **Overall Project Objective**

The overall objective of the Project is: “To increase the income and improve the livelihoods of small holder farmers in Sindhuli and Mahottari districts from vegetable production and marketing”

### **Specific Objectives and Expected Results**

The Project will achieve two specific objectives which are as follows:

**Specific Objective 1:** Farmers' groups and cooperatives deliver high quality support services and link small holder farming households along the BP highway corridor to larger markets (Kathmandu and Indian Border towns)

**Specific Objective 2:** 1,000 small holder households (50% women) along the BP highway road corridor are engaged in and have improved production of vegetables

With the purpose of addressing the underlying causes of poor productivity and poverty of small holder farmers the project is designed to produce the following four expected results

**Expected Result 1:** 1000 Vegetable growing households are organized in well- functioning farmers' groups and cooperatives

Major activities under this ER include market analysis, value chain mapping and Women's Empowerment in Agriculture (WEA) Framework analysis; formation of farmers' groups and inclusion of these groups into cooperatives; capacitate existing and new cooperatives and linkage of these cooperatives with cooperative federation.

**Expected Result 2:** 4 farmers cooperatives are providing high quality services to their members and linking them to the market

Major activities under this ER include support to farmer's groups/cooperatives to set up new collection centers, strengthening and functionally running of existing collection centers; train farmers' groups/cooperatives on saving and credit; capacity building of staffs of relevant line agencies (District Agriculture Office, Division of Cooperatives, government technicians, etc.) on gender responsiveness and good governance and conduct exposure visits for them.

**Expected Result 3:** 1000 small holder farmer households are capacitated in commercial vegetable production

Major activities under this ER include training farmers (at least 50% women) on vegetable production, post harvest handling and processing, making and implementation of business plans; organize exposure visits for farmers; empower women farmers on leadership development; support small scale farmers to adapt to climate change issues.

**Expected Result 4:** Local traders and agro-vets provide high quality inputs to small scale farmers

Major activities under this ER include linkage of local traders, cooperatives, agro-vets and local nurseries with District Agriculture Development Office, Forestry User Groups and other service providers.

## **II. RATIONALE OF THE ENDLINE EVALUATION**

UNNATI is a three year project and is approaching its phase out. Following this, we are in urge of conducting an end line review which will focus on the progress made so far in

relation to achieving the project's goal and objectives by exploring relevance, effectiveness, efficiency, benefits, changes, equity, sustainability, lesson learned and recommendation of the intervention in target groups small holders farmers (at least 50% women farmers). The evaluation will also focus on identifying mechanism that need to be in place and working effectively when the project phases out in December 2015.

➤ **Overall objective of endline Evaluation:**

To review the progress and achievement till date, analyzing the working approaches, identifying the gaps and capturing lesson learning of the project in these areas: commercial vegetable production and marketing, institutional building, women empowerment and climate change.

➤ **Specific objectives of end line evaluation:**

- To review the status of achievements of the project objectives against the logical framework (output and outcome level).
- To review and analyze the program activities in place and to assess the appropriateness of the intervention strategies/approaches and to draw recommendations.
- To document the lessons learnt so far in the following areas viz. commercial vegetable production and marketing, institutional building, women empowerment and climate change.
- To review and analyze how far the intended outputs and results were achieved in relation to target set in the original/review logical framework. Identification of key strength, weakness and significant changes
- To assess how this project has contributed women's empowerment in agriculture and the capacity building of the organization's (Cooperatives, Farmers groups and Partners organization) involved in the project

### III. Key questions

A set of key questions have been developed under objectives and expected result related to the log frame. The baseline survey also needs to incorporate CARE Nepal Mission level indicators. The consultant is expected to further refine and prepare the questionnaire for the survey.

**Overall Objective:** To increase the income and improve the livelihoods of small holder farmers in Sindhuli and Mahottari districts from vegetable production and marketing”

**Key Question:**

What is the volume and types of fresh vegetables produced and consumed at household level?  
Which are the vegetable type wise deficit months and during deficit period from where they buy what types of vegetables?  
What is the status of dietary supply from vegetables at household level?  
Do the farmers produce and sell the vegetables all year round?  
How much amount they earned by selling fresh vegetables?

What is the status of children enrolled in public or private schools?  
How many women farmers/groups are practicing saving and credit?  
What are the sources of earning and where they save the money?  
How many women farmers are heading their households?  
What is the role of women involved in decision making process within a family?

**Specific Objective 1:** Farmers' groups and cooperatives deliver high quality support services and link small holder farming households along the BP highway corridor to larger markets (Kathmandu and Indian Border towns)

**Key Question:**

What quantity of seeds/pesticides/fertilizers consumed by target communities?  
What is the source of supply of agro-inputs (seeds/pesticides/fertilizers)?  
What is the channel of marketing of fresh vegetables?  
Who are buying farmer's products particularly fresh vegetables?  
What quantity of fresh vegetables supplied to external markets and which channel they used?

**Specific Objective 2:** 1,000 small holder households (50% women) along the BP highway road corridor are engaged in and have improved production of vegetables

**Key Question:**

From where are the farmers getting fresh vegetable production technology?  
What are the vegetable production technologies adopted by the farmers?  
How many types of vegetables farmers are producing and at what quantity?  
What is the per capita vegetable consumption at the target community?  
Which vegetable production methods (Chemical or Organic) farmers are applying for fresh vegetable production?

**Expected Result 1:** 1000 Vegetable growing households are organized in well- functioning farmers' groups and cooperatives

**Key questions:**

What is the status of farmers group at the target community?  
How many agro-cooperatives are existing at that community and how farmers HHs are linked with these cooperatives?  
Does the cooperative collect and sell fresh vegetables from their members or surrounding communities?  
How the cooperatives are operated and managed?  
How many women are involved in cooperative management?

**Expected Result 2:** 4 farmers cooperatives are providing high quality services to their members and linking them to the market

**Key questions**

How many members of the cooperatives involved in marketing of fresh vegetables?  
What are the marketing system and structures that is used by the cooperative members?  
Are the cooperative members getting services related to the marketing? What types of services they are getting?  
Is there any collection centers exist at the target community?  
How these collection centers are operated and managed?

**Expected Result 3:** 1000 small holder farmer households are capacitated in commercial vegetable production

### **Key questions**

How many farmers in the target community are involved in fresh vegetable production?  
How many farmers in the target community are involved in commercial vegetable production?  
What is the area and quantity of vegetable produced by the farmers in the selected community?  
From where farmers are getting seeds for vegetables production and what types of seeds (such as Local, open pollinated and hybrid) they are using?  
In which methods they are using to produce vegetables organic or inorganic?  
Which types of irrigation (such as drip, sprinkler, canal, tedle pump etc) they are using for the cultivation of vegetables?

**Expected Result 4:** Local traders and agro-vets provide high quality inputs to small scale farmers

### **Key questions**

From where are the farmers getting seeds, fertilizers and pesticides for fresh vegetable production?  
Is there any agro vets established at that community?  
Whether farmers are getting quality services or not form the agro-vet /local dealers exiting at that community?  
How many farmers are getting quality services from agro-vets/local dealers?  
Whether the production and productivity of fresh vegetables have been increased or not?  
Are they satisfied with the service provided by the agro-vets/local dealers?

## **IV. METHODOLOGY**

The evaluation will be mainly qualitative but analysis of routine monitoring data will also help in drawing the full picture of the project. The primary information will be generated from the qualitative field study and by using other tools such as key informant interviews, focus group discussions, and consultations. The review team will have detailed interactions and discussions with the implementing partner, other stakeholders (District Development Office (DDO), District Agriculture Development Office (DADO), Women and Child Development Office (WCDO) and others as required and also with the impact population

(direct and indirect beneficiaries). The methodology of the review will be participatory to ensure the effective participation and ownership of the review by all participants.

The review is based on secondary sources made available by relevant actors and a sample of primary sources identified in 4 clusters of the two Project districts Sindhuli and Mahottari. The working cluster of the projects in Sindhuli district are Nepalthok cluster (Kuseshwor Dumja, VDC), Jhanjajholi Cluster (Jhanjajholi Ratamata, Purano Jhanjajholi VDC), Gwaltar cluster (Bhimeshwor, Baseshwor and Bhuwaneshwori VDCs) and in Mahottari district Gauribas cluster (Bardibas municipality of Mahottari and few communities of Tulasi VDC of Dhanusha). The total coverage of the projects in these areas is 1216 HHs, out of which 200 HHs will be taken as random sampling for HH survey. 3 FGDs (female, mix group and cooperative members) in each cluster and 1 FGD with project team so that altogether there will be 13 FGD and key informants interview will be done with 5 agrovets existing at cluster and district, 5 vegetable traders existing at cluster and district, 3 agriculture service/contact centre, 2 DADO, 1 FNCCI, 2 WDO, 1 Division/district cooperative office, 2 in DDC and 2 Agri-Market product altogether there will be 23 key informants interview and case study of 12 farmers (3 farmers per cluster, Male and Female Commercial scale farmers, Polyhouse farmers in 4 working clusters).

The Consultants will be responsible to design and develop evaluation tools and techniques/ methodologies used to ensure successful achievement of the proposed objectives of the evaluation. The proposed methodology and study tools will be developed and shared with the project team before implementation.

The consultant will visit project areas and will cover all components of the project. The following tentative activities are suggested:

- Discuss/interact with the project team and CARE country offices staff;
- Review all projects' relevant documents for reference/background information;
- Prepare a detailed methodology and timeline for discussion with UNNATI team;
- Plan field visit and interactions with implementing partners (CEAPRED), external stakeholders (government line agencies like DADO, DDC, WDO of both Sindhuli and Mahottari district) and impact population;
- Prepare the tools and methodology and coach the team about data collection and tools
- Analyze the information/data collected from the interactions, discussions and sharing from all levels and prepare a detailed final report (draft) for comment and finalization.

## **V. SPECIFIC TASKS**

- a. Study planning and design
  - Prepare study outline including objectives, research methodology, research questions, checklists, target populations, coverage, timeline and budget
  - Review CARE Nepal relevant documents i.e. Unnati Project document, reports on CARE's interventions on women empowerment, Women Empowerment Framework of CARE Nepal, CARE Nepal's Strategic Plan etc.
- b. Refine indicators based on project log-frame

- c. Transformation of indicators into questionnaire for different levels (households, community, farmers groups, cooperatives, service providers, agro traders, government line agencies)
- d. Determination of sample size by target groups
- e. Field test of questionnaires
- f. Sample (VDC/community/group/household) selection
- g. Data collection
  - Enumerator/supervisor selection
  - Enumerator /supervisor training
  - Field data collection
- h. Data entry
- i. Data analysis
- j. Report writing
- k. Final report preparation
- l. Sharing of final report to relevant stakeholders

## **VI. Team composition and responsibilities**

The end line evaluation team will be led by an external consultant assisted by eight enumerators. However, staff from CARE Nepal including Project Manager and Monitoring and Evaluation Officer of Unnati Project, Monitoring, Evaluation and Learning Manager from CARE Country Office; Gender, Equity, Social Inclusion Coordinator from CARE Country Office, Value Chain Expert from CEAPRED, Gender, Equity and Social Inclusion Officer from CEAPRED will assist the external consultant and Staff from CEAPRED will be an integral part of the study at field level.

The consultant proposed for the study need to have following competencies:

1. Proven experience, skill and knowledge in Project evaluation, with particular reference to fresh vegetable production, value chain and cross boarder marketing.
2. Academic Qualification at least Master degree in relevant field
3. Knowledge on Rights Based approach, advocacy and major policy issues surrounding fresh vegetables production and value chain
4. Research and documentation skills
5. Ability to handle SPSS and other relevant software for data processing and produce baseline reports
6. Sensitive towards caste, religion, gender, culture and respect to the diversity
7. Knowledge on social inclusion and Women empowerment in Agriculture
8. Knowledge and expertise of Value chain approach Proven experience and knowledge on national and international marketing system

## **VII. Deliverables**

The following documents are expected to be delivered by the consultant:

- A data encoding report.
- Computerized data base from which information related to project indicators are generated.
- An evaluation report fulfilling the objectives and tasks above.

## **VIII. Formats for the Evaluation Report**

Report should base according to the CN policy. It includes;

- Executive summary
- Acronyms
- Introduction
- Methodology (by including the possible limitations of the methodology)
- Detail of Interviewee profiles and baseline team
- Principal Findings of the survey including lessons learned that could be useful to the wider CARE and development community and recommendations for future programmes/ projects
- Challenges and opportunities including possible interventions and indicators
- Findings and baseline status of each indicators
- Overall observations and Recommendations
- Project logical frame work with indicator baseline values extracted from the baseline study
- Annex

**Annexes, at minimum, should include:**

- Project Background
- Name and contact information of the external consultant(s)
- Terms of Reference
- Survey methodology
- Questionnaire for different value chain actors of fresh vegetables
- Questionnaire for Line agencies
- Questionnaire for cooperatives,
- Questionnaire for market analysis,
- Questionnaires on Women Empowerment
- Detail Tables on different indicators
- Interviewee information list

The Consultant/Organization should first submit the draft evaluation report in two hard copies and an electronic copy in CD for review to CARE Nepal/CEAPRED as per the agreed schedule. CARE and CEAPRED staff will review it and provide comments/suggestions to the consultant team in an interaction meeting organized by Unnati project. The comments on draft report from other CARE member and CEAPRED who will not actively participate in the debriefing meeting will be collected through email. The Consultant will incorporate the comments/suggestions and submit the final version of the report electronically as well as in three hard copies.

## **IX. ROLES AND RESPONSIBILITIES**

### **CARE Nepal**

UNNATI project, CARE Nepal will support the consultant by providing resources and available information and providing other logistic support to the consultant. Specifically, CARE Nepal will commence the following responsibilities:

- Provide necessary information regarding the project
- Communicate and coordinate with partner staffs for their participation
- Coordinate with partner staffs for interaction with the farmers/cooperatives in the field and other arrangements in the field.
- Manage accommodation, transportation and other logistics for the consultant and team;
- Pay the consultant fee as per the contract.

#### **Preparation and Logistic Support:**

UNNATI project team will make available an information package comprising of all relevant materials/background information related to the project to the Consultants prior to the review. The project will facilitate the Consultants work by arranging meetings, field visits, logistic and other supports as required.

#### **Reference materials to be provided by the Project:**

- UNNATI project documentation including project document, logical framework, annual report, organizational chart;
- Baseline study reports;
- Value chain and marketing survey report,
- Partner agreement and amendment
- Mid-term Evaluation Report

#### **Consultant**

- Study relevant project documents and background information, discussions, consultations planning, design etc.
- Field visits/works in the project area
- Data processing, sharing and analysis
- Report preparation and submission of first draft report
- Submission of final report

#### **Reporting and Deliverables:**

The Consultants will work closely with the Project Manager, Monitoring and Evaluation Officer, Finance Associate and other project staffs of UNNATI as required. The Consultant should first submit a draft evaluation report in electronic copy for review to UNNATI as per the agreed schedule. The project team will review it and provide comments/inputs/ feedbacks /suggestions to the Consultant. The Consultants will incorporate them and submit the final version of the report electronically as well as hard copies within two weeks of receipt of the comments and feedbacks.

#### **X. TIME FRAME**

The evaluation will tentatively start by the first week of November 2015 and final report will be submitted by the first week of December.

Proposed tentative schedule for the consultant would be as follows:

S.N.	Activities	Weeks by Month (Nov-Dec)					
		Nov				Dec	
		1	2	3	4	1	2
1	Study relevant project documents and background information, discussions, consultations planning, design etc. by the consultant	*					
2	Develop and finalize data collection tools in close consultation with the project team	*	*				
3	Field data collection works of the consultant			*	*		
4	Data processing, sharing and analysis by the consultant				*		
5	Reporting preparation and submission of first draft report					*	
6	Submission of final report by the consultant					*	

## Annex II. Lead questions used for the information collection

### II.I. Mixed farmers group

- Relevance (need based to the targeted community) of the project activities and their basis
- Socio-economic benefit extended by the project due to project activities
- Economic changes (saving, credit, expenses on food, clothing and schooling to children) brought in the community by the project
- Institutional (group, cooperatives, agro-vets) changes brought in the community by the project
- Benefit obtained because of increase in access to governmental offices and agricultural programme by the women, small farmers and lower strata people of the community
- Process of site selection of collection center and operation modality
- New knowledge and skill acquired after project implementation
- Basis crop and variety selection of vegetable crops
- Contribution of kitchen garden for household need Value addition activities adopted in local level
- Knowledge about safe vegetable production and its application in vegetable farming
- Changes on the service extended by agro-vets
- Plans to make collection centre more effective
- Service being received from cooperative and their situation
- Current situation of cooperative marketing and their status
- Production situation after project implementation and increment proportion
- Vegetable consumption trend in household level
- Differences on vegetable sale before project implementation and now
- Information on harvesting judgment, harvesting, sorting, packaging and transportation
- Volume and types of fresh vegetables produced and consumed at household level?
- Which are the vegetable type wise deficit months and during deficit period from where they buy what types of vegetables?
- What is the status of dietary supply from vegetables at household level?
- Do the farmers produce and sell the vegetables all year round?

- Gender involvement in vegetable sale, women authority to expend money after sale of vegetables
- Saving situation of income and monthly saving amount
- Total saving of the group and area of expenditure of the borrowed money from the group
- Income used for schooling of the children
- Activities being implemented by the cooperative for vegetable marketing
- Experiences on changes on climate like rainfall time and pattern, temperature and its effect on agriculture
- Who takes decision on dose and timing for fertilization, pesticide use and harvest the crop
- Doses and frequencies of pesticides use. Knowledge on waiting period
- Disposal system of empty containers or packets of pesticides
- Micro-irrigation scheme being used or under construction and their situation
- Services received from the project; satisfaction and motivation towards the project and its contribution for the development of the area
- Any problems encountered during the project implementations
- Any technologies copied by other non-project beneficiaries of the community
- Sustainability of the activities after project termination
- Any additional activities to be highly effective for output delivery
- Any suggestions for betterment, if similar type of project to be implemented in future

## **II.II. Women farmers group**

- Relevance (need based to the targeted community and women friendly) of the project activities and their basis
- Change brought in personal, social and policy relations to women with specific examples
- Economic changes (saving, credit, expenses on food, clothing and schooling to children) brought to women in the community by the project
- Institutional (group, cooperatives, agro-vets) changes brought in the community by the project
- Support provided by the project to capacitate women to take charge of executive position in local organization and state changes in number (before and after)
- Changes experienced in decision making capacity in community level
- Changes experienced in household level decision before and after the project implementation
- Regularity of attendance in the group meeting. What are the agendas for the meeting?
- Situation of issue put forwarded by women in mixed group and their level of considerations before and after project implementation
- List down the behavioral changes experienced in community to women
- Benefit obtained because of increasing access to governmental offices and agricultural programme by the women, small farmers and lower strata of the community. List down the changes
- Agendas for discussion points during the group meetings particularly for vegetable farming like crop, variety, production problem, marketing etc.
- Process of site selection of collection center and operation modality
- Role of women in the construction of collection centre
- New knowledge and skill acquired after project implementation
- Situation of women friendliness of the new technologies
- Process of crop and variety selection of vegetable crops
- Contribution of kitchen garden for household vegetable need
- Value addition activities adopted in local level
- Knowledge about safe vegetable production and its application in vegetable farming
- Changes on the service extended by agro-vets to women farmers
- Plan to make collection centre more effective
- Service being received from cooperative and benefits to women farmers

- Current situation of cooperative marketing (national and border markets), their status and women's role in market network development
- Experiences on climate change (rainy season, rainfall pattern, temperature) effect on agriculture and its impact level of male and female farmers
- Production situation after project implementation and proportion of increment
- Vegetable disposal pattern (household consumption, souvenir to relative or neighbor, sale) and who takes the decision for it
- Volume and types of fresh vegetables produced and consumed at household level?
- Which are the vegetable type wise deficit months and during deficit period from where they buy what types of vegetables?
- What is the status of dietary supply from vegetables at household level?
- Do the farmers produce and sell the vegetables all year round?
- Differences on vegetable sale before project implementation and now
- Gender involvement in vegetable sale, women authority to expend money after sage of vegetables
- Saving situation of income and monthly saving amount from the vegetable sale
- Total saving of the group and area of expenditure of the borrowed money from the group
- Income used for schooling of the children
- Activities being implemented by cooperative for vegetable marketing
- Who takes decision on dose and timing for fertilization, pesticide use and harvest the crop
- Micro-irrigation scheme being used or under construction, their situation, women involvement on new construction and specific benefit to women
- Situation of work load to women due to the project implementation
- Sharing to agricultural works by male members of the family after project implementation with example
- Services received from the project; satisfaction and motivation towards the project and its contribution for the development of the area
- Any technologies copied by other non-project beneficiaries particularly by women of the community
- Sustainability of the activities after project termination
- Any additional activities to be highly effective for women farmers
- Any suggestions for betterment, if similar type of project to be implemented in future

### **II.III. Agriculture Cooperative**

- Record of cooperative governance (board members composition, membership, meeting, gender representation, decision-making process)
- Services being provided by the cooperative (list down the activities)
- Is business plan prepared and if yes, what are the priority areas?
- Implementation status of business plan
- Challenges and opportunities of external market linkages
- Implemented activities related to link regional, central and boarder market and experiences
- Inputs being supplied by cooperatives and future plan for assured inputs supply
- Total membership in cooperative and gender ratio
- Involvement in different cooperatives
- Joint responsibilities among cooperatives
- Total number of executives and number of women member in executive
- Process of daily management of cooperative
- Future plan of cooperative management based on economic capacity, networks and other resources
- Attitudes towards training received related with cooperative and their effectiveness



- Which are the slack months for vegetable sale
- Major problems encountered during the vegetable cultivation
- How the problems were tackled
- Type (bio or chemical) and frequency of pesticides use
- Quantity purchased of chemical pesticides, bio-pesticides, hormones, chemical fertilizers and seed
- Do you have idea about color label in pesticides containers and waiting period
- Problems of vegetable marketing
- Approaches adopted to overcome the marketing problems
- Service received from the project to expand the areas under the cultivation
- How do you manage to irrigate your vegetable field
- How and what support you received by the project
- Anticipated problems after project phase out for the continuation of the commercial vegetable farming
- Is access to governmental institution (DADO and ASC) is increasing
- Is access to agro-vet increasing
- How is the current service of agro-vets as compared to before project implementation
- What are the services being offered by the cooperative at present
- Level of satisfaction on the marketing support extended by the coop
- Total annual income from vegetable farming
- How the income is utilized (% in education, % in nutritious food, etc.)
- Proportion of vegetables consumed in household level
- What additional activities from the project would have been better support to you
- How your economic condition improved by commercial vegetable farming?
- What is your future plan?
- Do you have any suggestions to be provided by the project for betterment for commercial farmer?

#### II.V. Commercial women Farmer

- How long have you been involved in commercial vegetable farming
- Comparison between now and before the project implementation

Particular	Before	Now	Remark
Area of permanent nursery			
Nursery technology			
Number of vegetable crops grown			
Vegetable growing month			
Vegetable selling month			
Total area covered by vegetable crops			
Total sale			
Total annual income			
Income of the season			

- Vegetable cultivation situation in the recent 12 months

Vegetable crop	Season/sowing month	Area	Income

- Which are the slack months for vegetable sale
- Major problems encountered during the vegetable cultivation
- How the problems were tackled
- Type (bio or chemical) and frequency of pesticides use
- Quantity purchased of chemical pesticides, bio-pesticides, hormones, chemical fertilizers and seed
- Do you have idea about color label in pesticides containers and waiting period
- Problems of vegetable marketing
- Approaches adopted to overcome the marketing problems
- Service received from the project to expand the areas under the cultivation
- How do you manage to irrigate your vegetable field
- How and what support you received by the project
- Anticipated problems after project phase out for the continuation of the commercial vegetable farming
- Is access to governmental institution (DADO and ASC) is increasing
- Is access to agro-vet increasing
- How is the current service of agro-vets as compared to before project implementation
- What are the services being offered by the cooperative at present
- Level of satisfaction on the marketing support extended by the coop
- Total annual income from vegetable farming
- How the income is utilized (% in education, % in nutritious food, etc.)
- Changes experienced towards self
- Changes of society towards you
- Changes in gender role within the family
- How is the participation in other development and/or social activities in society?
- Is your voice heard in social gathering? What you if they ignore your voice?
- Proportion of vegetables consumed in household level
- What additional activities from the project would have been better support to you?
- How your economic condition improved by commercial vegetable farming in general and plastic house in particular?
- What is your future plan?
- Do you have any suggestions to be provided by the project for betterment for commercial farmer?

## **II.VI. Plastic house farmers**

- Estimated cost for the construction of your plastic house (size and the plastic quality)?
- Who constructed the plastic house
- If self-constructed, how s/he learned the skill
- If not, can you construct yourself in future
- Is there anyone at local level who could construct the plastic house
- Is plastic house construction materials like silpauline available locally
- Crop and varieties being cultivated under the plastic house
- Production season from the plastic house
- How the plastic house is utilized in winter season
- How much income can be obtained from your plastic house of .....m<sup>2</sup>
- Major problems in the plastic house vegetable cultivation
- How the problems are managed
- Is access to governmental institution (DADO and ASC) is increasing
- Is access to agro-vet increasing
- How is the service of agro-vets
- What are the services being offered by the cooperative
- Level of satisfaction on the marketing support extended by the coop
- Type (bio or chemical) and frequency of pesticides use
- Do you have idea about color label in pesticides containers and waiting period
- Problems of vegetable marketing
- Approaches adopted to overcome the marketing problems
- Service received from the project to expand the areas under plastic house
- What type of irrigation facility do you have?
- How and what support received by the project for commercial vegetable farming
- Anticipated problems after project phase out for the continuation of the commercial vegetable farming
- Proportion of vegetables consumed in household level
- What additional activities from the project would have been better support to you
- How your economic condition improved by commercial vegetable farming?
- What is your future plan?
- Do you have any suggestions to be provided by the project for betterment for commercial farmer?

## **II.VII. Agro-inputs suppliers (Agro-vet)**

- Changes in farmers capacity to select season specific crop and/or variety
- Farmers capacity to choose appropriate pesticides and fertilizers
- Demand situation of agro-inputs necessary for vegetable farming and newly demanded inputs
- Supply situation of the demanded inputs. Reason if failed to supply the demanded ones
- Any feedbacks from the users on the supplied inputs
- Positive changes on sale and number of customer after execution of UNNATI project
- Gender involvement on the procurement of agro-inputs
- Similarities or dissimilarity of the services sought by men and women farmers
- Confidence level of the quality of the supplied inputs, if not assured what is the reason

- What support you got from Unnati project for your capacity building
- Any outlet mechanism to supply inputs to interior villages

## **II.VIII. Vegetables trader**

- Approximate quantity of vegetable collected and sold received from the project sites
- Contribution in transaction (in proportion) of the vegetables collected from the project site
- Contribution made to the supply of vegetables from the project site, off-seasonality with the older (before project) supply system
- Quality (good and poor) of vegetable from the project site
- Areas to be considered for the quality improvement
- Awareness level of local consumers in quality and types of questions related with quality
- Market competitiveness situation of the local products
- Possibility of selling local produce in terai markets? If possible mention name of commodity and season
- Market of organic vegetables in local and nearby markets
- Problems encountered while marketing the local produce
- Points to be considered for strengthening the vegetable marketing in future
- Presence of female vegetable traders in the market and reason for few number of female trader
- Things to be done to promote female traders in future
- What are the contributions made by the project for the overall development of vegetable marketing in local level

## **II.IX. Agricultural Service centre**

- Are the project activities need based of local communities, please give reason (yes/no)
- How effective the implemented activities?
- What is your opinion regarding return to the community against the investment made by the project
- What are the supports extended by the project in the area
- Support provided for the women empowerment in the area
- What are the changes you observed after implementation of the project activity
- What are the specific technologies which you could see scope of replication in the similar agro-ecological conditions
- Possibilities of complementing the activities of the project and ASC. If yes what could be those?
- Project contribution for capacity building of ASCs staff
- What would be additional activities to make the project more success or effective
- What could be done to make the project activities sustainable in future
- Group registration situation of the project sites before and after implementation

## **II.X. Project implementation team**

- Most challenging output to deliver

- Most important services related with women empowerment
- Most important services related with climate smart agriculture
- Less effective interventions experienced so far
- Effectiveness of the project to meet its objectives
- Major changes taken place to direct beneficiaries
- Possible alternative channel to deliver the services
- Budget absorption against the activities
- Approaches adopted for visibility of the project
- Achievements, challenges and opportunities
- Implementation status of value chain and midterm evaluation
- How relevant is the project to the target group
- To what extent the project aligned with the other development partners of the area
- Were the resource and inputs converted to outputs in a timely and cost effective manner
- Pros and cons of cooperative marketing of vegetables
- Activities implemented related with postharvest handling and processing
- Value addition to the project by CEAPRED's involvement
- Aspects having higher potential to continue after project termination
- Possibility of integration with other programme in future
- New learning which can be replicated elsewhere
- Activities which are not included but would have better impact
- What would be the sustainability situation and why?
- Major lesson learned during project implementation

#### **II.XI. District based government agencies**

- Relevancy of the project to target group including government policies, need and priority
- Effectiveness of the project in the areas
- Project contribution in the institution building in the project area
- How project intervened on the issue of climate change and possibility of its replication
- Contributions made by the project in vegetable farming in districts
- Potential contribution of the project in the women empowerment
- New technologies which can be replicated in the similar conditions of the district
- Complimentarily of the project to DADO, DDC and WDO regular activities
- Complimentarily with the projects or similar types activities
- What are the strengths of the project
- What changes project brought in the site and at district level
- What are the weaknesses of the project
- Have you taken any lesson from the project
- What would have been done to make it further effective
- Increase in farmer group registration from the project site
- No of agricultural coop registered from the project sites and their situation

#### **II.XII. Non-state enablers (FNCCI, Agri-product market)**

- Contribution by the project for business promotion

- Institutional building by the project
- New business member from the project sites
- Project efforts to establish an outlet of the project site at the market centre
- Project contribution on vegetable market development
- Any established market linkage of the business community of centre with the producers of the project site
- If not what would be the approach for linkage establishment
- Scope and challenges of running own outlets of cooperatives
- Situation of organic product market and quality conscious of the local consumers

### **Annex III. Contact address of the Consultants**

S.No.	Name	Designation	Address	Contact No.
1	Mr. Purushottam P. Khatiwada	Consultant	Sindhuli	9841288217
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3	Mr. Sunil Adhikari	Enumerator	Lamjung	9856045745
4	Mr. Narendra Singh	Enumerator	Bajhang	9841905807
5	Mr. Ram Sharan Shrestha	Enumerator	Kathmandu	9741107133
6	Mr. Chitra Bahadur Majhi	Enumerator	Gauribas	9819861101
7	Mr. Mohan Uparkhutti	Enumerator	Gwaltar	9844226862
8	Ms. Tara Shrestha	Enumerator	Ratamata	9818236858
9	Mr. Sudip Bhandari	Enumerator	Dumja	9843758426

## Annex IV. Interviewee profile

### List of key informants

S. No.	Name	Designation	Institution
1	Mr. Sagar Dhakal	Sr. Social Dev Officer	District Dev. Committee, Sindhuli
2	Mr. Bijaya Mandal	Agri. Extension Officer	District Agri Dev Office, Sindhuli
3	Ms. Durga Bhandari	Chief	District Child & Child Office, Sindhuli
4	Ms. Krishna Gurung	Women Dev Inspector	District Child & Child Office, Sindhuli
5	Mr. Laxman Paudel	Junior Technician	District Agri Dev Office, Sindhuli
6	Ms. Prativa KC	M&E Officer	UNNATI, CARE Nepal
7	Mr Chandra Devkota	Project Coordinator	UNNATI, CEAPRED
8	Mr. Pradip Paudel	Institution Dev. Officer	UNNATI, CEAPRED
9	Ms. Pampha Jargha	Manager	Agri Product Market, Bardibas
10	Mr. Rabi Dahal	Proprietor	Kishan Agro Traders, Bardibas
11	Mr. Prem Thapa	Vegetable trader	Bardibas
12	Mr. Ramesh Khadka	Vegetable trader	Sindhuli
13	Mr. Kumar Thapa	Vegetable trader	Sindhuli
14	Mr. Kamal Katuwal	Proprietor	Durga Vet Pharma, Sindhuli
15	Mr. Nawaraj Khadka	Manager	Agri-Product Centre, Sindhuli Madhi
16	Mr. Krishna Raj KC	Chairperson	District Coop Federation, Sindhuli
17	Mr. Ram B Rana	Proprietor	Agro-vet, Aanptar, Nepalthok
18	Mr. Bikrim Giri	Proprietor	Agro-vet, Jhangajholi Ratamata
19	Mr. Hom Raj Shrestha	Proprietor	Agro-vet, Gwaltar
20	Mr. Kumar Shrestha	Vegetable Trader	Nepalthok
21	Mr. Krishna Shrestha	Vegetable Trader	Jhangajholi Ratmata
22	Mr. Baburam shrestha	Vegetable Trader	Gwaltar
23	Mr. Bikash Bhandari	Commercial Farmer	Nepalthok
24	Mr. Sagar Shrestha	Commercial Farmer	Jhangajholi Ratmata
25	Mr. Jit B Karki	Commercial Farmer	Gwaltar
26	Mr. Dil Bahadur Karki	Commercial Farmer	Kalapani, Gauribas
27	Ms. Kumari Bagrel	Comm. Women Farmer	Nepalthok
28	Ms. Shankuntala shrestha	Comm. Women Farmer	Jhangajholi Ratmata
29	Ms. Bhawan Kumari Thapa	Comm. Women Farmer	Gwaltar
30	Ms. Shanta KC	Comm. Women Farmer	Gauribas
31	Mr. Samsheer Shrestha	Plastic House Farmer	Jhangajholi Ratmata
32	Mr. Min B Paudel	Plastic House Farmer	Gauribas
33	Ms. Durga Thapa	Plastic House Farmer	Gwaltar
34	Mr. Madan Koirala	Plastic House Farmer	Dumja

## Participants of women focal group discussion

S.No.	Name of staff	Position	Cluster	Contact no.
1	Lila Majhi	Chairperson	Gauribas	
2	Sita Khadka	Treasurer	Gauribas	9812180763
3	Durga Baraili	Secretary	Gauribas	9816888211
4	Narbada Dulal	Member	Gauribas	9744122572
5	Sukumaya Baraili	Member	Gauribas	
6	Thulimaya Baraili	Member	Gauribas	
7	Shanta Khadka	Member	Gauribas	
8	Januka Khadka	Member	Gauribas	
9	Santa Kumari Majhi	Member	Gauribas	9807766205
10	Goma Kumari Kandel	Member	Gauribas	
11	Sita Majhi	Member	Gauribas	
12	Laxmi Pokhrel	Member	Gwaltar	
13	Januka Ramtel	Member	Gwaltar	
14	Sarita Tolangi	Member	Gwaltar	9844429914
15	Shanta Baral	Chairperson	Gwaltar	9844320238
16	Bal Kumari Baral	Member	Gwaltar	9844096367
17	Vawan Kumari Thapa	Member	Gwaltar	9844018222
18	Chandra Maya Shrestha	Member	Gwaltar	
19	Eak Maya Thapa	Member	Gwaltar	
20	Surya Kumari Karki	Member	Gwaltar	
21	Nanimaya Bayalakoti	Member	Gwaltar	
22	Ganga Karki	Member	Gwaltar	
23	Swaraswati Karki	Member	Gwaltar	
24	Durga Thapa	Member	Gwaltar	
25	Tek Kumari Shrestha	Chairperson	Jhagajholi Ratamata	
26	Goma Paudel	Member	Jhagajholi Ratamata	
27	Indira Dahal	Member	Jhagajholi Ratamata	047-690244
28	Devi Shrestha	Member	Jhagajholi Ratamata	9844053929
29	Dhana Laxmi Shrestha	Chairperson	Jhagajholi Ratamata	9744009166
30	Shiva Kumari Shrestha	Vice-chairperson	Jhagajholi Ratamata	
31	Dil Maya Shrestha	Member	Jhagajholi Ratamata	
32	Laxmi Dahal	Member	Jhagajholi Ratamata	
33	Dev Laxmi Shrestha	Member	Jhagajholi Ratamata	
34	Tulasha Acharya	Treasurer	Jhagajholi Ratamata	9818185097
35	Indra Kumari Shrestha	Member	Jhagajholi Ratamata	
36	Sun Maya Baiju	Member	Jhagajholi Ratamata	
37	Sita Devi Shrestha	Member	Jhagajholi Ratamata	9812132759
38	Tara Shrestha	Member	Jhagajholi Ratamata	9818236858
39	Ful Maya Tamang	Member	Nepalthok, Dumja	9817682107
40	Kusan Dolmo Moktan	Member	Nepalthok, Dumja	
41	Maiya Moktan	Member	Nepalthok, Dumja	
42	Maili Moktan	Member	Nepalthok, Dumja	

43	Somrani Moktan	Member	Nepalthok, Dumja	
44	Maili Bal	Member	Nepalthok, Dumja	
45	Ujeli Maya Moktan	Member	Nepalthok, Dumja	
46	Maili Moktan	Member	Nepalthok, Dumja	
47	Basun Bal	Member	Nepalthok, Dumja	
48	Surya Maya Moktan	Member	Nepalthok, Dumja	
49	Nisha Moktan	Member	Nepalthok, Dumja	
50	Saili Moktan	Member	Nepalthok, Dumja	
51	Sarmila Bal	Member	Nepalthok, Dumja	
52	Maya Moktan	Member	Nepalthok, Dumja	

### List of participants of mixed farmers groups

S.No.	Name of staff	Position	Cluster	Contact no.
1	Kamala Bhandari	Secretary	Gauribas	9844423563
2	Sannani Bhandari	Member	Gauribas	
3	Nisha Khatri	Member	Gauribas	
4	Bishnu Maya Bhandari	Member	Gauribas	
5	Tulasha Koirala	Member	Gauribas	
6	Lila Bahadur Khatri	Member	Gauribas	
7	Shiva Bahadur Bhandari	Secretary	Gauribas	
8	Nar Bahadur Karki	Member	Gauribas	
9	Sarada Paudel	Member	Gauribas	
10	Ganesh Bahadur Paudel	Member	Gauribas	
11	Ganesh Bahadur Karki	Member	Gauribas	
12	Tej Kumari Shrestha	Member	Gauribas	
13	Dil Bahadur Karki	Member	Gauribas	
14	Govinda Prasad Upadhya	Member	Gauribas	
15	Laxmi Upadhya	Member	Gauribas	
16	Manita Bhandari	Member	Gauribas	
17	Hira Bahadur Shrestha	Chairperson	Gwaltar	9843295109
18	Dil Kumari Shrestha	Member	Gwaltar	
19	Kamala Shrestha	Member	Gwaltar	9819687501
20	Nagindra Shrestha	Member	Gwaltar	
21	Sita Shrestha	Member	Gwaltar	
22	Shova Bhujel	Member	Gwaltar	
23	Sita Bhujel	Member	Gwaltar	
24	Susmita Shrestha	Member	Gwaltar	
25	Chandra Bhujel	Member	Gwaltar	
26	Mandira Shrestha	Member	Gwaltar	980899075
27	Pramila Shrestha	Member	Gwaltar	
28	Bivu Shrestha	Member	Gwaltar	
29	Shanta Shrestha	Member	Gwaltar	
30	Tulsi Maya Shrestha	Member	Gwaltar	

31	Tika Bahadur Shrestha	Member	Gwaltar	
32	Shyam Bahadur Nepali	Vice-chairperson	Gwaltar	9817664177
33	Tara Shrestha	Member	Gwaltar	
34	Mamata Nepali	Member	Gwaltar	
35	Bhupendra Raj Koirala	Member	Gwaltar	
36	Mohan Uparkhutti	Member	Gwaltar	
37	Eak Bahadur Paudel	Member	Gwaltar	
38	Deepak Shrestha	Member	Jhagajholi Ratmata	9741511185
39	Januka Shrestha	Member	Jhagajholi Ratmata	9818235858
40	Goma KC	Member	Jhagajholi Ratmata	9744366442
41	Ful Maya Shrestha	Member	Jhagajholi Ratmata	9741263909
42	Sharada Shrestha	Member	Jhagajholi Ratmata	9744053132
43	Durga Dhimal	Member	Jhagajholi Ratmata	9744357070
44	Januka Acharya	Chairperson	Jhagajholi Ratmata	9744036692
45	Nain Bahadur Baidhya	Secretary	Jhagajholi Ratmata	9818723118
46	Sanimaya Shrestha	Member	Jhagajholi Ratmata	9741217262
47	Chameli Shrestha	Member	Jhagajholi Ratmata	
48	Ram Maya Shrestha	Member	Jhagajholi Ratmata	
49	Buddha Laxmi Shrestha	Member	Jhagajholi Ratmata	
50	Prem Lal Shrestha	Member	Jhagajholi Ratmata	
51	Chandra B. Shrestha	Member	Jhagajholi Ratmata	
52	Ganga Devi Shrestha	Member	Jhagajholi Ratmata	
53	Krishna Kishor Shrestha	Treasurer	Jhagajholi Ratmata	9744075171
54	Laxmi Bhandari	Chairperson	Nepalthok, Dumja	
55	Binda Gaurapiple	Secretary	Nepalthok, Dumja	
56	Menuka Shrestha	Member	Nepalthok, Dumja	
57	Tara Shrestha	Member	Nepalthok, Dumja	
58	Madhu Sudan Bhandari	Member	Nepalthok, Dumja	
59	Krishna Shrestha	Secretary	Nepalthok, Dumja	
60	Sulochana Shrestha	Member	Nepalthok, Dumja	
61	Netra Bahadur Bhandari	Member	Nepalthok, Dumja	
62	Amit Shrestha	Member	Nepalthok, Dumja	
63	Ram Bahadur Dong	Member	Nepalthok, Dumja	
64	Karshang Tamang	Member	Nepalthok, Dumja	
65	Janaki Shrestha	Member	Nepalthok, Dumja	
66	Kumar Shrestha	Member	Nepalthok, Dumja	
67	Bhoj Bahadur Lama	Member	Nepalthok, Dumja	
68	Prakash Nepal	Member	Nepalthok, Dumja	
69	Arun BK	Member	Nepalthok, Dumja	
70	Ram Hari Mate	Member	Nepalthok, Dumja	
71	Anil Lama	Member	Nepalthok, Dumja	
72	Babulal Moktan	Member	Nepalthok, Dumja	
73	Sharada Gairapiple	Member	Nepalthok, Dumja	
74	Madan Koirala	Member	Nepalthok, Dumja	
75	Bhule Tamang	Member	Nepalthok, Dumja	

76	Padma Maya Nepal	Member	Nepalthok, Dumja	
77	Lal Bahadur Moktan	Member	Nepalthok, Dumja	

### Participants list of cooperative focus group discussion

S.No.	Name of staff	Position	Cluster	Contact No.
1	Geeta Bhandari	Chairperson	Gauribas	9844162739
2	Yadav Prasad Dhungel	Vice-chairperson	Gauribas	9844409194
3	Jum Bahadur Ale	Treasurer	Gauribas	9806895118
4	Kamala Karki	Member	Gauribas	
5	Lila Majhi	Member	Gauribas	9818718403
6	Min Bahadur Paudyal	Member	Gauribas	
7	Shanta Kumari KC	Member	Gauribas	9818092508
8	Babita Majhi	Member	Gauribas	
9	Shuva Kumari Khadka	Member	Gauribas	9844198631
10	Jagat Bahadur Kunwar	Member	Gauribas	9844021094
11	Min Bahadur Paudel	Member	Gauribas	9812030579
12	Jit Bahadur Khadka	Member	Gauribas	
13	Dan Bahadur Subedi	Member	Gauribas	
14	Dil Bahadur Karki	Member	Gauribas	
15	Chitra Bahadur Majhi	Coop Manager	Gauribas	
16	Prem Kumar Majhi	Member	Gauribas	
17	Khil Bahadur Bhujel	Member	Gauribas	
18	Kishor Kumar Karki	Chairperson	Gwaltar	9844284815
19	Deepak Thapa	Secretary	Gwaltar	9844076352
20	Laxmi Pokhrel	Vice-chairperson	Gwaltar	9860020934
21	Mohan Uparkhutti	Treasurer	Gwaltar	9844226862
22	Harka Bahadur Ale	Member	Gwaltar	9844429721
23	Mishra Nepali	Member	Gwaltar	
24	Surya Kumari Karki	Member	Gwaltar	
25	Nani Maya Bayalkoti	Member	Gwaltar	
26	Surya Kumari Thapa	Member	Gwaltar	
27	Chandra Maya Shrestha	Member	Gwaltar	
28	BalKumari Baral	Member	Gwaltar	
29	Bawan Kumari Thapa	Member	Gwaltar	
30	Tulasha Devi Karki	Member	Gwaltar	
31	Dhanju Thapa	Member	Gwaltar	
32	Ram Maya Shrestha	Member	Jhangajholi Ratamata	
33	Swaraswati Chaulagai	Member	Jhangajholi Ratamata	
34	Krishna Kishor Shrestha	Advisor	Jhangajholi Ratamata	
35	Shamsher Shrestha	Secretary	Jhangajholi Ratamata	
36	Ram Sharan Shrestha	Member	Jhangajholi Ratamata	
37	Mahendra Kayastha	Member	Jhangajholi Ratamata	
38	Chandra Bahadur Shrestha	Member	Jhangajholi Ratamata	

39	Krishna Fuyal	Member	Jhangajholi Ratamata	
40	Ram Bahadur Majhi	Member	Jhangajholi Ratamata	
41	Bhawani Puri	Member	Jhangajholi Ratamata	
42	Tara Shrestha	Member	Jhangajholi Ratamata	
43	Januka Acharya	Member	Jhangajholi Ratamata	
44	Ratna Lal Shrestha	Chairperson	Dumja	9814752319
45	Sarita Sitaula Nepal	Secretary	Dumja	
46	Gyan Bahadur Majhi	Member	Dumja	
47	Kumari Bagrel	Member	Dumja	
48	Shanta Majhi	Member	Dumja	
49	Chyaran Koirala	Member	Dumja	
50	Binda Koirala	Member	Dumja	
51	Anil Koirala	Member	Dumja	
52	Davit Bagrel	Member	Dumja	
53	Buna Koirala	Coop Manager	Dumja	
54	Dilip Koirala	Member	Dumja	
55	Maya Tamang	Member	Dumja	
56	Chari Maya Tamang	Member	Dumja	
57	Sudip Bhandari	Member	Dumja	
58	Kumar Shrestha	Member	Dumja	
59	Amit Shrestha	Member	Dumja	
60	Chandra Kala Majhi	Member	Dumja	
61	Muna Shrestha	Member	Dumja	
62	Akku Maya Pulami	Member	Dumja	
63	Kalpana Karki	Member	Dumja	
64	Krishna B. Bhandari	Member	Dumja	
65	Surya Bahadur Karki	Member	Dumja	
66	Dil Bahadur Kafle	Member	Dumja	
67	Chitra Bahadur Majhi	Member	Dumja	
68	Narendra Bahadur Sah	Member	Dumja	

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