

Impact Assessment of Vegetable Production Program Initiatives of Plan Nepal

Final Report

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Acronym and Abbreviations

VPPI	Vegetable Production Program Initiatives
CPO	Country Program Outline
PU	Program Unit
CCCDP	Child Centred Community Development Project
DDC	District Development Committee
LDO	Local Development Office
VDC	Village Development Committee
ASC	Agriculture Service Centre
DADO	District Agriculture Development Office
ADO	Agriculture Development Officer
DFO	District Forest Office
AFFAN	Agro Farm Forest Association of Nepal
FORWARD	Rural Welfare and Agriculture Reform
SEWAC	Social Empowerment and Building Accessibility Centre
MADE	Multi-dimensional Agriculture for Development
DEPROSC	Development Project Service Centre
SODEC	Social Development and Empowerment Centre
MOAC	Ministry of Agriculture and Cooperative
RATC	Regional Agriculture Training Centre
FAO	Food and Agriculture organization
WFP	World Food Program
WTO	World Trade Organization
SAFTA	South Asia Free Trade Association
ABPSD	Agri-business Promotion and Statistical Division
APP	Agricultural Perspective Plan
TYIP	Three year Interim Plan
GDP	Gross Domestic Product
AGDP	Agricultural Gross Domestic Product
NTFP	Non-timber Forest Products
NGO	Non Government Organization
LRP	Local Resource Person
FGDs	Focus Group Discussions
KII	Key Informant Interview
PME	Participatory Monitoring and Evaluation
kg	Kilogram
ha	Hectare
MT	Metric Ton

EXECUTIVE SUMMARY

1. Introduction and Rational of the Study

The study on impact assessment of vegetable production program initiatives (VPPI) of Plan Nepal was carried out with an aim to address and assess the program achievement, effects (outcomes) and impact created by the program with respect to project objectives and indicators as well as recommend future course of action in line with Plan Nepal Country Program Outline (CPO) Household Economy Security (HES) and Child Centered Community Development Project (CCCDP) approach.

The specific objectives of the impact assessment study were to: (1) assess level of impact on promoting food and income security of families that participated in vegetable production program; (2) assess the extent of transfer of technology, knowledge and skills in producing, diversifying and marketing vegetable by the participating families; (3) assess relevance, effectiveness and sustainability of technical/human, physical and market infrastructures and channels supported to develop the vegetable production sub-sector by Plan for promoting food and income security and (4) To assess the extent to which the elements of right-based child centred community development (CCCD) approach have been embedded in its process.

The study covered five program district of Plan Nepal Program Units namely Banke, Makwanpur, Rautahat, Sunsari and Morang.

2. Approach and Methodology

The study approach has been participatory and result-oriented which involved all the relevant stakeholders in the process. Participatory monitoring and evaluation with conventional survey method were used to collect qualitative and quantitative information from both secondary as well as primary sources.

Primary data were collected through household survey, focus group discussions and key informant interview. Household survey was carried out by administering semi-structured questionnaire to 420 randomly selected households involved in semi-commercial, leasehold normal, leasehold riverbank and under agro-forestry vegetable production. Total 140 sample size from Banke PU and 70 sample size from in each other PU (i.e. Makwanpur, Rautahat, Sunsari and Morang) were selected. The sample households for the survey were randomly selected from the list of households covered by Vegetable Production Program Initiatives (VPPI) livelihood interventions in each PU. Prior to commencement to the field, intensive orientation training was given to the enumerators to ensure consistency in data collection methodology and quality of information.

3. Major Findings

3.1 Characteristics of Sample Households

With respect to age of the respondent, it was found that the producers are an average 39.5 years old. Of the total sample population, 49.7 percent are male and 50.7 percent are female. The average sample male ranges from about 21 percent to 77 percent in Sunsari and Morang respectively, whereas average female ranges from 23 percent to 79 percent in Morang and Sunsari districts respectively. About 51 percent of the respondents are household headed in their family. With respect to ethnicity/caste, the respondents are categorized into five groups based on their caste, namely Brahmin, Chhetri, Indigenous (Gurung, Tamang, Newar, Tharu, Chaudhary, etc.), Dalit and Madheshi. On average, 48.8 percent are Indigenous group, 31.9 percent are Madheshi followed by 8.8 percent of Dalits, 6.9 percent Brahmin and 3.6 percent are Chhetri. Indigenous group are major in Makwanpur, Banke and Sunsari districts, whereas Madheshi group are dominated in Rautahat and Morang districts.

The overall literacy rate of the sample respondent is about 56 percent whereas average year of schooling is estimated 3 years. Most of the literate sample population have attained primary and secondary level of

education and only 8 percent attained collage/university degree. Majority of illiterate respondents are found in Banke and Rautahat as compared to Morang, Makwanpur and Sunsari Program Units.

The average family size of the sample households is 5.5 members. Of the total sample population, 51 percent are male and 49 percent are female. About 27.5 percent of the population are children, 67.5 percent are economically active and five percent are elderly people in sample household.

Majority of sample respondents reported that agriculture as their main occupation for their livelihood in all the Plan Nepal Program Units (PUs). Among the sample population, about 94 present sample respondents reported that agriculture as their main occupation followed by wage labor (14 present) and business (7 present). A very small portion of the respondents are involved in service (two present) and three present are other (Table 4.4). In Makwanpur and Sunsari PUs, all of the sample respondents have only agriculture as the main occupation.

On the whole, about 23 percent of the sample households are landless. The proportion of landless households is higher in Sunsari (about 41 percent) followed by Rautahat (30 percent) and Banke (23 percent). The average size of the total operated landholding (own land plus rented in land and other like agro-forestry land) of the sample households ranges from 14.08 Kaththa (0.40 ha) in Makwanpur to 25.31 Kaththa (1.27 ha) in Morang with an overall of 19.51 Kaththa (0.98 ha).

3.2 Implementation Mechanism and Support Services

Implementation Approach and Strategy:

The Vegetable Production Program Initiatives for Plan Nepal is implemented with a number of NGOs and Plan Nepal plays the facilitating and regular supervision and monitoring role in the process with partnership approach. Major partner NGOs for program implementation are FORWARD, MADE are SEWAC.

The vegetable production program has special focus on the inclusion of women, deprived communities, disadvantage and marginalized groups (DAGs), landless or near landless households. Participatory and action-oriented approach has been reported to adapt right from the selection of the households to preparation and planning, appraisal, implementation, monitoring and evaluation of program intervention. Community participation through internal demand-driven approach has been prioritized and emphasized for reflecting people's needs and key interests and creating a feel of ownership among the participating families. More general, integrated approach involving the provision of skill development training, inputs, technical assistance and marketing support is adopted in the implementation of program interventions. Furthermore, efforts have been made to link the beneficiaries of VPPI interventions with micro-finance institutions for provision of financial services at low interest rate in time. Subsidy, to be phased out on gradual basis, has been used as a means to mainstream the beneficiary households in the development process.

Participation of intended Beneficiaries

The inclusion of women, poor, so called Dalits, landless, nearly landless families, other marginal and disadvantage groups (DAGs) and women headed households in the vegetable production program initiatives for livelihood improvement was generally reported. Participation of all categories of beneficiaries including women, poor and deprived communities in the planning, implementation, monitoring and evaluation of program interventions was indicated during focus group discussions and key informant interviews.

Access to Support Services

Of the total sample respondents, the recipients of various inputs include: agriculture inputs like vegetable seeds, equipments/treadle pump (about 87 percent); institutional loan (about 3 percent); agriculture extension services (59 percent), veterinary services and medicine (about 19 percent); compost preparation

input support like E.M. (45 percent); chemical fertilizers (about 61 percent) and insecticide (53 percent). The proportion of the respondents reporting to have received services and inputs is higher in Rautahat and Makwanpur as compared to other PUs.

Access to Credit

About 79 percent of the sample households reported to have easy accessed the credit from formal and informal initiations like saving and credit group and cooperative in village as well as some time from local money lenders and friends. The access of the credit is observed to be highest in Rautahat (99 percent) followed by Makwanpur (93 percent), Sunsari (76 percent), Banke (75 percent) and lowest in Morang (52 percent). There is no significant difference in the access to the credit among four categories of vegetable production scheme. Nevertheless, access to credit observed to be highest for the household produced leasehold riverbank vegetable (89 percent) and lowest for vegetable production under agro-forestry scheme (62 percent). About 54 percent reported to have borrowed credit within last one year. The proportion of borrowed is observed to be highest in Rautahat (93 percent) and lowest in Morang (38 percent).

The information regarding the amount of loan and its terms and conditions by sources, about 73 percent took credit from institutional sources of which 15 percent borrowed from micro-finance institution, 23 percent from bank, 10 percent from cooperative and 25 percent from village level saving and credit group. About 27 percent of borrowers took loan from informal sources of which 16 percent from local money lender and 11 percent from relatives and friends. The average amount of loan per household is estimated at NRs. 24,525. The average rate of interest per annum ranges from 17 percent on credit from cooperative and saving group to 35 percent on credit from local money lender. The average duration of loan is observed for 12 months varies from 8 months in credit from saving group to 15 months in credit from relatives and friends

Among various purposes, about 60 percent credit has been used for farming.

Access to Training, Agro-vet, LRP

About 64 percent of the households reported to have received vegetable production, marketing and other skill development training. Among the five PUs, the proportion of such households is highest in Sunsari (94 percent) and lowest in Banke (57 percent). Almost all the sample respondents indicated improvement in their knowledge and skill as a result of their participation in training. About 96 percent of respondents reported actual use of knowledge and skill from training.

Out of total respondents, about 75 percent reported agro-vets facility provided by Plan Nepal in their community and 97 percent respondents reported to take services from agro-vets. Likewise, about 53 percent respondents reported to know the technical local resource person (LRP) in their village prepared by Plan Nepal and 93 percent have taken services from them.

Market Outlets Services

About 25 percent respondents reported market outlets supported by Plan Nepal. Out of them, 66 percent reported to have taken service from market outlets. Among them, 76 percent have taken market service from collection centre, 10 percent from marketing cooperative and 14 percent from market centre for their vegetable products sale.

Technical Knowledge Update:

About 57 percent respondents have updated their technical knowledge through community level LRP. About 24 percent reported update their technical knowledge through agro-vets and 23 percent through government JT/JTA and technical personal from DADO and ASC.

3.3 Effects and Impacts

Increased Production of Vegetable

Over a period after vegetable production program initiatives, the overall area of vegetables has increased by about 290 percent, production by 339 percent and sale revenue has increased by 399 percent. The average area and production of vegetables are found to be highest among leasehold riverbank followed by semi-commercial and under agro-forestry system vegetable producers. Total sale revenue is found to be highest among semi-commercial vegetable producers (NRs. 43,355) followed by leasehold normal and others. Over the period, area of vegetables has increased highly in leasehold normal (586 percent) followed by leasehold riverbank (498 percent), vegetable under agro-forestry (290 percent) and semi-commercial (163 percent). This is due to new innovation of leasehold and agro-forestry vegetable production system that have not well recognized before project and very few respondents were adopted at farm at the time before VPPI interventions. Production has been increased very highest in leasehold riverbank (1244 percent) followed by under agro-forestry (473 percent), leasehold normal (215 percent) and semi-commercial (108 percent). compared from before-project intervention scenario.

Adoption of Kitchen Gardening

The survey revealed that about 40 percent of the total sample HHs have adopted kitchen garden. The proportion of kitchen gardening adopters is found to be relatively higher in Makwanpur (73 percent) and Banke (51 percent) compared to Sunsari (6 percent), Rautahat (27 percent) and Morang (31 percent). Kitchen garden adoption is observed to be highest among semi-commercial (51 percent) and lowest under agro-forestry system of vegetable production (8 percent). About 155 sample respondents reported that period of vegetable availability in kitchen garden is seven months in average. The average income from the sale of surplus vegetables from kitchen garden is estimated at NRs. 1500 per household per year.

Increased Household Income

About 83 percent sample respondents reported to increase family income after Plan Nepal VPPI participation. There is no different of the response on changes in household income in semi-commercial, leasehold normal and under agro-forestry vegetable production scheme except leasehold riverbank (52 percent).

On the whole, average household gross income recorded in last year is estimated NRs. 113,008 which is highly contributed from annual vegetable products sale (NRs. 39,845) followed by foreign employment (NRs. 33,300) then non-farm enterprises (NRs. 25,500) and livestock sector (NRs. 14,363). Overall, it is observed that highest total annual household income in Morang PU (NRs. 146,250) and lowest in Banke PU (86,650). Annual household income in last year from different sectors by PUs is statistically significant.

Increasing Saving

About 73 percent of the respondents indicated increment in savings over a period of three years. The proportion of sample respondents reporting increased in saving ranges from 63 percent among semi-commercial vegetable producers to 80 percent among leasehold riverbank producers. The average amount of saving per household is observed to be highest among vegetable under agro-forestry producers (NRs. 28,750) and lowest among leasehold riverbank vegetable producers (NRs.9896).

Food Security

The survey revealed that very positive and statistically significant results on food security among PU and categories of vegetable production scheme. In total, the average period of food sufficiency from own production and farm income has increased from about 6 months to 10 months among the sample household over the period of before program intervention. Whereas, average food sufficiency has increased from 8 months to 10 months among the sample households over the period of last three years. The average period of food sufficiency increased from 7 months to 10 month in Banke PU, from 5 to 11 months in Makwanpur PU, from 3 to 9 months in Rautahat PU, from 6 to 10 months in Sunsari PU and

from 5 to 10 months in Morang PU of among sample household over the period of Before Plan Project Scenario (baseline period).

The average period of food sufficiency increased from about 6 months to 10 months among semi-commercial vegetable producers, from 5 months to 10 months among leasehold normal vegetable growers, from about 3 months to 9 months among leasehold riverbank producers and from 4 months to 10 months among vegetable growers under agro-forestry system

Despite improvement food sufficiency and security situation among PU and categories of vegetable producers, the sample households still face the problem of food shortage for about two to three months a year. To meet the food demand during the deficit period, the sample respondents to have adopted multiple coping strategies mainly working as work labor (about 70 percent) followed by borrowing cash and food (about 20 percent) and others (10 percent) like migration for earning, selling asset and buying on credit basis from local market.

Asset Creation

About 44 percent of the respondents reported to have added physical assets from income of vegetable production over the period of last three years. The average value of assts added during last three years is ranging from NRs. 17, 857 (in Rautahat) to NRs. 178,056 (in Morang) per household.

Improvement in Children Education

There has been positive impact on education of children, both boys and girls as revealed by the survey. After Plan Nepal VPPI intervention, increased expenditure on girls' education was reported by about 91 percent and on boys' education by 91 percent of respondents. Similarly, increased girls' enrollment in school was reported by 94 percent and increased boys' enrollment by 92 percent of respondents. Decreased girls' and boys' school drop out were by 84 percent.

Women Empowerment

The survey revealed that a number of positive and significant changes in women's role and their control over income and household assets after Plan Nepal vegetable production program initiatives. About 76 percent of the respondents reported women participation each in family decision-making process, economic activities and community meetings and decisions. Increased women participation in family decision-making was reported by 81 percent, 80 percent on economic activities and marketing and in decision making on community meeting by 81 percent of respondents. About 75 percent and 69 percent of respondents reported increased level of women's control over income and assets respectively. On the whole, about 14 percent of respondents indicated that household decisions are exclusively made by men while 8 percent reported women in the main role for making household decisions. A majority of 78 percent of respondents indicated that household decisions are jointly made by men and women.

Other Changes

About 58 percent respondents reported increased workload on women. In case of child labor use, 66 percent of respondents indicated reduction compared to only 12 percent reporting increased use of child labor. The reduction in the use of child labor may be partly attributed to program interventions resulting in increased level of family income and partly to increased level of awareness due to other interventions supported by Plan Nepal. These findings reveal that vegetable production program initiatives for livelihood interventions have not produced adverse effects on children in term of work load while increased workload on women. About 46 percent of the sample households reported increased level of expenditure on medical treatment, which indicates partially improved attention to health of the family members. In case of alcohol consumption, about 47 percent of the respondents reported decrease in expenditure while about 24 percent indicated to have no idea about change in expenditure on alcohol consumption.

Sustainability Considerations

At the present stage, the vegetable production program initiatives of Plan Nepal is all most phased out in all PUs and technical and inputs supports are partially provided by the facilitating agencies. It is mature to assess the sustainability of the interventions in the meaningful way. Sustainability is a real sense to assess the project effects after complete phase out of all sorts of support provided by involved agencies. An assessment of the sustainability had been done during survey considering the impression of the participating households and the measures taken towards ensuring sustainability.

About 94 percent respondents reported continuation of vegetable production after Plan Nepal program phase out. About 96 percent of semi-commercial producers, 93 percent of leasehold normal vegetable producers, 92 percent of leasehold riverbank vegetable producers and 85 percent of vegetable producers under agro-forestry scheme expressed their commitment to continuing vegetable production even after phase out Plan Nepal's support. These findings can be considered very positive toward program sustainability, particularly semi-commercial and leasehold vegetable production schemes. Regarding phasing out of subsidy especially in leasehold normal vegetable production, the continuing vegetable production of all beneficiaries has seen drop out and only about 10 to 20 percent are participating continuingly after zero subsidy (after 4-5 years of program) due to alternative options in community. Likewise, similar responses were also found during focus group discussions (FGDs) at various places with different categories of vegetable production scheme. At many place, the households producing semi-commercial and leasehold riverbank vegetable production expressed to have a feeling of pride in doing their own job rather than going for wage labor. They also indicated to use their own saving or taken loan from formal institutions like saving group, cooperative for purchase of inputs if Plan's Nepal support is phased out. About 45 percent households reported to have increased vegetable production (scaling up) than previous areas. Eleven percent household responded decreased area production of vegetable while about 44 percent responded vegetable production area is same as when program intervention.

Regarding phasing out of subsidy, the participating families had mixed reactions. Various measures such as gradual phase out of subsidy, active participation of beneficiaries in the entire process, development of technical local resource person (LRP) at community, saving mobilization, linkage with micro-finance services and establishment of Vegetable Production Apex Body at VDC and district and somehow technical coordinate and register with DADO are the positive symbol towards ensuring the sustainability of the vegetable production program initiatives (VPPI) interventions.

Constraints and Issues

About 79 percent sample households reported to have faced problem related to vegetable production, marketing and acquiring finance. Among the PUs, the proportion of such household reporting problem is highest in Rautahat (90 percent) and lowest in Morang (44 percent). On the whole, about 48 percent respondents ranked vegetable production related problem is first, about 22 percent ranked marketing related problem is first and about 38 percent respondents ranked acquiring finance is the major and first problem for smoothly running their vegetable production scheme at their farm.

In addition, a number of program related issues were indicated during focus group discussions with key beneficiaries and key informants interview. Social mobilization and people animation, which is crucial at all stage of the program, does not seem to have received adequate attention. Technical coordination and linkage with the concerned government line agencies is observed to be weak in some PUs. Linkage between the participants of VPPI and micro-finance institutions (MFIs) has not reached at satisfactory level. Still about 27 percent of borrowers are dependent on informal sources of credit with high interest rate (at 33 to 35 percent). VPPI interventions phased out to be mainly based on the period of implementation and gradual elimination of subsidy on inputs has seemed.

3.4 Child-Centred Community Development

Plan Nepal has addressed CCCD principles in vegetable production program initiatives (VPPI) intervention in all PUs keeping as children in centre and inclusive approach with positive discrimination of women and girls in program participation.

4. Conclusion and Policy Recommendations

Conclusions

- Based on the analysis of information obtained from various sources and considering the suggestions provided by different stakeholders during the survey, following conclusion are made for policy implication and improving overall structure of the program:
- Semi commercial vegetable production is very much effective to initiate commercial vegetable production in all the studied area. The technology is innovative and also replicated by other people in the neighbouring areas due to demonstration effect.
- The food habit of the people of Banke and Rautahat has been changed with the vegetable production program initiative.
- More females are involved in vegetable production initiative program in Sunsari and Morang because male are engaged in labor market.
- Agro-forestry farming is effective to increase the income and livelihood of the poor landless farmers in Rautahat District. Community forestry is optimally used by raising agricultural crops and NTFPs. However, agricultural crops within community forestry are not allowed by Community forestry Development Regulations, 2065.
- Leasehold riverbank cultivation is quite effective in Morang in term of income, skill and optimal used of river bank land. However, leasehold riverbank cultivation is not as much as effective than Morang could be due to technical constraints.
- Some technical problems are identified in Rautahat, Sunsari and Morang for vegetable production which could be due to lack of well-trained agriculture manpower at farmers' level.

Recommendations

Based on findings of the study following policy guidelines are recommended:

- Weak vegetables marketing institutional structure promotion and linkage is observed in all PUs. Well established vegetable markets should be developed through backward linkage with inputs suppliers and forward linkage to the outputs market by considering farmers as a centre.
- Value chain development (VCD) practices should be establish through linkage with input suppliers and output market of vegetable at community and district level for improving sustainable profit to the vegetable producers.
- Provide intensive trainings to the farmers on different scheme of vegetable production and business plan development and marketing initiatives.
- It is desirable to have more emphasis on promotion of Integrated Pest management (IPM) practices, particularly vegetable production in view of increasing trend in the use of pesticides for sustainable production.
- The coverage of MFIs should be expanded with effective linkage with groups involved in vegetable production. This is crucial in view of gradual phasing out of subsidy of inputs.
- It is essential that coordination and working linkage with concerned government line agencies in the district like ASC, DADO, DFO, DDC should be improved furthermore for handover the Vegetable Production Apex Body and groups in a sustainable manner. Such linkage is important not only for the groups in vegetable production but also technical local resource persons (group

leaders, LRPs) for periodic upgrading of their skill, knowledge and attitude in view of changing technology.

- Increased emphasis should be given to gender sensitization, awareness raising and capacity building activities so that more women are actively participated and brought in the forefront in managing vegetable production and marketing.
- Integrated package and participatory action-oriented approaches involving the provision of skill development and entrepreneurship development trainings, credit and market linkage should be adopted in promoting profitable vegetable farming and non-farm enterprises as well.
- Sharing of experiences on regular interval with partner NGOs and other line agencies is essential for effective implementation of the program and avoiding duplication. It is important not only for improving the synergy between various components of the program but also for improving conflicting practices during program implementation and extension services.

1. INTRODUCTION

1.1 Study Background

Plan Nepal is a humanitarian, child focused development organization without religious, political or governmental affiliation, serving in the communities of Nepal since 1978 to uplift the situation of children and women from the deprived and marginalized socio-economic groups. Plan's vision is of a world in which all children realize their full potential in societies, which respect people's rights and dignities. Its mission is to achieve lasting improvements in the quality of life of deprived children in developing countries through a process that unites people across cultures and adds meaning and values to their lives.

Vegetable production is a key activity to support food and income security of the Plan community identified through sub-sector analysis carried out in all the Plan Program Units. Plan is implementing leasehold vegetable scheme, semi-commercial vegetable schemes, riverbank vegetable production scheme, kitchen-home gardening scheme and vegetable production under the leasehold farm forestry. Landless families are either organised under the leasehold or river bank or leasehold farm forestry schemes or provided training and agricultural inputs on a subsidy scheme which goes down every year and ends at the fourth year. Families having some land first enter with the kitchen-home gardening scheme and those who progress well enter into the semi-commercial scheme in the second year. They are also provided subsidized inputs which reduce each year and completes in the fourth year. In all the cases, agricultural technicians from the partner NGO organization, local resource persons (leader farmers) and agro-vet suppliers provide technical backstopping. Producers are organised in the producer's groups and in the Producers apex committees (PACs) in the village development committee (VDC) level and registered with the government agencies.

When vegetable production pockets starts evolving, vegetable collection centres marketing cooperatives and interactive sessions between the wholesale buyers and farmers are organised to promote marketing. Producers are encouraged to join the microfinance program for working capital. Approximately 9,000 families were covered under the vegetable program in the FY 2010 alone.

As a substantial amount of its resource is invested in promoting vegetable production, Plan Nepal is interested to carryout in-depth assessment of this program to ensure that the program is

contributing to increased income and food security of the participating families. It is also crucial for Plan to ensure that the vegetable production is ultimately contributing to the realization of rights of children, especially better nutrition, access to basic health services and education.

Plan is a child centered community development (CCCD) organization, making long-term commitments to children and families living in poverty. So, the overall objective of this program is to increase and sustain disposable family income at the hands of women in the family so that the income would be utilized for the development of their children. Overall objective of Country Program Outline (CPO) for Household Food Security (HFS) is to increase Household capacity to generate sufficient resources to satisfy the basic needs of family, and maintain the stability of family economy during period of economic stress. Over the period of five years started from July 2005 and ended June 2010, this CPO aimed interventions for vegetable production initiatives related are:

- Increase household income of 60% families in Plan community (baseline status 41%).
- Increase income sufficiency to cover household expenses to 50% (Country status 33%, among poorest 17%).
- Decrease food insecure households to 30% in Plan community (56%)
- Provide sustainable financial service to 90% of the Plan community (Baseline 69%)
- Increase joint control of assets by both men and women to 70% in Plan community (Baseline 58%)
- 30% of the micro-finance clients use biogas and/or improved cooking stoves
- 100% Plan communities will have access to privately owned functional multi-purpose nursery (vegetable, fruit, fodder, ornamental Plants), Agro-vet centre and livestock breeding unit

Strategic Responses: The CPO also prescribes a few “strategic response” which are expected to lead to the attainment of the above objectives.

- To enhance the capacity of micro-finance institutions to reach marginalized groups by providing borrower-friendly products and services for both on- and off-farm enterprises
- To promote gender equity, especially in decision-making and socio-economic empowerment

1.2 Objective of the Study

The main objective of the evaluation is to address and assess the program achievement, effects (outcomes) and impact created by the vegetable production program initiatives of Plan Nepal with respect to project objectives and indicators as well as recommend future course of action in line with Plan Nepal Country Program (CP) for Household Economy Security (HES) and Child Centered Community Development (CCCD) approach.

The specific objectives of the study are:

- To assess level of impact on promoting food and income security of families that participated in vegetable production program.
- To assess the extent of transfer of technology, knowledge and skills in producing, diversifying and marketing vegetable by the participating families.
- To assess relevance, effectiveness and sustainability of technical/human, physical and market infrastructures and channels supported to develop the vegetable production sub-sector by Plan for promoting food and income security.
- To assess the extent to which the elements of right-based child centred community development (CCCD) approach have been embedded in its process.

1.3 Expected Outcomes and Scope of the Work

The primary focus of the impact study is on assessing the achievement of the above-mentioned objectives while conducting the field survey, data analysis and report writing.

The impact assessment study attempts to assess changes in the following areas:

- Level of food security at Plan family and community level that participated in vegetable production program initiatives.
- Type and scale of economic activities undertaken for vegetable production and marketing.
- Type of technology, knowledge and skills transfer for producing, diversifying and marketing of vegetables by the participated families.
- Level of Asset:
 - ✓ Financial/Economic- Financial resources, saving, income generated from vegetable production
 - ✓ Physical- Land, house, machinery, equipment, animals and other by ownership
 - ✓ Human- Level of skill, training and education

- ✓ Social- Group formation and mobilization, membership and types, cooperative
- Types of vegetable production scheme (semi-commercial, leasehold, riverbank, agro-forestry) that is more relevance to marginalized, poor, landless, women headed and nearly landless families
- Innovative (River bank, leasehold and semi-commercial vegetable production, Agro-forestry are these effective / innovative for targeted community? And which component (river bank, leasehold and semi-commercial) of these program is more effective and why?).
- How Plan families are participation and contributing in designing, implementing, monitoring and sustaining the program.
- What qualitative changes have been made in the lives of women, children, girls and boys.
- Contribution of Plan Nepal in vegetable production and its sustainability (continuity)
- Social inclusion (Coverage of targeted people, participation of minority groups)
- Employment generation
 - ✓ transfer of technology/skills/knowledge
 - ✓ Players in the market
 - ✓ Access to market
 - ✓ Capacity to influence market
- Utilization of local knowledge
- Utilization of available resources
- Contribution of Plan Nepal on gender empowerment and equity
- Contribution on Capital Formation (saving group, cooperative formation, access to credit, linkage to micro-financial institutions)
- Contribution on Supply Chain Management for inputs, products and market link (Value Chain Development)
- Accountability (Coordination in planning and implementation with line agencies)
- Transparency (Monitoring and supervision in coordinated way)
- What are the major Strength, Weakness, Opportunities and Threat (SWOT) of the Plan Nepal vegetable production program initiative in targeted districts and community?
- How Vegetable Production Program Initiatives (VPPI) is linked/ integrated with other activities (microfinance, health, education, etc.)?
- To what extent the VPPI is being linked to the ones implemented by government (VDC, LDO, DADO and DFO) and other bilateral programs?

- Make policy recommendations for future course of action to be undertaken for improvement of the existing program in alignment with Country Strategy Plan for Household Economic Security and CCCD approach.

The impact assessment survey report has contained details information about food and income security, technology transformation for vegetable production, diversifying and marketing, relevance, effectiveness and sustainability of capital assets development and right-based child centred community development (CCCD) approach of families that participated in vegetable production and market based Value Chain Development program in project districts.

1.4 Understanding the Responsibilities of Consultant Work

The overall consultancy work is carried by 3 Team Members. However, The Team comprises one Team Leader (TL) to coordinate the overall study and liaise with Plan Nepal; and three other Members having wide expertise in Agriculture economics, livelihood, poverty reduction and value chain development types of projects along with an experienced statistician and/or data analyst. Adequate number of Field Researchers (12) were deployed and supervised by the TL and/or TMs to collect field information. Supervision of the field work and quality (reliability and validity) of the data/information collected from the field were recheck by TMs as well as by TL. The study team has worked closely with the Plan Nepal's Project Unit and Project Team. The Team Leader, Project Managers at district level as well as central level of Plan Nepal have been consulted and acquired vital suggestions in each and every steps and process that was carried out. Primarily responsible of the consultancy / consultant team are:

- Review the Household Economic Security program (currently renamed as Household income Program), develop methodology and tools to measure the impact of the program by using both qualitative and quantitative methods.
- Develop / design study including questionnaire for HH survey and checklist and tools for group interaction including FGD at District, VDC and target beneficiaries.;
- share study design including process, methods, survey instrument and questionnaires/checklist with project team, collect feedback and finalize the study design;
- debrief/discuss with project team (to coordinate with Plan Livelihood and Microfinance Coordinators) about effectiveness of questionnaire, checklists and other tools used in pre-test, collect feedback and finalize them;
- orient, train and supervise the field researchers;

- carryout field work in all Plan proposed districts together with field researchers (Survey Instrument was Simple Random Sampling after acquired targeted sample frame, that gives BLUE-(Best, Linear, Unbiased, and Effective) property
- carry out FGD, and KII with Team Leader (Horticulture Specialist) and other Team Members with Value Chain Development Actors (i.e., targeted vegetable producers, middlemen, retainers, wholesalers and others)
- ensure the quality of information collected from fields, cross check with the validity of information collected and verify/revise where needed;
- update progress of the study on weekly basis to Plan Nepal
- analyse data and prepare quality report (by using SPSS version 16).

1.5 Structure of the Report

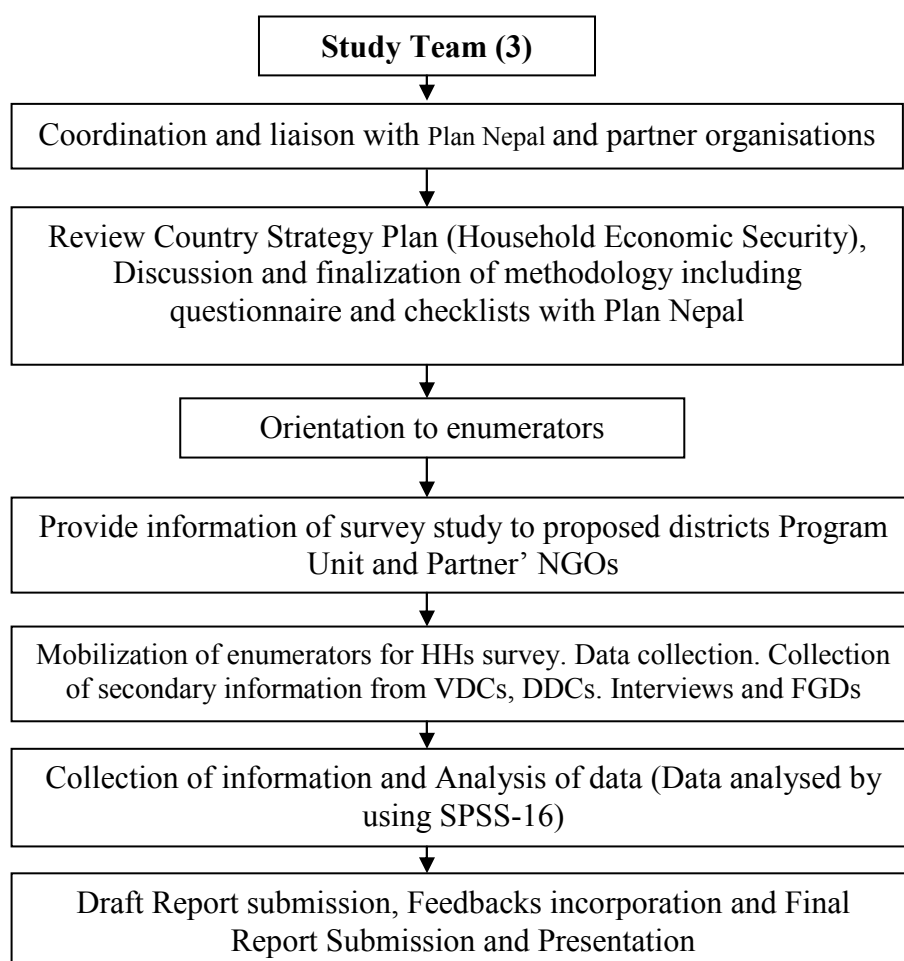
The report is divided in to eight chapters. Chapter one presents the introduction of the study dealing with background information, objectives, expected outcomes and scope of the work, undertaking responsibilities of the consultant work. The approach and methodology of the study are described in Chapter two. Vegetable production and marketing scenario in Nepal is presented in Chapter three. Chapter four provides a brief account of the sample households including demographic and socio-economic profile whereas the implementation mechanism and support services are presented in Chapter five. Chapter six deals with the assessment of various effects and impacts of livelihood intervention and food security including sustainability and analysis of issues with comparative statistics based on different vegetable production schemes. Child-Centred Community Development approach reviewed is presented in Chapter seven. Finally, Chapter eight closes the study report by presenting conclusion of the study and recommendations for further improvement in the program.

2. APPROACH AND METHODOLOGY

2.1 Approach

The study approach has been participatory and result-oriented which involved all the relevant stakeholders in the process through using various tools and technique of Participatory Monitoring and Evaluation (PME) appropriate in the context combined with conventional survey instrument such as household survey for generating the qualitative and quantitative information. To anticipate the objectives of the impact study, information was collected both the secondary as well as primary sources. The methodological approach to address the accomplished outputs of the study is primarily “empirical research” as a substantial amount of data required for the study have been collected from the selected respondents, relevant line agencies, partner NGOs and other key stakeholders in the study districts, supplementary by secondary data collected from various sources. The information has been gathered from several different sources in order to achieve the true picture to make cross-reference as well. Both quantitative and qualitative data have been obtained for the analysis.

General Approach: Following general approach is adopted in study:



2.2 Methodology

2.2.1 Primary Information Collection

2.2.2.1 Study Area and Sampling Procedure

The study was conducted in five districts¹ namely Banke, Makwanpur, Rautahat, Sunsari and Morang in consultation with the concerned officials in Plan Country Office. The sample size for the study was also determined in consultation with the concerned officials. A sample size of 420 households was considered to be fairly representative. The sample was further divided into four types of Vegetable Production Program Initiatives (VPPI) livelihood intervention- (1) Semi-commercial vegetable production on own land, (2) Leasehold normal vegetable production, (3) Leasehold riverbank vegetable production and (4) Vegetable production under Agro-forestry. The distribution of sample households by types of vegetable production schemes (livelihood activities) in each PU is shown in Table 2.1.

Table 2.1: Distribution of Sample Households in Different Types of Vegetable Production Initiatives

Program Unit (PU)	Vegetable Production Program Initiative' Scheme/Type ²									
	Semi-Commercial		Leasehold Normal		Leasehold Riverbank		Agro-forestry		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Banke	104	74.3	30	21.4	6	4.3	0	0	140	100
Makwanpur	70	100	0	0	0	0	0	0	70	100
Rautahat	5	7.1	13	18.6	52	74.3	0	0	70	100
Sunsari	41	58.6	29	41.6	0	0	0	0	70	100
Morang	42	60	8	11.4	7	10	13	18.6	70	100
Total	262	62.38	80	19.05	65	15.48	13	3.09	420	100

Considering the importance given to semi-commercial and leasehold vegetable production program and also large targeted population in these schemes in the study area, relatively high proportion of the sample was allotted for this study. Nevertheless, the samples for four different vegetable production schemes were proportionately divided among the PUs in view of coverage of households by these activities after consultation with the concerned officials in each Plan Nepal Program Unit during first meeting. Consultant was directly concerned with Plan

¹ In ToR six districts were proposed for impact study. However, household survey was done only in five districts PUs (Household survey in field office Bardiya was canceled from official in Plan Country Office). However KII has also been done in Bardiya district by team member).

² Total households population under semi-commercial was 22642, under leasehold was 10659, under river bank was 1457 and under agro-forestry was 2445 in all PUs (Source: Plan Nepal Country Progress Report, 2010 as cited from given ToR).

Livelihood and Microfinance program coordinator in each PU. Total 140 sample size from Banke PU and 70 sample size from in each other PU (i.e. Makwanpur, Rautahat, Sunsari and Morang) were selected based on purposive- random sampling technique.

The list of Plan families covered by Vegetable Production Program Initiatives (Livelihood interventions) in each PU was used as a sampling frame for the selection of sample size/households for survey proposed. Such lists were available by concerned Plan PUs³

The sample households for the survey were randomly selected from the list of households covered by Vegetable Production Program Initiatives (VPPI) livelihood interventions in each PU.

2.2.2.2 Preparation of Questionnaire and Checklists

The consultant team prepared Questionnaire for household survey and Checklist for focus group discussion (FGD) and key informant interview (KII) and submitted the same for comments and feedback to the concerned officials of Plan Nepal Country Office before the start of the field survey and information collection. The survey instruments were finalized by incorporating the client's comments and valuable suggestions (see **Annex 7** for the final version of the questionnaire and **Annex 8** and **9** for Checklist for FGD and KII).

2.2.2.3 Selection and Orientation of Enumerators

Enumerators with some past experience on relevant work and few from education background from agriculture were recruited for household level data collection. The orientation training of enumerators was organized for a day in Fri-PAD office hall, Bharatpur, Chitwan. The training was facilitated by the Team Leader and Other study team members as well as some Fri-PAD Agricultural Program Officers. During the training, the enumerators were given orientation about objectives and scope of the study, sampling and survey procedure, content of the questionnaire including their duties and responsibilities during the field survey period. After the first orientation, role-play among the enumerators was conducted to familiarize them with real situation as well as well known about the contents of survey questionnaire.

³ Morang Plan PU was not provided population frame of the VPPI covered Plan families. So, sample size in Morang was selected information of targeted families' group name provided from FORWARD, Morang.

2.2.2.4 Method of Primary Data Collection

The study team members visited the proposed study districts, selected sample sites/beneficiary groups; and held interactions and discussions with the officials and members of such groups (women, men, DAG and landless), staff of concerned Program Units of Plan Nepal, partner NGOs, relevant district level line agencies (schools, ASC, DADO, DFO, DDC) and other relevant stakeholders to collect primary data information for the study.

During the field work for collection of primary data, all team members (Team leader: Prof. Dr. D. M. Gautam; other team members: R. R. Kattel and D. Dhakal) headed by a team leader and/or project coordinator and two enumerators were mobilized and deployed in each PU. Prior to commencement of the household survey, intensive orientation training was given to all enumerators to ensure consistency in data collection methodology and quality of information. Primary data required for the impact study were collected through a combination of conventional survey methods and various tools and techniques of PME and PRA as described below in details:

- Household Survey

Household survey was carried out by administering semi-structured questionnaire to about one percent (i.e. 420 sample sizes out of 37203 families involved under different scheme of vegetable production program initiatives) of the randomly selected Plan families. Through semi-structural interviews both qualitative and quantitative information were collected, the prime focus was on collection of quantitative data to allow quantification of socio-demographic, economic and other changes brought about by the program interventions. Household survey was carried out by well-trained enumerators having adequate working experience in socio-economic research under supervision of the Team Members.

- Focus Group Discussion (FGD)

With a view to gather information about relevance and effectiveness of vegetable production program initiatives for livelihood interventions, planning and implementation modality, participation of concerned stakeholders including the beneficiaries in the process, program outputs, effects and impacts, and associated constraints and opportunities, focus group discussions (FGDs) were carried out with beneficiaries (women, men, DAGs and landless) in the selected sites in the study districts. Separate group discussions were carried out with different schemes of vegetable production group as well as women and DAG to have a fair representation on all types and categories of beneficiaries. About 12 FGDs (at least 2 FGD from each Plan PU) were carried out in all Plan Program Units covering different schemes of vegetable production. About 8-10 beneficiaries were participated in each FGD. Participatory

group discussion has been conducted through Strength-Weakness-Opportunity-Threat (SWOT) analysis.

Open-ended checklists were developed and used for facilitating the FGD. Focus group discussions were carried out by the team members. Team leader was directly participated in each FGD.

- Key Informant Interviews (KII)

With a view to gather general information relating to vegetable production program initiative for livelihood promotion, planning and implementation mechanism, participating of concerned stakeholders including the beneficiaries in the process, program results, effectiveness and relevancy of the program, associated constraints and suggestion for improvement and sustainability of the program, consultants conducted key informant interview with various stakeholders (i.e. VDC, ASC, DADO, DFO, DDC, schools) in the program districts. The main stakeholders covered by the key informant interview included community and group leaders, other knowledgeable people at the selected sites, officials of concerned Village Development Committees (VDCs) and Local Development Officer (DDC), staff of relevant district level line agencies such as Agriculture Service Centres (ASCs), District Agriculture Development Office (DADO), District Forestry Office (DFO) and staff of Plan Nepal PUs and partners NGOs (i.e. FORWARD, MADE Nepal and SEWAC).

Pre-structure checklists containing open-ended questions were used for key informant interview (KII) to acquire information related to various aspects of the study.

2.2.2.5 Data Quality Assessment

Several steps were taken to ensure the quality of data. The members of core research team supervised the enumerators in the every Plan Program PU and gave them necessary instruction to improve the data quality and also ask for revisited the survey household in necessary. Team leader also visited the field survey teams to see overall field operations. The core team members were in regular contact with the concerned staff of respective PUs and maintained regular communication with the core research team in Kathmandu regarding the process of the study works.

Further, recruitment of enumerators having well socio-economic research experience and maintain gender balance in the team at all level enhanced effective communication with the respondents and ensure the quality of data.

2.2.2 Collection of Secondary Information

Secondary information required for the study was collected through a thorough review of project documents, Evaluation of Country Strategic Plan (2006-2010), mid team evaluation of child centred community development (CCCD) approach, household economic security program summary and thematic reports related to livelihood program interventions. In addition district profile published by DADO from each PU was also collected. The information collected from secondary sources has been used to supplement information collected from primary sources as well as for the purpose of cross-verification wherever relevant.

2.3 Data Cleaning and Missing Data

Data cleaning was conducted after the data entry in SPSS software version 16. It implies detecting and removing errors and inconsistencies in order to improve data quality. Usually, data quality problems are presented in single data collections due to spelling mistakes during data entry, missing information or other invalid response. The major propose of cleaning data is to identify overlapping data, in particular by matching records referring to the same respondent. In general, data cleaning involves two steps: detection and correction of errors in a data set. Errors were detected using mainly four procedures: descriptive, statistics, scatter plots, box plots and histograms.

2.4 Data Processing and Analysis

The outputs, outcomes, effects and impacts of the vegetable production program initiatives (VPPI) of Plan Nepal have been assessed and analysed in the light of the following

- In absence of relevant benchmark information (absence of with-without and before-after research design for impact study), the changes perceived to be brought about by the project interventions are based on the subjective judgement of the beneficiaries and other stakeholders. So, report is more generalized.
- Effects and impacts are medium to long-term results of program intervention. Many of the effects and impacts may appear at a later stage.
- Since Plan Nepal has supported interventions relating to a number of thematic areas such as health, drinking water, education, gender and other aiming child centre approach, some of the effects and impacts might be overlapped and the combined results of livelihood and other interventions.

- Since in many program areas, Plan Nepal has been working for a long time, some of the effects and impacts might be the results of previous intervention⁴ as well (time effects).

All data and information collected from primary and secondary sources were complied, entered into computer, processed, analysed and interpreted to prepare the study report. Data have been analysed by using Statistical Package of Social Science (SPSS version 16). A descriptive statistical analysis of the recorded data, using percentage shares, weighted and non-weighted averages of mean, range and comparative statistical analysis were used for the analysis of quantitative data, whereas descriptive method has been used for the analysis of qualitative data.

⁴ *Previous intervention means may be other project effect supported by either Plan Nepal (naming other program) or other line agencies.*

3. VEGETABLE PRODUCTIONS AND MARKETING SCENARIO IN NEPAL

3.1 Background

Agriculture in Nepal has long been based on subsistence farming where people derive their living from fragmented plots of land cultivated in difficult conditions. The economic well being of Nepal is very closely bound to its natural resources – arable land, water, and forest areas. Although only comprising some 21 percent of land area, agricultural land is the major determinant of economic activities and the nation's socio-political identity; it provides employment opportunities to 66 percent of the total population and contributes roughly 31.4 percent to GDP (www.moac.gov.np). Farming system remains primarily subsistence-oriented, and only a small portion of farms use modern production units. Nepalese agricultural growth is constrained by poor infrastructures, weak institutions, low entrepreneurship skills and inadequate technical support for commercialization and supply chain development. In general, the prevailing weak agricultural growth is not sufficient to boost overall per capita income enabling economic transformation in the country.

Among the commercially important agricultural commodities of Nepal, vegetables (cabbage, cauliflower, cucumber, tomato, onion, chilli, potato and brinjal) have been identified as some of the most promising crops for increasing incomes of smallholder farmers through improved production and marketing practices. Given the priority accorded to the vegetable production and marketing and its potential to mitigate rural poverty, this study conducted impact assessment of vegetable production initiative of Plan Nepal

3.2 Production and Marketing

Horticultural crops are the dominant sector of Nepalese agriculture. Horticulture crops contribute 14 % agriculture GDP (APSD/GEED, 2005). Cash crops which include vegetables, fruits, potatoes and sugarcane account for roughly 20 percent of the total cultivated area (FAO/WFP, 2007) The share of horticulture to the AGDP has increased in recent years. By realizing the importance and role of horticulture, the Agriculture Perspective Plan (APP) has targeted the growth rate of horticulture GDP to 5.5 percent per annum by 2014/2015 and growth rate of vegetable GDP in particular to 5.42 percent per annum. Among the horticultural crop, the vegetable sector has the most significant contribution to total horticultural GDP. At present, more than two hundred vegetable species are grown in the different climatic zones of Nepal, out of which fifty species and their varieties are grown on the commercial basis (Shrestha *et al.*,

2004). In 2009/2010, production of vegetable was 3,003,821 MT from an area of 235,098 ha at an average yield of 12.77 MT/ha (MOAC, 2010).

According to standards set forth by dieticians and nutritionists, the minimum per capita per day requirement of vegetables is 300 gm. The vegetable intake by Nepali people is very low compared to this standard, with a deficiency of 60 percent in relation to vegetable production (Gautam and Bhattarai, 2006). Growing demand of vegetables is increasing day by day due to a major shift by people living in the country to healthy food, increased income, population growth and urbanization. Vegetables have become an integral part of a balanced diet, and play a vital role in providing nutritional security. A result has been an improvement in the financial situation among a majority of small-scale farmers.

A wide range of agro-ecological variation creates a comparative advantage for the production of different vegetable crops. The production of seasonal and off-season vegetables, utilizing these ecological niches, could be extremely beneficial in the context of nutrition, employment, and livelihood improvement of small farmers. The Nepalese government is also emphasizing the commercialization of vegetable production through value chain approach and considered it as an important cash crop that could enhance the income level of farmers and thus help reduce the incidence of poverty (TYIP, 2010).

Tomato, cauliflower, cabbage, cucumber, onion and chili are the major vegetables of Nepal. Among them, the cultivation of tomato, cauliflower, and cabbage are the most popular and the most profitable (NARC, 2006). In terms of production, cauliflower is the most highly cultivated vegetable at 404,580 MT, followed by tomato (317,657 MT) and cabbage (302,067 MT) (Prasain, 2011). Due to the higher return per unit of land, the area, production, and productivity of vegetables is increasing day by day. Nonetheless, Terai region produces and sells more vegetables, vegetables grown in the hilly region have greater value; these vegetables are produced during the rainy season when prices are higher (Prasain, 2011). Moreover, off season vegetables produce in the hills gate comparative benefit because it is offseason in terai belt and India (Gautam & Bhattraai, 2011).

Table 3.1: Area, Production and Yield of Vegetables in Nepal

Year	Area (ha.)	Production (MT)	Yield (Kg/ha)
1999/2000	149,030	1,489,665	9996
2000/2001	157,162	1,652,979	10,518
2001/2002	161,048	1,738,086	10,792
2002/2003	165,988	1,799,973	10,844
2003/2004	172,586	1,890,100	10,952
2004/2005	180,823	2,065,193	11,421
2005/2006	189,832	2,190,100	11,537
2006/2007	191,922	2,298,689	11,977
2007/2008	208,108	2,538,904	12,200
2008/2009	225,154	2,754,406	12,233
2009/2010	235,098	3,003,821	12,777
Growth rate pa	5.1%	9.1%	2.4%

Source: MOAC, 2010

The details of area, production, and productivity of Nepal are shown in Table 1. Particularly, the area and production level of vegetables increased significantly between 2000 and 2010. However, there is steady increase in yield per hectare over the period.

4. CHARACTERISTICS OF SAMPLE HOUSEHOLDS

The survey collected data regarding socio-economic characteristics of Plan Nepal targeted vegetable producers, including age, gender, household head, caste, education status, family size, major occupation, operating land and land holding pattern of the respondents.

4.1 Age, Gender, HH Head and Social Background of the Respondents

With respect to age of the respondent, it was found that the producers are an average 39.5 years old. The age of the sample respondent ranges from 35.9 years in Banke to 43.1 years in Morang, Program Unit. Of the total sample population, 49.3 percent are male and 50.7 percent are female. The average sample male ranges from 21.4 percent to 77.1 percent in Sunsari and Morang respectively, whereas average female ranges from 22.9 percent to 78.6 percent in Morang and Sunsari districts respectively. Out of 420 sample respondents, 50.5 percent (212) are household head in their family. With respect to ethnicity/caste, the respondents are categorized into five groups based on their caste, namely Brahmin, Chhetri, Indigenous (Gurung, Tamang, Newar, Tharu, Chaudhary, etc.), Dalit and Madheshi. In average, 48.8 percent are Indigenous group, 31.9 percent are Madheshi, followed by 8.8 percent of Dalits, 6.9 percent Brahmin and 3.6 percent are Chhetri. Indigenous group are major in Makwanpur, Banke and Sunsari districts, whereas Madheshi group are dominated in Rautahat and Morang districts. The information on age, gender, HH head and ethnicity/caste in different PUs is presented in Table 4.1.

Table 4.1: Age, Gender, HH Head and Social Background of the Respondents by Plan Nepal PUs

Characters	Program Unit					
	Banke	Makwanpur	Rahutahat	Sunsari	Morang	Total Average
Age (in Year)	35.9	40.1	41.9	39.8	43.1	39.47
Gender						
-Male	84 (60)	18 (25.7)	34 (48.6)	15 (21.4)	54 (77.1)	207 (49.3)
-Female	56 (40)	52 (74.3)	36 (51.4)	55 (78.6)	16 (22.9)	213 (50.7)
HH head						
-Yes	68 (48.6)	36 (48.6)	42 (60)	18 (25.7)	48 (68.6)	212 (50.5)
-No	72 (51.4)	34 (51.4)	28 (40)	52 (74.3)	22 (31.4)	208 (49.5)
Caste						
-Brahmin	20 (14.3)	-	1 (1.4)	4 (5.7)	4 (5.7)	29 (6.9)
-Chhetri	12 (8.6)	3 (2.9)	-	1 (1.4)	-	15 (3.6)
-Indigenous	53 (37.9)	68 (97.1)	15 (21.4)	42 (60)	27 (38.6)	205 (48.8)
-Dalit	12 (8.6)	-	9 (12.9)	7 (10)	9 (12.9)	37 (8.8)
-Madheshi	43 (30.7)	-	45 (64.3)	16 (22.9)	30 (42.9)	134 (31.9)

Note: Figures in parenthesis indicate percent.

4.2 Education Status

The information on education status of the sample population in different PUs is presented in Table 4.2. The overall literacy rate of the sample respondent is 55.7 percent whereas average year of schooling is estimated 3.03 years. Among five PUs, the literacy rate is found to be highest in Morang and lowest in Rautahat. Most of the literate sample population have attained primary and secondary level of education and only 8 percent attained collage/university degree. More interesting, majority of illiterate respondents are found in Banke and Rautahat as compared to Morang, Makwanpur and Sunsari Program Units.

Table 4.2: Education Status of the Sample Respondents

Variables	Program Unit					
	Banke	Makwanpur	Rautahat	Sunsari	Morang	Total Average
Illiterate	55 (39.3)	30 (42.9)	55 (78.6)	36 (51.4)	10 (14.3)	186 (44.3)
Literate only	17 (12.1)	8 (11.4)	2 (2.9)	9 (12.9)	25 (35.7)	61 (14.5)
Primary Level	31 (22.1)	16 (22.9)	4 (5.7)	6 (8.6)	10 (14.3)	67 (16.0)
Lower Secondary	14 (10.0)	8 (11.4)	3 (4.3)	6 (8.6)	15 (21.4)	46 (11.0)
Secondary	11 (7.9)	6 (8.6)	3 (4.3)	9 (12.9)	-	37 (8.8)
Higher Secondary	7 (5.0)	2 (2.9)	2 (2.9)	4 (5.7)	8 (11.4)	15 (3.6)
Collage/University	5 (3.6)	-	1 (1.4)	-	2 (2.9)	8 (1.9)
Total literate	85 (60.7)	40 (57.1)	15 (21.4)	34 (48.6)	60 (85.7)	234 (55.7)
Average year of schooling (years)	3.54	2.70	1.46	2.96	3.99	3.03

Note: Figures in parenthesis indicate percent.

Out of total sample, 49.3 percent are male and 50.7 percent are female.

4.3 Family Size

The average family size of the sample respondents ranges from 5.07 HH members in Sunsari to 7.6 members in Banke PU with an overall average of 6.5 members. Out of total population, 51 percent are male and 49 percent are female.

Table 4.3: Average Family Size and Distribution of Family Members by Age Groups

Program Unit	Less than 15 Years				15-60 Years				Above 60 Years				Total				Av. Family Size
	Male		Female		Male		Female		Male		Female		Male		Female		
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
Banke	196	37	191	36	317	59	319	60	20	4	23	4	533	50	533	50	7.62
Makwanpur	45	22	34	19	146	71	133	73	14	7	15	8	205	53	182	47	5.5
Rautahat	102	41	92	42	141	56	121	55	7	3	6	3	250	53	219	47	6.7
Sunsari	44	25	54	30	123	71	113	64	7	4	10	6	174	49	177	51	5.07
Morang	67	29	83	36	147	64	131	56	15	7	18	8	229	50	232	50	6.6
Overall	454	33	454	34	874	63	817	61	63	4	72	5	1391	51	1343	49	6.51

Out of total male in family 33 percent are aged below 15 years, 63 belong to the age of 15-60 years, and 4 percent are aged above 60 years. Likewise, out of total female in family, 49 percent

of the population are female of which 34 percent aged below 15 years, 61 percent belong to the age group of 15-60 years, and 5 percent are of age above 60 years (Table 4.3). Thus, about 27.5 percent of the population are children, 67.5 percent are economically active and five percent are elderly people in sample household.

4.4 Main Occupation

Majority of sample respondents reported that agriculture as their main occupation for their livelihood in all the Plan Nepal Program Units (PUs). Among the sample population, about 94 percent sample respondents reported that agriculture as their main occupation followed by wage labor (14 percent) and business (7 percent). A very small portion of the respondents are involved in service (two percent) and three percent are other (Table 4.4). In Makwanpur and Sunsari PUs, all of the sample respondents have only agriculture as the main occupation.

Table 4.4: Main Occupation of Sample Respondents (Farmers)

Program Unit	Main Occupation				
	Agriculture	Wage labor	Business	Service	Other
Banke	130 (92.9)	4 (2.9)	2 (1.4)	1 (0.7)	3 (2.1)
Makwanpur	70 (100)	-	-	-	-
Rautahat	70 (100)	-	-	-	-
Sunsari	62 (88.6)	3 (4.3)	4 (5.7)	1 (1.4)	-
Morang	62 (88.6)	7 (10)	1 (1.4)	-	-
Total	394 (93.8)	14 (3.3)	7 (1.7)	2 (0.5)	3 (0.7)

4.5 Operating Land

On the whole, about 77 percent of the sample respondents have their own operating land whereas 23 percent are landless (Table 4.5). The proportion of landless households is higher in Sunsari (about 41 percent) followed by Rautahat (30 percent) and Banke (23 percent). The proportion of landless is lower in Makwanpur (about 8 percent) and Morang (17 percent).

Table 4.5: Distribution of sample households with and without operating land

Program Unit	With operating land		Without operating land		Total	
	No.	%	No.	%	No.	%
Banke	108	77.1	32	22.9	140	100
Makwanpur	69	98.6	1	8.4	70	100
Rautahat	49	70	21	30	70	100
Sunsari	41	58.6	29	41.4	70	100
Morang	58	82.9	12	17.1	70	100
Overall	325	77.4	95	22.6	420	100

The average size of operated own landholding of the sample respondents ranges from 7.25 Kaththa Khet in Makwanpur to 18.77 Kaththa Khet in Morang, whereas 4.64 Kaththa Bari in

Sunsari to 7.36 Kaththa Bari in Rautahat. In overall, average 16.34 Kaththa Khet and 5.54 Kaththa Bari are own operating land (Table 4.6).

Table 4.6: Ownership Pattern and Average Size of Operated Land (in Kaththa)

Program Unit	Own Land		Rented in		Other		Operated Average size
	Khet ⁵	Bari ⁶	Khet	Bari	Khet	Bari	
Banke	17.54	5.06	5.7	2.6	9.89	2.91	21.37
Makwanpur	7.25	5.79	-	-	2	-	14.08
Rautahat	12.05	7.36	7.31	21.25	9.2	18.55	17.21
Sunsari	26.63	4.64	10	2.07	20	-	16.21
Morang	18.77	6.67	23.58	5.53	10.35	2	25.31
Overall	16.34	5.54	9.04	4.30	9.76	10	19.51

The average size of the total operated landholding (own land plus rented in land and other like agro-forestry land) of the sample households ranges from 14.08 Kaththa (0.40 ha) in Makwanpur to 25.31 Kaththa (1.27 ha) in Morang with an overall of 19.51 Kaththa (0.98 ha). Majority of total operating land is lowland in all the PUs except Rautahat. The proportion of rented in land is quite high in Morang, Sunsari, Rautahat and Banke, whereas no rented in land in Makwanpur. The average size of rented in land of the sample respondent ranges from 9.04 Kaththa (0.45 ha) Khet and 4.30 Kaththa⁷ (0.22 ha) Bari land. Regarding land ownership, exclusively ownership by men is recorded at 91 percent men of sample respondent out of 420 whereas only 9 percent is exclusively owned by women.

⁵ Khet is Lowland (at least possible to grow lowland rice in season having irrigation facility) in both terai and hill context.

⁶ Bari is Upland (No irrigation facility to grow lowland rice in season) in both terai and hill context.

⁷ 20 Kaththa = 1 Biga (30 Kaththa=20 Ropani = 1 hectare)

5. IMPLEMENTATION MECHANISM AND SUPPORT SERVICES

5.1 Implementation Mechanism

The Vegetable Production Program Initiatives (VPPI) for Plan family livelihood is implemented with a number of NGOs and Plan Nepal plays the facilitating, proposal development and execution with partnership approach, regular supervision and monitoring role in the process.

In Banke Plan Nepal PU, the main partner NGO involved in program execution and implementation of VPPI for livelihood was Rural Welfare and Agricultural Reform (FORWARD). Currently, this program is hand over to the producers' group under direct supervision of Development Coordinators (DC), Banke PU. FORWARD has provided technical and micro-finance support in farm enterprises for promoting semi-commercial, leasehold normal and riverbank vegetable production and marketing linkage to the selected Plan families of landless, marginalized disadvantage groups (DAGs), women and landless. There has been weak linkage between VPPI livelihood program and DADO, Banke in program approach and execution of technical support to the program' participating households.

The main partner NGO in Makwanpur PU is also FORWARD. The livelihood program is smoothly running by executing FORWARD in Makwanpur and it provides technical support in agricultural intervention through promoting kitchen garden, semi-commercial and commercial vegetable production to the targeted women, dalits, indigenous DAGs and marginalized Plan family. There is strong coordination with District Agriculture Development Office (DADO), Makwanpur for promoting agricultural based farmers' livelihood in VPPI. DADO also provides technical support and training for vegetable production to the Plan family in coordination with Makwanpur PU and FORWARD.

In Rautahat PU, the main partner NGO involved in the implementation of VPPI livelihood program is Multi-dimensional Agriculture for Development (MADE-NEPAL). MADE has provided technical support in agricultural intervention for vegetable production. The partnership between Plan Nepal Rautahat PU and MADE is terminated.

In Sunsari PU, Social Empowerment and Building Accessibility Center-Nepal (SEBAC-Nepal) is the main partner NGO to execute Livelihood Improvements through Agriculture and Natural Resource Management Program (LIANRM-P). SEBAC- Nepal has provided technical assistance in agriculture related interventions including semi-commercial and leasehold vegetable

production. There is good coordination between Plan Nepal livelihood program and DADO, Sunsari in training parts and other technical backstopping to the targeted beneficiaries.

In Morang PU, the main partner NGO involved in the implementation of VPPI livelihood program is FORWARD. Development Project Service Centre (DEPROSC) had provided micro-finance services to the vegetable producer' groups in past. In Morang, there is strong technical coordination between Morang PU, FORWARD and DADO, Morang for promoting semi-commercial, leasehold normal, leasehold riverbank and under agro-forestry vegetable production. DADO has provided training and other technical support for market linkage and farmers' coordination.

Characteristics of all components of VPPI:

Semi-commercial, leasehold normal, leasehold river bank and vegetable production under agro-forestry system are the components in vegetable production program initiatives (VPPI). Semi-commercial vegetable production is the scheme of producing vegetable in own cultivated land by target beneficiaries whereas vegetable producing in lease-in land is leasehold normal and producing vegetable in lease-in river basin land is called leasehold riverbank. Vegetable production under agro-forestry system in lease is called agro-forestry scheme. Semi-commercial vegetable production scheme is focused to the families having own cultivated land whereas leasehold normal, river bank and under agro-forestry scheme vegetable production are focusing to the landless and near about landless families for income generation and food security.

5.2 Implementation Process

The vegetable production program initiatives (VPPI) for livelihood program has special focus on the inclusion of women, deprived communities, disadvantage and marginalized groups (DAGs), landless or near landless households. Participatory and action-oriented approach has been reported to adapt right from the selection of the households to preparation and planning, appraisal, implementation, monitoring and evaluation of program intervention. Community participation through internal demand-driven approach has been prioritized and emphasized for reflecting people's needs and key interests and creating a feel of ownership among the participating families. More specifically, group approach is followed in the implementation of program interventions, particularly semi-commercial vegetable production, leasehold normal vegetable production and leasehold riverbank vegetable production focusing landless or near landless families, and vegetable production under agro-forestry system. In general, integrated approach involving the provision of skill development training, inputs, technical assistance and

marketing support is adopted in the implementation of program interventions. There are two types of linkage. One on hand, inputs- supply approach in backward linkage actor is adopted for timely supply of quantity and quality of inputs for achieving vegetable production target. One the other hand, forward linkage has been developed for establishing vegetable market outlets through establishing vegetable markets like hat bazaar and collection centre in near production area. In addition, efforts have been made to link the beneficiaries of VPPI interventions with micro-finance institutions for provision of financial services at low interest rate in time.

Inputs subsidy has been used as a means to mainstream the beneficiary households in the implementation and development process. In leasehold and semi-commercial vegetable production of vegetable, the participating families usually contribute only labor and available organic manure in the first year, 25% of the total input cost in the second year, 50% in the third year, 75% in the fourth year and 100% in the fifth year and thereafter. Beyond fifth year, only essential technical support is provided at a reduced level. Participatory households are responsible to carry out all activities themselves.

5.3 Access to Support Services

The information on access of sample households to various services and inputs is presented in Table 5.1. Out of 420 total sample respondents, the recipients of various inputs include: agriculture inputs like vegetable seeds, equipments/treadle pump (about 87 percent); institutional loan (about 3 percent); agriculture extension services (59 percent), veterinary services and medicine (about 19 percent); compost preparation input support like E.M. (45 present); chemical fertilizers (about 61 percent) and insecticide (53 percent). The proportion of the respondents reporting to have received services and inputs is higher in Rautahat and Makwanpur as compared to other PUs. Moreover, most of the respondents reporting that they have received the agri-inputs like vegetable seed, equipment for constructing Rainwater Harvesting Pond (in Makwanpur) and treadle pump (in Sunsari, Morang), and sprayer, chemical fertilizers in subsidy, agri-extension services in time and insecticide.

Table 5.1: Response on Access to Services and Inputs

Type of Support (Received-Yes)	Program Unit										
	Banke		Makwanpur		Rautahat		Sunsari		Morang		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No. %
Agri. inputs	113	80.7	64	91.4	68	97.1	58	82.9	62	88.6	365 86.9
Inst. Loan	8	5.7	1	1.4	0	0	1	1.4	1	1.4	11 2.6
Agri. extension	88	62.9	55	78.6	67	95.7	20	28.6	19	27.1	249 59.3
Veterinary	14	10	5	7.1	57	81.4	2	2.9	0	0	78 18.6
Compost	31	22.1	52	74.3	62	88.6	42	60	3	4.3	190 45.2
Chemical fertilizer	56	40	59	84.3	67	95.7	66	94.3	7	10	255 60.7
Insecticide	45	32.1	60	85.7	64	91.4	50	71.4	5	7.1	224 53.3

5.4 Access to Credit

About 79 percent of the sample household out of 240 reported to have easy accessed the credit from formal and informal initiations like saving and credit group and cooperative in village as well as some time from local money lenders and friends at high interest rate at 24 to 60%. The access the credit is observed to be highest in Rautahat (99 percent) followed by Makwanpur (93 percent), Sunsari (76 percent), Banke (75 percent) and lowest in Morang (52 percent). There is no significant difference in the access to credit among four categories of vegetable production scheme. Nevertheless, access to credit observed to be highest for the household produced leasehold riverbank vegetable (89 percent) and lowest for vegetable production under agro-forestry scheme (62 percent). Access to credit for sample respondents is provided in Table 5.2.

Table 5.2: Access to Credit at Formal/Information Credit Institution**Unit: Percent**

Program Unit	Vegetable Production Scheme				Total (N=240)
	Semi-commercial (n=262)	Leasehold Normal (n=80)	Leasehold riverbank (n=65)	Under Agro-forestry (n=13)	
	%	%	%	%	%
Banke (n=140)	55	70	100	-	75
Makwanpur (n=70)	70	-	-	-	93
Rautahat (n=70)	100	100	96	-	99
Sunsari (n=70)	83	69	-	-	76
Morang (n=70)	60	13	71	62	52
Overall	78	63	89	62	79

Proportion of sample households borrowing credit within last one year is presented in Table 5.3. Out of 240 sample households, about 54 percent reported to have borrowed credit within last one year. The proportion of borrowed is observed to be highest in Rautahat (93 percent) and lowest in Morang (38 percent). There is no significant difference in the proportion of borrowers among the semi-commercial (63 percent), leasehold normal (60 percent) and leasehold riverbank

(47 percent) vegetable production excepting vegetable production under agro-forestry system (15 percent).

Table 5.3: Proportion of Sample Respondents Borrowing Credit within Last One Year

Unit: Percent

Program Unit	Vegetable Production Scheme				Total (N=420)
	Semi-commercial (n=262)	Leasehold Normal (n=80)	Leasehold riverbank (n=65)	Under Agro-forestry (n=13)	
	%	%	%	%	
Banke	55	57	33	-	48
Makwanpur	54	-	-	-	54
Rautahat	100	100	79	-	93
Sunsari	60	21	-	-	41
Morang	45	62	29	15	38
Overall	63	60	47	15	54

The information on average amount of loan and its terms and conditions by sources is illustrated in Table 5.4. Out of the total borrowers, 73 percent took credit from institutional sources of which 15 percent borrowed from micro-finance institution, 23 percent from bank, 10 percent from cooperative and 25 percent from village level saving and credit group. About 27 percent of borrowers took loan from informal sources of which 16 percent from local money lender and 11 percent from relatives and friends. The average amount of loan per household is estimated at NRs. 24,525. The average size of credit is observed to be largest in case of local money lender (NRs. 44,333) and smallest in case of cooperative and saving group. The average rate of interest per annum ranges from 17 percent on credit from cooperative and saving group to 35 percent on credit from local money lender. The average duration of loan is observed for 12 months varies from 8 months in credit from saving group to 15 months in credit from relatives and friends (Table 5.4).

Table 5.4: Average Loan Amount, Interest Rate and Duration by Sources

Source	Borrower		Average loan amount (NRs.)	Interest rate (%)	Average duration (Month)
	No.	%			
Micro-finance Institution	32	15	20875	20	14
Bank	49	23	31531	20	13
Cooperative	21	10	11743	17	10
Saving group	53	25	13670	17	8
Local Money lender	33	16	44333	35	14
Relatives/Friends	22	11	23068	33	15
Total	210	100	24525	23	12

Among various purposes, about 60% credit has been used for farming. 52 percent borrowers used credit for other purpose while 30 percent borrowers used credit for buying livestock, 21 percent for house construction or maintenance and 18 percent for business. The borrowed credit used for different purposes is presented in Figure 5.1 Borrowed credit used for different proposed by Plan Nepal Program Unit also provided in Pie Chart of Figure 5.2. Most of the borrowers were used credit for farming purpose first in all district than buying livestock and business purposes.

Figure 5.1: Purposes of the borrowed credit used by the sample households

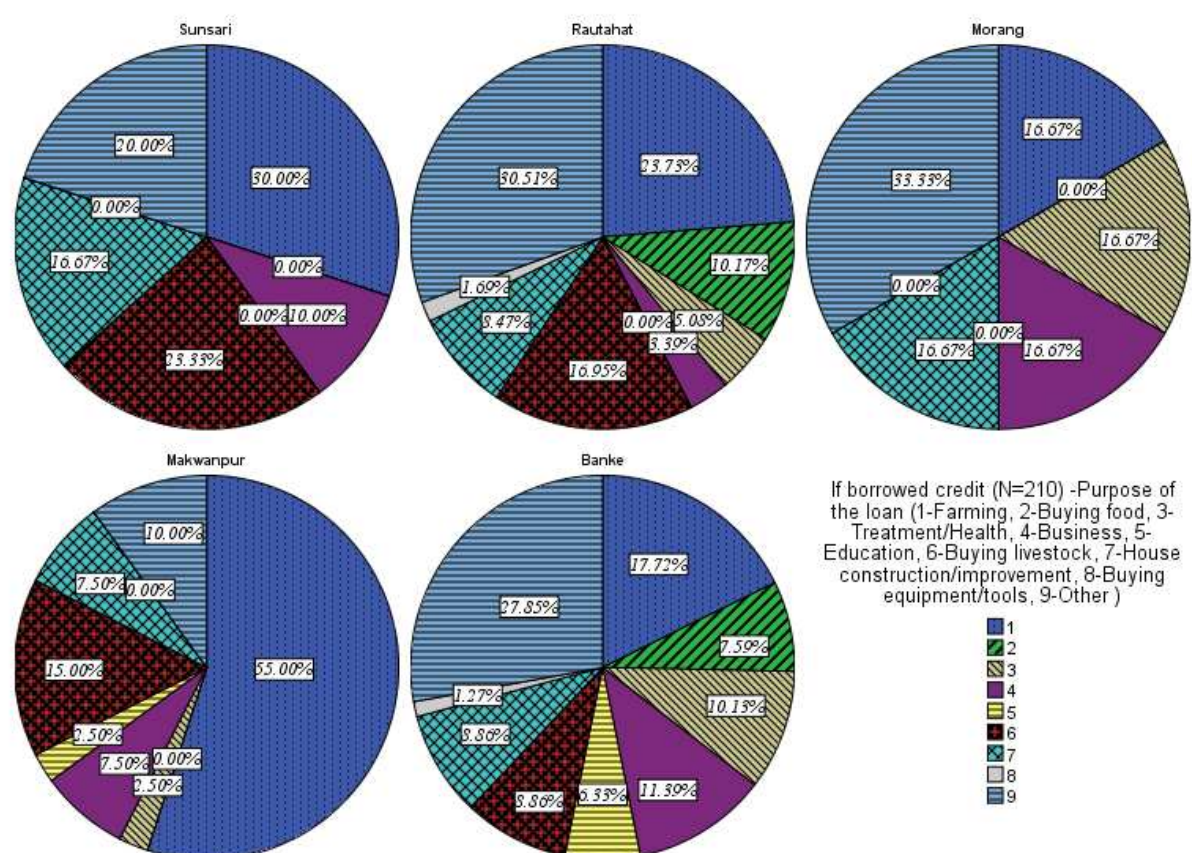


Figure 5.1: Purposes of the borrowed credit used by the sample households by PU

5.5 Access to Training, Agro-vet, LRP

Various skill development trainings have been provided to families participating VPPI livelihood program. The information of the proportion of households receiving training last three years is shown in Table 5.5. About 64 percent of the sample households reported to have received vegetable production, marketing and other skill development training. Among the five PUs, the proportion of such households is highest in Sunsari (94 percent) and lowest in Banke

(57 percent). On other hand, the proportion of sample households receiving training is highest among leasehold riverbank vegetable producers (71 percent) and lowest among vegetable producers under agro-forestry system (46 percent)

Agro-vets in community supported by Plan Nepal:

Out of 420 respondents, about 75 percent (131) reported that agro-vets facility has been provided by Plan Nepal. Out of 131, about 97 percent (127) have taken services from agro-vets.

Known Local Resource Person (LRP)⁸ on vegetable production prepared by Plan Nepal:

-Out of 420 sample households, 53 percent (224) are well known about LRP.

-Among 224 respondent households about 93 percent have taken services from LRP.

5.5 Proportion of Sample Households Receiving Basic Training

Unit: Percent

Program Unit	Vegetable Production Scheme				
	Semi-commercial (n=262)	Leasehold Normal (n=80)	Leasehold Riverbank (n=65)	Under Agro-Forestry (n=13)	Total (N=420)
Banke	41	41	17	-	40
Makwanpur	74	-	-	-	74
Rautahat	60	50	81	-	74
Sunsari	93	96	-	-	94
Morang	64	62	43	46	59
Total	62	65	71	46	64

Note: Out of 420 survey households, 63.6 percent (267) had received training on vegetable production, nursery preparation or Integrated Pest Management (IPM), and/or Local Resource Person (LRP) on vegetable.

Market outlets supported by Plan Nepal:

Out of 420, about 25 percent (102) reported market outlets facilities supported by Plan Nepal. About 66 percent (67 out of 102) have taken service from market outlets: About 76 percent have taken service from collection centre for their vegetable sale whereas 10 percent have used the marketing cooperative for their vegetable sale and about 14 percent have used the market centre for their vegetable sale in the markets.

⁸ LRP is a technical local resource person prepared by Plan Nepal from vegetable production intervention program. LRP is also model/leader farmer in vegetable production group and have basic and advance training on vegetable production in different scheme.

Technical Knowledge Update through:

About 57 percent respondents have updated their technical knowledge through community level local resource person (LRP). Twenty four percent respondents reported to have updated their technical knowledge on vegetable production through agro-vets whereas about 23 percent respondents reported to have updated their technical knowledge through government officials and staff like JT, JTA.

6. EFFECTS AND IMPACTS

6.1 Increased Production of Vegetable

The average area, production and sale revenue of vegetables per sample households per year in different schemes of vegetable production initiatives are shown in Table 6.1. The average area and production of vegetables are found to be highest among leasehold riverbank followed by semi-commercial and under agro-forestry system vegetable producers. However, total sale revenue is found to be highest among semi-commercial vegetable producers (NRs. 43,355) followed by leasehold normal and others. Over the period after vegetable production program initiatives (within 5-7 years), the overall area of vegetables has increased by about 290 percent⁹, production of vegetable has increased 339 percent and sale revenue by 399 percent.

Over the period, area of vegetables has increased highly in leasehold normal (586 percent) followed by leasehold riverbank (498 percent), vegetable under agro-forestry (290 percent) and semi-commercial (163 percent). This is due to new innovation of leasehold and agro-forestry vegetable production system that have not well recognized before project and very few respondents were adopted at farm at the time before VPPI interventions. Production has been increased very highest in leasehold riverbank (1244 percent) followed by under agro-forestry (473 percent), leasehold normal (215 percent) and 108 percent production has been increased compared from before-project in semi-commercial vegetable production.

Table 6.1: Average Area, Production and Sale Value of Vegetables in Last Year and Before Project by Type of Vegetable Production Schemes

Vegetable Scheme	Recorded Last Year			Before Plan Nepal Project		
	Area (Kathata)	Production (Kg./HH)	Sale (NRs.)	Area (Kathata)	Production (Kg./HH)	Sale (NRs.)
Semi-commercial	5.26	2403	43355	2	1158	17981
Leasehold Normal	2.98	2413	33848	0.5	765	3000
Leasehold Riverbank	5.86	4503	30768	0.98	335	9378
Under Agroforestry	3.36	2579	31427	1.0	450	5560
Overall	4.37	2975	34850	1.12	677	6980

Likewise, annual sale revenue of the sample household is found to have increased highest in leasehold normal (1028 percent) followed by vegetable under agro-forestry (465 percent), leasehold riverbank (228 percent) and then semi-commercial vegetable production (141 percent).

⁹ Compared based on Before Project Intervention Scenario (based line data) through re-called method with respondent during household survey.

Drastically increment of the vegetable area, production and sale revenue compared to before program interventions may be due to multiplier effect of vegetable production program focused on landless and nearly landless families and time effects.

Average area, production and sale of vegetables per sample household per year by Plan Nepal Program Units are shown in Table 6.2. Average area, production and sale revenue of vegetable recorded in last year higher in Morang and Sunsari. However, the level of increment in area is observed to be higher in Makwanpur (285 percent) and Rautahat (251 percent) and increment of the area observed to be lowest in Morang (56 percent) and Banke (65 percent) and Sunsari (79 percent). Also, increment in vegetable production is observed to be highest in Makwanpur (740 percent) and lowest increment compared to other PUs is Banke (147 percent) and Morang (198 percent). Further, increment in sale revenue from vegetables is also observed to be highest in Makwanpur (285 percent) and Rautahat (251 percent) whereas lowest increment compared to other PUs is observed in Morang (87 percent).

Table 6.2: Average Area, Production and Sale of Vegetables by Program Units

Program Unit	Recorded Last Year			Before Plan Project		
	Area	Production ¹⁰	Sale	Area	Production	Sale
	Kaththa	Kg.	NRs.	Kaththa	Kg.	NRs.
Banke	3.37	1234	24652	2.04	499	5863
Makwanpur	5.51	2345	43953	1.43	279	5949
Rautahat	5.69	1880	27844	1.62	288	8189
Sunsari	3.28	3510	40023	1.83	881	13400
Morang	7.27	3956	62754	4.65	1327	33500
Overall	5.02	2583	39845	2.31	641	13380

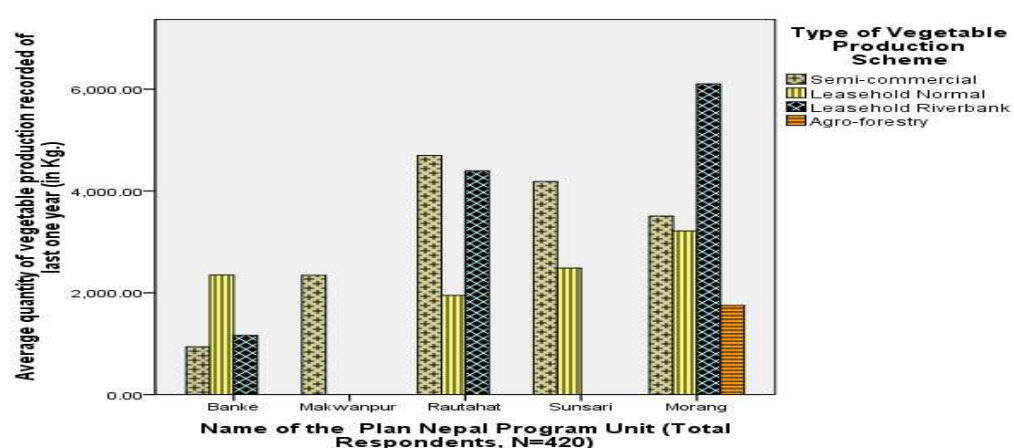


Figure 6.1: Vegetable Production Recorded in Last Year by PUs and Types
(Source: Household Survey, 2068)

¹⁰ In all PUs, major vegetables grown are: Cauliflower, Cabbage, Broccoli, Tomato, Onion, Potato, Leafy vegetable, Chilli, Brinjal, Beans and Capsicum. (in addition: Carrot, Potato, Garlic, Ginger and Turmeric are high grown as semi-/commercial system in Makwanpur whereas Water melon, Pumpkin and guard are highly grown in Morang and Rautahat specially under leasehold riverbank vegetable farming.

6.2 Adoption of Kitchen Gardening¹¹

The survey revealed that about 40 percent (i.e. 168 sample households in out of 420) of the total sample HHs have adopted kitchen garden (Table 6.3). The proportion of kitchen gardening adopters is found to be relatively higher in Makwanpur (73 percent) and Banke (51 percent) compared to Sunsari (6 percent), Rautahat (27 percent) and Morang (31 percent). Kitchen garden adoption is observed to be highest among semi-commercial (51 percent) and lowest under agro-forestry system of vegetable production (8 percent).

About 155 sample respondents reported that period of vegetable availability in kitchen garden is seven months in average. The average income from the sale of surplus vegetables from kitchen garden is estimated at NRs. 1500 per household per year. Promoting kitchen gardening is one of the important activities under the livelihood program with the objective of improving the nutrition of participating families through increased consumption of vegetables and increasing their income through sale of surplus vegetable.

Table 6.3: Proportion of Sample Households Practicing Kitchen Gardening¹²

Unit: Percent

Program Unit	Vegetable production Scheme (N=420)				
	Semi-commercial	Leasehold Normal	Leasehold Riverbank	Under Agro-forestry	Total
Banke	48	53	100	-	51
Makwanpur	73	-	-	-	73
Rautahat	0	0	8	-	27
Sunsari	45	11	-	-	6
Morang	33	0	57	8	31
Total	51	24	21	8	40
Period of vegetable availability from kitchen gardening (n=155) is 7 months (average)					
Average income from sale of kitchen gardening vegetables (HH/year) is estimated at NRs. 1500.					

6.3 Increased Household Income

The VPPI has been implemented in all Plan Nepal PUs aimed at increasing the income of the participating families through technology intervention, adoption and promoting for different schemes of vegetable production initiatives according to ecological setting and niche based comparative advantages. The information on changes in income in last year after Plan Nepal project is presented in Table 6.4. In total, about 83 percent sample respondents reported to increase family income after Plan Nepal livelihood program participation. However, 7 percent reported decreased income and about 9 percent respondents reported to be same.

¹¹ Kitchen gardening and home gardening both are same.

¹² All the households doing semi-commercial are also not doing kitchen gardening.

Table 6.4: Response on Changes in Household Income After Plan Nepal Program

Vegetable Production Scheme	Increased		Decreased		Same		Don't Know		Total Responses
	No.	%	No.	%	No.	%	No.	%	
Semi-Commercial	201	85.2	13	5.5	21	8.9	1	0.4	236
Leasehold Normal	64	86.5	8	10.8	1	1.4	1	1.4	74
Leasehold Riverbank	14	51.9	3	11.1	7	25.9	3	11.1	27
Under Agro-forestry	11	84.6	0	0.0	2	15.4	0	0.0	13
Overall	290	82.9	24	6.9	31	8.9	5	1.4	350

The response on changes in family income after program intervention by types of vegetable production scheme and Plan Nepal PUs are shown in Figures 6.2 and 6.3 respectively. There is no different of the response on changes in Household income in semi-commercial, leasehold normal and under agro-forestry vegetable production scheme except leasehold riverbank (52 percent).

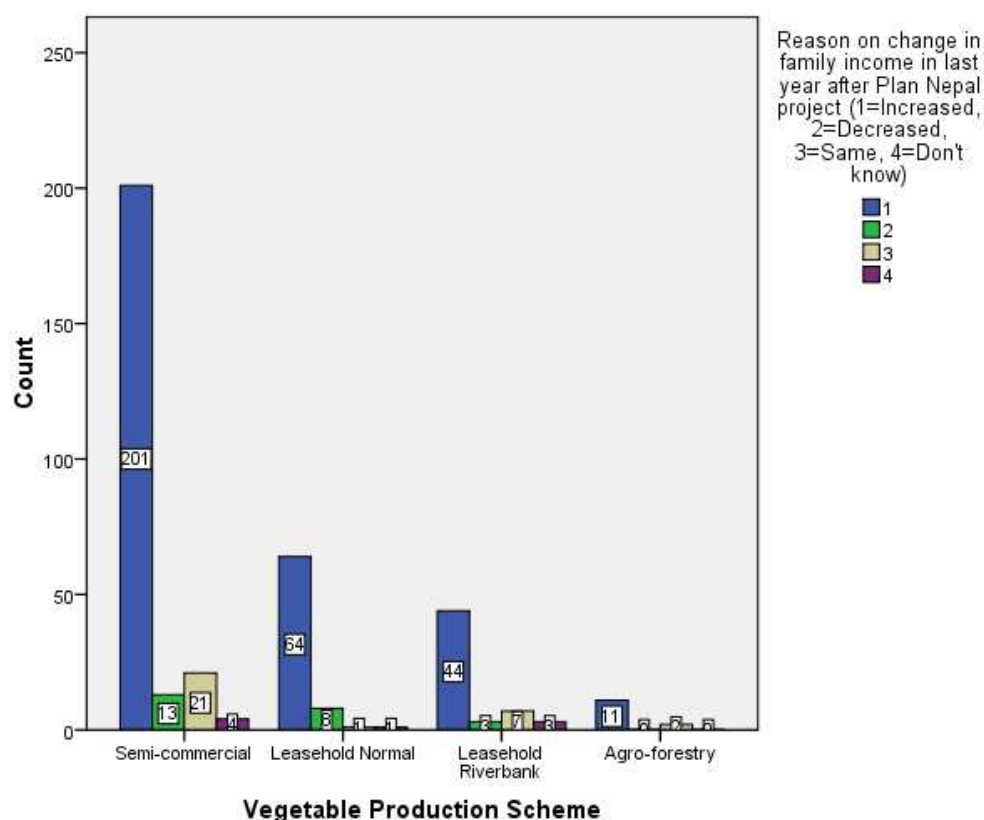


Figure 6.2: Response in Changes Family Income in Last Year After Plan Nepal by Vegetable Production Scheme

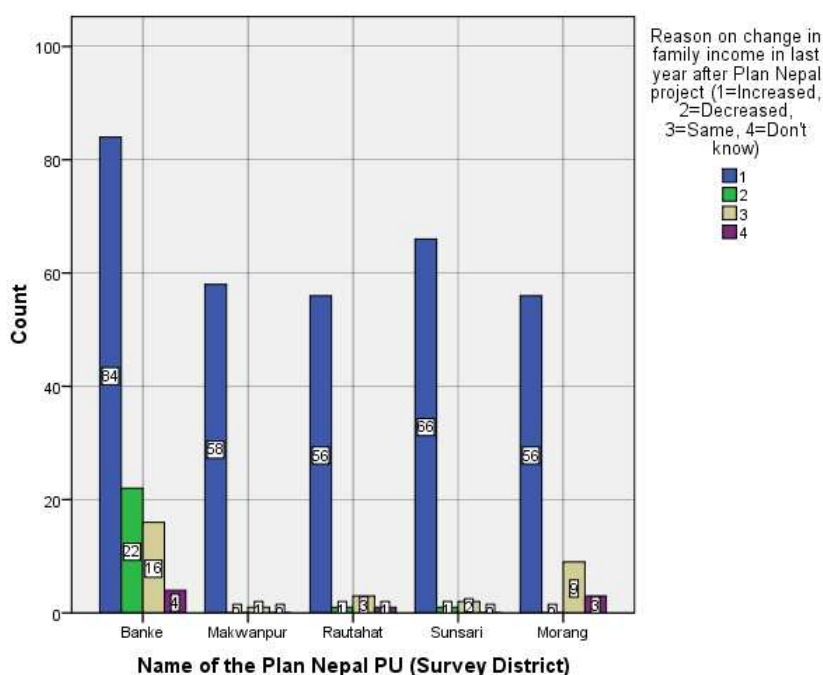


Figure 6.3: Response in Changes Family Income in Last Year After Plan Nepal VPPI by PUs

Average household income from different sectors recorded in last year is shown in Table 6.5. On the whole, average household gross income recorded in last year is estimated NRs. 113,008 which is highly contributed from annual vegetable products sale (NRs. 39,845) followed by foreign employment (NRs. 33,300) then non-farm enterprises (NRs. 25,500) and livestock sector (NRs. 14,363). Overall, it is observed that highest total annual household income in Morang PU (NRs. 146,250) and lowest in Banke PU (86,650). Furthermore, annual household income in last year from different sectors by PUs is statistically significant at 1%, 5% and 10% level of significant

Table 6.5: Average Income of the Respondent HH from Different Sector in Last Year

Income Source	Program Unit					Total Average		F-test
	Banke	Makwanpur	Rautahat	Sunsari	Morang	No.	Income	
	(NRs.)	(NRs.)	(NRs.)	(NRs.)	(NRs.)		(NRs.)	
Cash crops (only vegetable)	24652 ^a	43953 ^{ab}	27844 ^a	40023 ^{ab}	62754 ^b	420	39845	7.2***
Livestock	16005 ^b	13000 ^a	14242 ^{ab}	18568 ^a	10000 ^a	219	14363	2.9**
Non-farm enterprises	25000 ^{ab}	18999 ^a	31000 ^{ab}	20000 ^a	32500 ^b	142	25500	4.2*
Foreign employment	19000 ^a	40000 ^b	29500 ^{ab}	37000 ^{ab}	41000 ^b	68	33300	7.8***
Overall	84657	115952	102586	115591	146254		113008	

Note: ***significant at 1% level, **significant at 5% and *significant at 10% level. Turkey test was used.

6.4 Increasing Saving

Out of total sample households, 73 percent reported increment the saving status whereas about 15 percent reported no change in saving. The proportion of sample respondents reporting increased saving ranges from 63 percent among semi-commercial vegetable producers to 80 percent among leasehold riverbank producers. The increment in saving status may be attribute to increase awareness and capacity building as well as increased level of income resulted from vegetable production program initiative for livelihoods. Response on change in saving over last three year due to vegetable production is presented in Table 6.7.

Table 6.6: Response on Changes in Saving Over Last Three Year

Vegetable Production Scheme	Increased		Decreased		Same		Don't Know		Total Responses
	No.	%	No.	%	No.	%	No.	%	
Semi-Commercial	171	65.3	14	5.3	53	20.2	24	9.2	262
Leasehold Normal	62	77.5	3	3.8	10	12.5	5	6.3	80
Leasehold Riverbank	52	80.0	1	1.5	8	12.3	4	6.2	65
Under Agro-forestry	9	69.2	0	0.0	2	15.4	2	15.4	13
Overall	294	73.0	18	2.7	73	15.1	35	9.2	420

- 320 sample households (76.2 percent) have some saving each year.
- 275 sample households (65.5 percent) out of 240 have yearly saving from vegetable production.

The average amount of saving per household is observed to be highest among vegetable under agro-forestry producers (NRs. 28,750) and lowest among leasehold riverbank vegetable producers (NRs.9896). Average amount of saving among four categories of vegetable production is shown in Figure 6.4.

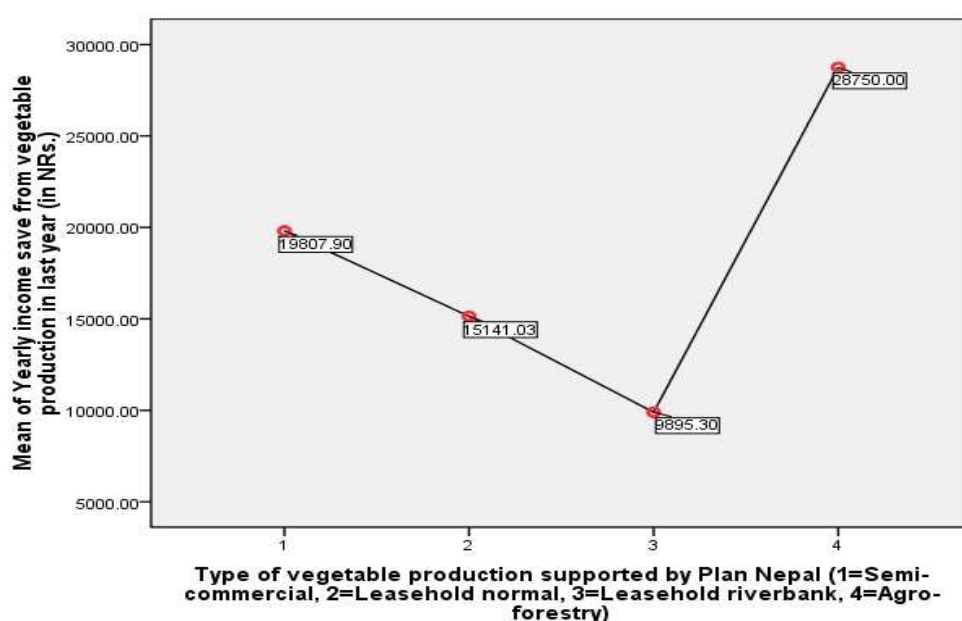


Figure 6.4: Average Saving Amount of the Sample Household

6.5 Food Security

The main objective of VPPI livelihood program is to improve food security among the participating households. The survey revealed that very positive and statistically significant results among PU and categories of vegetable production scheme. In total, the average period of food sufficiency from own production and farm income has increased from about 6 months to 10 months among the sample household over the period of Before Project (Before-After Project Scenario). Whereas, average food sufficiency has increased from 8 months to 10 months among the sample households over the period of last three year project scenario (Table 6.7 and Table 6.8). The average period of food sufficiency increased from 7 months to 10 month in Banke PU, from 5 to 11 months in Makwanpur PU, from 3 to 9 months in Rautahat PU, from 6 to 10 months in Sunsari PU and from 5 to 10 months in Morang PU of among sample household over the period of Before Plan Project Scenario (baseline period).

Table 6.7: Level of food sufficiency by Program Unit

Unit: Month (Average)

Program Unit	Before Plan Project	Three Years Ago	Last Year
Banke	6.91 ^(a)	8.38 ^(ab)	9.64 ^(ab)
Makwanpur	4.67 ^(ab)	9.21 ^(a)	10.66 ^(b)
Rautahat	3.30 ^(b)	7.31 ^(b)	9.30 ^(a)
Sunsari	5.51 ^(c)	7.25 ^(b)	10.15 ^(ab)
Morang	5.21 ^(c)	7.53 ^(b)	9.79 ^(ab)
Overall	5.62	8.02	9.88
F-test	7.343***	3.99***	2.144*

Note: ***significant at 1% level, **significant at 5% and *significant at 10% level. Turkey test was used for homogeneity test in ANOVA.

The average period of food sufficiency increased from about 6 months to 10 months among semi-commercial vegetable producers, from 5 months to 10 months among leasehold normal vegetable growers, from about 3 months to 9 months among leasehold riverbank producers and from 4 months to 10 months among vegetable growers under agro-forestry system (Table 6.7 and Figure 6.5).

Table 6.8: Level of food sufficiency by Vegetable Production Scheme

Unit: Month (Average)

Production Scheme	Before Plan Project	Three Years Ago	Last Year
Semi-commercial	6.28 ^(a)	8.49 ^(a)	10.19 ^(a)
Leasehold Normal	4.75 ^(ab)	7.47 ^(ab)	9.51 ^(ab)
Leasehold Riverbank	3.31 ^(b)	6.89 ^(ab)	9.23 ^(ab)
Under Agro-forestry	3.72 ^(b)	5.81 ^(b)	8.27 ^(b)
Overall	5.62	8.02	9.88
F-test	6.98***	5.52***	3.41**

Note: ***significant at 1% level, **significant at 5% and *significant at 10% level. Turkey test was used for homogeneity test in ANOVA.

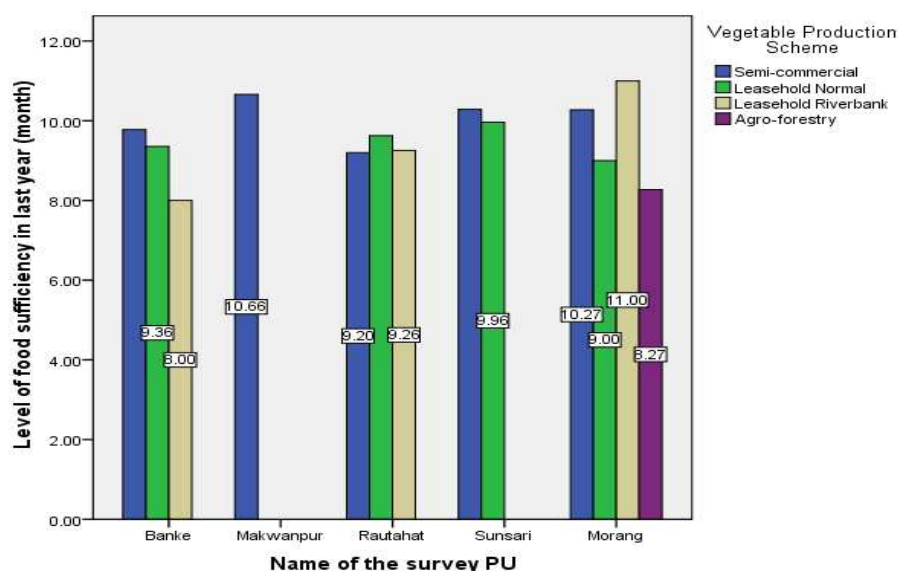


Figure 6.5: Level of Food Sufficiency/Security in Last Year by PU and Production Scheme

Despite improvement food sufficiency and security situation among PU and categories of vegetable producers, the sample households still face the problem of food shortage for about two to three months a year. Only about 50 percent (211 in out of total 420 sample) sample respondents have food sufficient for 12 months among PUs. To meet the food demand during the deficit period, the sample respondents to have adopted multiple coping strategies mainly working as work labor (about 70 percent) followed by burrowing cash and food (about 20 percent) and others (10 percent) like migration for earning, selling asset and buying on credit basis from local market.

6.6 Asset Creation

Out of 420 sample respondents, 44 percent (184 respondents) reported to have added physical assets from income of vegetable production over the period of last three years. The average value of assets added during the last three years is estimated highest in Morang PU of Semi-commercial vegetable production scheme (NRs. 178,056) and lowest in Rautahat PU of leasehold normal vegetable production (NRs. 17,857). Total value of assets added by PU and type of vegetable production scheme is presented in Figure 6.7.

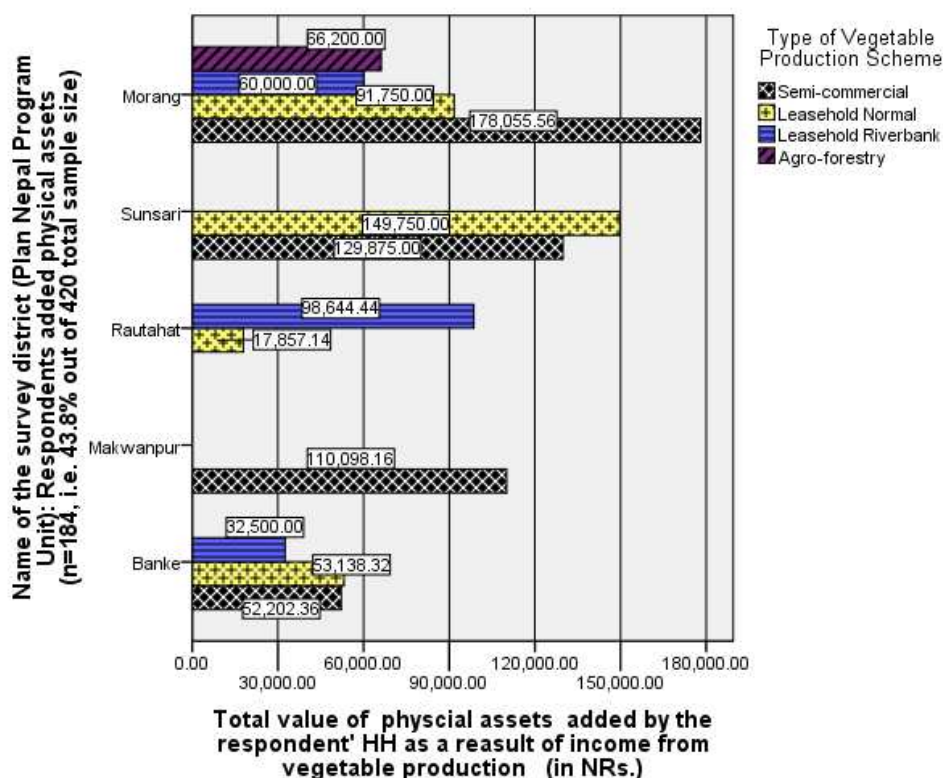


Figure 6.6: Household's Physical Asset Added Value by PUs and Type of Vegetable Production Scheme.

6.7 Improvement in Children Education

There has been positive impact on education of children, both boys and girls as revealed by the survey (Table 6.9). After Plan Nepal VPPI livelihood program intervention, increased expenditure on boys' education reported by about 91 percent and girls' education by 91 percent. Likewise, girls' and boys' school dropout were decreased by 84 percent. Increased girls' enrollment in school was reported by 94 percent and increased boys' enrollment by 92 percent of respondents. Increased in girls' and boys' enrolment and decreased girls' and boys' drop out in school may be due to impact of vegetable production tied up with awareness generating activities in group. Very few respondents (about 6 percent) reported increased in girls and boys drop out from school may be due to work load increased for vegetable production in family.

Table 6.9: Response on Changes in Children's Education after Plan Nepal Vegetable Production Support

Particular	Increased		Decreased		Same		Don't Know		Total Responses
	No.	%	No.	%	No.	%	No.	%	
Expenditure on Boys' Education	357	90.6	2	0.5	31	7.9	4	1.0	394
Expenditure on Girls' Education	362	91.2	1	0.3	30	7.6	4	1.0	397
Girls' Enrollment	369	93.7	6	1.5	14	3.6	5	1.3	394
Girls' Drop Out	23	6.5	296	83.9	29	8.2	5	1.4	353
Boys' Enrollment	358	91.6	10	2.6	17	4.3	6	1.5	391
Boys' Drop Out	28	7.8	298	83.5	23	6.4	8	2.2	357

6.8 Women Empowerment

The survey revealed that a number of positive and significant changes in women's role and their control over income and household assets after Plan Nepal vegetable production program initiatives (Table 6.10). About 76 percent of the respondents reported women participation each in family decision-making process, economic activities and community meetings and decisions. Increased women participation in family decision-making was reported by 81 percent, 80 percent on economic activities and marketing and in decision making on community meeting by 81 percent of respondents. About 75 percent and 69 percent of respondents reported increased level of women's control over income and assets respectively.

Table 6.10: Response on Changes in Various Aspects Concerning Women's Empowerment after Plan Nepal Vegetable Production Program Initiatives

Particular	Increased		Decreased		Same		Don't Know		Total Responses
	No.	%	No.	%	No.	%	No.	%	No.
Women participation in family Decision Making	326	80.9	25	6.2	51	12.7	1	0.2	403
Women participation on Economic Activities	319	79.2	34	8.4	48	11.9	2	0.5	403
Women participation in Marketing	319	79.2	34	8.4	47	11.7	3	0.7	403
Women's Control Over Income	301	74.5	38	9.4	62	15.3	3	0.7	404
Women's Control Over Assets	277	68.9	35	8.7	89	22.1	1	0.2	402
Women's participation in Community Meeting	326	80.7	32	7.9	44	10.9	2	0.5	404
Women's participation in Community Decision	293	72.9	36	9.0	72	17.9	1	0.2	402
Opportunity for Women 's free movement	286	71.3	37	9.2	54	13.5	24	6.0	401
Overall	2447	75.9	271	8.4	467	14.5	37	1.2	3222

The information of the level of participation of men and women in household decision-making process is shown in Table 6.11. On the whole, about 14 percent of respondents indicated that household decisions are exclusively made by men while 8 percent reported women in the main role for making household decisions. A majority of 78 percent of respondents indicated that household decisions are jointly made by men and women.

Table 6.11: Participation of Men and Women in Household Decision Making

Particular	Men		Women		Joint		Total Responses
	No.	%	No.	%	No.	%	No.
Vegetable production	54	12.9	50	12.0	313	75.1	417
Vegetable marketing	56	13.7	55	13.4	298	72.9	409
Changing cropping pattern	57	13.8	43	10.4	312	75.7	412
Changing seed options	59	14.3	43	10.4	310	75.2	412
Management of income generating activity	84	20.0	28	6.7	307	73.3	419
Cash utilization	71	17.2	25	6.1	316	76.7	412
Borrowing	74	18.0	33	8.0	305	74.0	412
Loan utilization	68	16.7	25	6.1	315	77.2	408
Purchasing Assets	65	16.0	24	5.9	318	78.1	407
Selling Assets	49	12.8	21	5.5	312	81.7	382
Saving	68	16.8	61	15.1	276	68.1	405
Other crop production and sale	50	13.1	24	6.3	308	80.6	382
Livestock raising	38	9.2	25	6.1	350	84.7	413
Marriage	39	9.7	23	5.7	342	84.7	404
Family planning	31	7.5	24	5.8	356	86.6	411
Children's education	29	7.1	21	5.2	356	87.7	406
Investment on enterprises	62	15.8	21	5.3	310	78.9	393
Overall	954	13.8	546	7.9	5404	78.3	6904

6.9 Level of Confidence of Participating Households

The level of confidence in undertaking vegetable production activities was rated high by about 79 percent, medium by 18 percent and low by about 3 percent of the respondents. The information on the level of confidence of the participating households in undertaking vegetable production activities is shown in Table 6.12. The proportion of households reporting high level of confidence is highest in Sunsari (96 percent) and Makwanpur (94 percent) and that with low level of confidence is highest in Rautahat.

Table 6.12: Response on Level of Confidence in Undertaking Vegetable Production Activity

Program Unit	High		Medium		Low		Total Response
	No.	Percent	No.	Percent	No.	Percent	
Banke	56	40.00	82	58.57	2	1.43	140
Makwanpur	66	94.29	4	5.71	0	0.00	70
Rautahat	56	80.00	7	10.00	7	10.00	70
Sunsari	67	95.71	2	2.86	1	1.43	70
Morang	59	84.29	8	11.43	3	4.29	70
Overall	304	78.86	103	17.71	13	3.43	420

Information regarding level of confidence of the participating households in undertaking vegetable production by categories of scheme is presented in Table 6.13. The level of confidence in undertaking vegetable production activities was rated high by about 72 percent, medium by 21 percent and low by about 7 percent of the respondents. The proportion of households reporting

high level of confidence is highest under leasehold normal (75 percent) followed by leasehold riverbank (72 percent) and semi-commercial (71 percent) and that low level of confidence is highest under vegetable production in agro-forestry scheme.

Table 6.13: Response on Level of Confidence in Undertaking Vegetable Production Activity by Vegetable Production Scheme

Type of Vegetable Production Scheme	High		Medium		Low		Total Response
	No.	Percent	No.	Percent	No.	Percent	No.
Semi-commercial	186	70.99	72	27.48	4	1.53	262
Leasehold Normal	60	75.00	20	25.00	0	0.00	80
Leasehold Riverbank	47	72.31	11	16.92	7	10.77	65
Agro-forestry	9	69.23	2	15.38	2	15.38	13
Overall	302	71.88	105	21.20	13	6.92	420

6.10 Other Changes

The information regarding various changes after Plan Nepal vegetable production program initiatives is shown in Table 6.14. The survey finding indicate that there has been increasing work load on women after program intervention. About 58 percent respondents reported increased workload on women. It is also generally believed that implementation of income generating activities increase workload on women. In case of child labor use, 66 percent of respondents indicated reduction compared to only 12 percent reporting increased use of child labor. The reduction in the use of child labor may be partly attributed to program interventions resulting in increased level of family income and partly to increased level of awareness due to other interventions supported by Plan Nepal. These findings reveal that vegetable production program initiatives for livelihood interventions have not produced adverse effects on children in term of work load while increased workload on women.

Table 6.14: Response on Miscellaneous Change After Plan Nepal Vegetable Production Program Initiatives

Particulars	Increased		Decreased		Same		Don't Know		Total Response
	No.	%	No.	%	No.	%	No.	%	No.
Work load on women	243	57.9	90	21.4	78	18.6	3	0.7	414
Use of child labor	51	12.1	277	66.0	39	9.3	44	10.5	411
Expenditure on medical treatment	195	46.4	132	31.4	81	19.3	4	1.0	412
Expenditure on alcohol consumption	35	8.3	197	46.9	99	23.6	81	19.3	412

About 46 percent of the sample households reported increased level of expenditure on medical treatment, which indicates partially improved attention to health of the family members. In case of alcohol consumption, about 47 percent of the respondents reported decrease in expenditure

while about 24 percent indicated to have no idea about change in expenditure on alcohol consumption. It can be said that expenditure on alcohol consumption has decreased due to program intervention, which has positive effect.

6.11 Sustainability Considerations

At the present stage, the vegetable production program initiatives of Plan Nepal is all most phased out in all PUs and technical and inputs supports are partially provided by the facilitating agencies. It is mature to assess the sustainability of the interventions in the meaningful way. Sustainability is a real sense to assess the project effects after complete phase out of all sorts of support provided by involved agencies. An assessment of the sustainability had been done during survey considering the impression of the participating households and the measures taken towards ensuring sustainability.

The information on continuation of vegetable production after Plan Nepal vegetable production program initiatives phase out is presented in Table 6.15. About 94 percent respondents reported continuation of vegetable production after Plan Nepal program phase out. The reason for not continuing vegetable production by some people (6 percent) were due to (i) Availability of easy money; some of the strong people who have good stamina go to the forest collect wood and sell to the market. They earn 1000-1500 per day by selling fuel wood (in Banke); (ii) Long growing period: production of vegetable needs patience. Vegetables require a minimum of 30 days and above for production; (iii) High production risk: some times, vegetable suffer from disease, pest and environmental hazards; and (iv) Not customary: vegetable production is new approach and is not customary. Generally people easily adapt customary practices which his parents had done in the past.

Table 6.15: Response on Continuation of Vegetable Production After Plan Nepal Interventions Phase Out

Vegetable Production Scheme	Yes		No		Total Response
	No.	Percent	No.	Percent	
Semi-commercial	251	96	11	4	262
Leasehold normal	74	93	6	7	80
Leasehold riverbank	60	92	5	8	65
Agro-forestry	11	85	2	15	13
Overall	396	94	24	6	420

About 96 percent of semi-commercial producers, 93 percent of leasehold normal vegetable producers, 92 percent of leasehold riverbank vegetable producers and 85 percent of vegetable producers under agro-forestry scheme expressed their commitment to continuing vegetable

production even after phase out Plan Nepal's support. These findings can be considered very positive toward program sustainability, particularly semi-commercial and leasehold vegetable production schemes. Regarding phasing out of subsidy especially in leasehold normal vegetable production, the continuing vegetable production of all beneficiaries has seen drop out and only about 10 to 20 percent are participating continuingly after zero subsidy (after 4-5 years of program) due to alternative options in community. Likewise, similar responses were also found during focus group discussions (FGDs) at various places with different categories of vegetable production scheme. At many place, the households producing semi-commercial and leasehold riverbank vegetable production expressed to have a feeling of pride in doing their own job rather than going for wage labor. They also indicated to use their own saving or taken loan from formal institutions like saving group, cooperative for purchase of inputs if Plan's Nepal support is phased out (**Refer Annex 2** for details findings from focus group discussions (FGDs) in all PUs).

Findings from focus group discussions were indicated that semi-commercial vegetable farming is very much effective to initiate commercial vegetable production in all the studied area. The technology was good innovation and was replicated by other people in the neighbouring areas. Lack of availability of enough suitable land in lease was the major bottleneck in extending more are for vegetable production. Leasing land was the main problem for individual farmer. Besides, competition with Indian product and lack of irrigation, unavailability of fertilizers and quality inputs during sowing time were the problems.

Vegetable production under agro-forestry farming was effective to increase the income and livelihood of the poor landless farmers. Good maintenance of community forest was made by the involvement. Ginger, Turmeric, and various medicinal plants have been grown successfully inside the forest area and under high tension electricity line. It was noticed that growing Turmeric and Ginger inside the community forest was against the **Community Forest Act 2065**. Agro forestry under high tension electricity was very much impressive. However, in the long run it may create problem for forest encroachment. Some technical problems were identified for the selection of land in Rautahat, Sunsari and Morang, for vegetable production which could be as because there was lack of well-trained agriculture personals in Plan office.

These who expressed their commitment for continuing vegetable production even after phase out Plan Nepal' supports, response on scaling up is shown in Table 6.16. About 45 percent households reported to have increased vegetable production (scaling up) than previous areas.

Eleven percent household responded decreased area production of vegetable while about 44 percent responded vegetable production area is same as when program intervention.

Table 6.16: If Yes (continuing), Response on Scaling Up After Plan Nepal Vegetable Production Program Initiatives Phased Out

Vegetable Production Scheme	Increased		Decreased		Same		Total Response
	No.	%	No.	%	No.	%	No.
Semi-commercial	104	41	5	2	143	57	252
Leasehold normal	32	43	8	11	34	46	74
Leasehold riverbank	15	25	7	12	38	63	60
Agro-forestry	8	70	2	20	1	10	10
Overall	158	45	22	11	216	44	396

Regarding phasing out of subsidy, the participating families had mixed reactions. Various measures such as gradual phase out of subsidy, active participation of beneficiaries in the entire process, development of technical local resource person (LRP) at community, saving mobilization, linkage with micro-finance services and establishment of Vegetable Production Apex Body at VDC and district and somehow technical coordination and registration with DADO are the positive symbol towards ensuring the sustainability of the vegetable production program initiatives (VPPI) interventions.

6.12 Constraints and Issues

About 79 percent sample households reported to have faced problem related to vegetable production, marketing and acquiring finance. Among the PUs, the proportion of such household reporting problem is highest in Rautahat (90 percent) and lowest in Morang (44 percent). On the whole, about 48 percent respondents ranked vegetable production related problem is first, about 22 percent ranked marketing related problem is first and about 38 percent respondents ranked acquiring finance is the major and first problem for smoothly running their vegetable production scheme at their farm. The information regarding problem related vegetable production, marketing and finance reported by respondents is presented in Table 6.17.

Table 6.17: Problem Related to Vegetable Production, Marketing and Finance

Problem	Program Unit											
	Banke		Makwanpur		Rautahat		Sunsari		Morang		Total Average	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Problem faced (Yes)	119	85	62	88.6	63	90	58	82.9	31	44.3	330	78.6
Production is major *	102	72.9	39	55.7	32	45.7	32	45.7	9	12.9	202	48.1
Marketing is major*	53	37.9	19	27.1	5	7.1	2	2.9	14	20	93	22.1
Finance is major*	67	47.9	26	37.1	21	30	36	51.4	8	11.4	158	37.6

**Multiple responses*

In general, production related problem reported by sample respondents are:

- Unavailability of agricultural inputs in time
- Incidence of diseases and insect pests
- Lack of adequate technical knowledge (especially for leasehold riverbank producers in Rautahat and leasehold normal and semi-commercial vegetable producers in Banke and Morang)
- Lack of adequate land and difficulty to get lease in land for leasehold normal vegetable production
- Lack of irrigation facilities (Major problem in all PUs)
- Gradually phase out the subsidy (problem for sustainability)
- Labor shortage

The marketing and finance related problems reported by sample respondents are:

- Lack of vegetable market
- Low farm gate price (mostly producers are price taker)
- High market margin
- Large number of latent market spots across the Indian border, so difficulty to competition with Indian vegetables
- Lack of vegetable market information (prices)
- Seasonal production of vegetable and high surplus in market during season (getting low prices)
- Lack of knowledge regarding market management and production based on market demand- driven approach.
- Lack of sufficient capital for investment.

In addition to above, a number of program related issues were indicated during focus group discussions with key beneficiaries and key informants interview. The major ones include the following:

- ✓ Technical coordination and linkage with the concerned government line agencies (like DADO, DFO, DDC, and other) is observed inadequate in Banke and Rautahat PUs.
- ✓ Linkage between the participants of VPPI and micro-finance institutions (MFIs) has not reached at satisfactory level. Still about 27 percent of borrowers are dependent on informal sources of credit with high interest rate (at 33 to 35 percent).

- ✓ In most of the places, there is lack of mechanism for coordination and sharing of experiences among the partner NGOs involved in VPPI interventions.
- ✓ VPPI interventions phased out to be mainly based on the period of implementation and gradual elimination of subsidy on inputs has seemed (mainly in Banke, Rautahat and Morang).

6.13 SWOT Analysis

This SWOT¹³ analysis compares idea of different schemes of vegetable sub-sector through production and market promotion to existing production level in Plan Nepal initiative districts in order to determine the nature of challenges that it faces. This analysis identifies strengths, weakness, opportunities and threats. Strength and weakness here address the internal factors governing vegetable sub sector, while opportunities and threats refer to external factors in the business environment.

Table 6.18: SWOT Analysis of Vegetable Sub-sector of Plan Nepal

<u>Strength</u>	<u>Weakness</u>
<p><u>1. Semi-commercial:</u></p> <ul style="list-style-type: none"> • Low investment compare to other enterprise given to land availability. • Comparative advantage over other cereal and cash crop. Vegetable production gives as much as 4 times higher income than cereal. • Farmers traditionally cultivate vegetable as kitchen gardening so no difficulty for dissemination of improved production technology. • Semi commercial farmers particularly in Makwanpur, Banke and Rautahat are producing at commercial scale; they even buy land and build home from earned income of vegetable production in Makwanpur. • Vegetables grown in hills are competitive in the domestic market due to privilege of off-season production. • Vegetables production is in increasing trend due to demonstration effect. • Agro-vets and Lead farmers are available in each production pockets. • Grading and postharvest technology is being gradually introduced. • Farmers are being united in groups and 	<p><u>1. Semi-commercial:</u></p> <ul style="list-style-type: none"> • Seed production is almost nil so seed replacement rate is low in all PUs. • Inadequacy of internally grown high-quality seeds of suitable varieties. • Lack of supply chain of qualitative seed and agricultural inputs such as fertilizer, pesticide and micronutrients. • Unavailability of storage facility at farmers' level which causes big post harvest losses. • Lack of year round irrigation infrastructure, even micro-irrigation technology is not available at some places wherever available it only covers 3-4 kaththa land. • Poor access to credit and capital particularly who don't have land. • Production centres are scattered and are far from road heads and major market centres particularly in Makwanpur. <p><u>2. Leasehold Normal:</u></p> <ul style="list-style-type: none"> • Adoption of leasehold normal vegetable production in lease-in land after program phased out is decreasing rate due to land unavailability in lease and no more subsidies.

¹³ SWOT is Strength, Weakness, Opportunity and Threat.

- cooperative for marketing their produce
- Existence of some established farmers organization, cooperative societies, and collection centres even at road head for marketing.
- Cooperative marketing system is established
- Farmers becoming aware about domestic market potentials.
- Farmers establishing linkages with wholesalers and retailers in the local and district market.

2. Leasehold Normal:

- Some of the poor and marginal farmers who initiate vegetable production in 2 kaththa leasehold land now even doing vegetable production in 12-20 kaththa land particularly in Rautahat and Banke.
- Farmers earning average income of NRs 7-10 thousands /kaththa even from common and public lands particularly in Rautahat
- Farmers becoming aware about domestic market potentials.
- Farmers establishing linkages with wholesalers and retailers in the local and district market.

3. Leasehold River Bank:

- Farmers also gain significant amount of money from leasehold riverbank vegetable production.
- Technology and knowledge gains.
- Utilization of river basin and employment generation to the landless and poor.
- Riverbed cultivation is very much effective and impressive at Morang in term of very good source of income for the poor people, skill and optimal use of bank land.
- There has been maximum coverage in the river bank area at Rangelli area of Morang.

4. Vegetable Production Under Agro-forestry System:

- Vegetable production under agro-forestry system at Rautahat is found more effective to increase the income and livelihood of the poor landless farmers.
- Good maintenance of community forest is made by the involvement. Ginger, Turmeric, and various medicinal plants have been grown successfully inside the forest area and

- Unavailability of qualitative inputs such as seed, fertilizer, pesticides, micro-nutrients etc. These inputs even not available in time.
- Unavailability of appropriate lease land due to various forms of threat feel by landlords.
- Lack of year round irrigation infrastructure to increase productivity and production. People generally used micro-irrigation technology (*Dhiki Pump*) however farmer argued that it only covers 3 to 4 kaththas land and required drudgery to operate it.
- Farmers not using improved packaging or practices of cultivation, harvesting and postharvest management.
- High dependency on Indian market for agricultural inputs hybrid seed, fertilizer, plant protection chemicals and micro nutrients).
- Lack of technical knowledge to rural farmers on harvesting, post-harvest handling, grading, packing and storage technology.
- Farmers are not aware of vegetable processing technology.
- Opportunity cost is high to initiate vegetable production particularly for those who solely depend upon forest product and Indian labor market.

3. Leasehold Riverbank:

- Leasehold river bank cultivation in Rautahat is not as much as effective than Morang could be due to technical constraints.
- Some technical problems are identified in Rautahat, Sunsari and Morang for vegetable production which could be due to lack of well-trained agriculture manpower at farmers' level.

4. Vegetable Production Under Agro-forestry System:

- Agricultural crops within community forestry are not allowed by **Community forestry Development Regulations, 2065**.
- Agro-forestry under high tension electricity line is very much impressive. However, in the long run it may create problem for forest encroachment.
- Vegetable production under newly established agro-forestry system in Morang is effective only for the short period (1 to 3 years) and it is not sustainable in long run due to competition between growing tree with the vegetable for light and nutrients.

<p>under high tension electricity line.</p> <ul style="list-style-type: none"> • Effective for landless families' upto 3-4 years to generate additional income from high value crops like ginger, turmeric grown in agro-forestry system. <p>Enabling Environment (Policy & Institutions)</p> <ul style="list-style-type: none"> • Farmers practice vegetable production and marketing in group. • Plan Nepal is still working for capacity building of group. • Plan Nepal formed District Project Advisory committee is functional for coordination and networking. • Most of the farmers use their group saving as credit. • Some of the farmers even have access to financial institution. • Government has categorized vegetable production as a as a high value crop in Nepal and policy supports are available to provide facilities to the farmers. 	<ul style="list-style-type: none"> • Yield of Vegetable production decreases over the time particularly where vegetable is grown with tree species. <p>Marketing</p> <ul style="list-style-type: none"> • Price is volatile around the market due to traditional production system and influence of Indian market. • Lack of record keeping system to analyze cost and benefit and lack business orientation among farmers. • Farmers have limited access to reliable market information. • Lack of trust between traders and retailers • Lack of collective marketing at farmer's level and market centre are unorganized at farm level as well. • Farmers not aware about market potentials of off-season vegetables in various Indian market hub. • Poor and inefficient supply chain which causes post-harvest losses. • High porter transport cost from production area to road head. <p>Enabling Environment (Policy and Institutions)</p> <ul style="list-style-type: none"> • There is lack of common platform to discuss the issues of vegetables production and marketing including all the chain actors. • Research output is not connected with extension campaign particularly. • Appropriate land use policy is not endorsed particularly for commercialization of vegetable production through leasehold.
<p>Opportunities</p> <p>Vegetable Production Schemes:</p> <ul style="list-style-type: none"> • Possibility to boost productivity of small farmer through improved production practices. • Availability of high yielding variety due to short distance to Indian market. • Availability of drip irrigation technology which can be appropriate at river bank. • Semi-commercial is potential for commercial vegetable production through scaling up effect in future in all PUs. • Availability of government's extension and research offices with qualified manpower. • Various organizations such as CBOs, NGOs, and co-operatives are supporting farmers for 	<p>Threats</p> <p>Vegetable Production Schemes:</p> <ul style="list-style-type: none"> • Reluctant to adopt as sole crop due to economic condition, food security, traditional practice. • Possibility of oversupply of seasonal and off-season vegetables with better quality at lower price from Tibet or China and hilly regions of India. • Epidemic occurrence of pests and diseases • Intense competition from highly subsidized Indian farmers for vegetable production • High post-harvest losses. • Production of vegetable at community forestry is not mandatory by Government rules and regulation.

vegetable cultivation.

- DADOs are providing production material and technical services to the farmers.
- Availability of post-harvest handling, processing and packaging technologies.

Marketing

- There is huge potentiality for import substitution through strengthening marketing infrastructure and technologies.
- Availability of plastic crates in the market
- Supply potential at attractive prices of cauliflower, cabbage, chilli and tomato in the summer and early winter months in Terai and northern border markets of India
- Increasing demand of off-season vegetables in the domestic markets, possibility of export market to different countries
- Opportunities for value addition through cleaning and grading at farmers level
- Opportunities to increase farm gate price through price bargaining and collective marketing

Enabling Environment(Policy & Institutions)

- AEC and Marketing Development Directorate are providing price information of various markets of Nepal.
- Government highlighted Value chain aspect for commercialization in Three Years Interim Plan (2010-2013).
- Can enjoy opportunity of provision for preferential trading and subsidies to LDCs given by WTO and SAPTA
- High potential for reducing poverty and employment creation through value chain aspect

Marketing

- If Nepal emerges as a transit passage between India and China, it is likely to lose. Competitive advantage unless backed by more quality and efficient production.
- High temporal price variation due to natural factors and inconsistency in external and internal demand.
- Existing marketing, trading system, institutional and infrastructural support is poor in Nepal.

Enabling Environment (Policy & Institutions)

- Illegal tax and threats from many groups especially during transportation.
- No long term plan and activities from government side for enhancing competitiveness in this subsector.

7 CHILD-CENTRED COMMUNITY DEVELOPMENT

Plan's vision is of a world in which all children realise their full potential in societies that respect people's rights and dignity. The Child-Centred Community Development (CCCD) approach is Plan's translation of this vision into the practice of international development. CCCD is a rights-based approach. It is not limited to any technical sector of development and it is not confined by ideological or religious boundaries.

The CCCD focus on the structural causes of child poverty, gaps and violations of child rights requires a strategy with a long horizon. The expected outcomes in terms of changes in policy, political will, public attitudes and systemic changes in service delivery require a long and steady engagement. At the same time, the immediate manifestations of poverty and violations of child rights cannot be ignored and there is a pressing need to respond. Programmes have to be pursued on multiple levels with timeframes that are appropriate to the desired result.

Deciding on the level on which to focus programme activities depends on the local context and on the issues to be addressed. It requires a thorough and fully contextualized understanding of the causes and consequences of child poverty. This cannot be prescribed in a programme guide.

The purpose of this section of the guide is therefore:

- a) to articulate the guiding principles of CCCD that apply to all programmes and
- b) to outline the main strategies for Plan that should be considered whenever a programme is being developed. They are applied where and when appropriate, depending on the context. In many cases, a combination of strategies is likely to generate the best, lasting results.

Based on focus group discussions (FGDs), key informant interview (KII) and household survey, vegetable production program initiatives (VPPI) has addressed following principles of child-centred community development (CCCD):

7.1 Children are at the Centre

Children are seemed at the heart of all Plan Nepal PUs in VPPI. Following aspects are observed in VPPI as children are at the centre:

- Awareness has been created in the VPPI community to educate the children.
- Girls' enrollment (about 94 percent) and boys' enrollment (about 92 percent) in school have increased in the family.

- Drop out from school of both girls and boys' has been decreased (about 83 percent in average). Moreover, the drop out of the girls (about 6 percent) was found less compared to the boys (about 8 percent).
- Child- development centres have been established in some PUs through child-club formational and mobilization.
- Nutritional status of the children has been increased as a result of vegetable consumption.
- Problem of the mal-nutrition in the children has been reduced due to increased vegetable consumption in family.
- Expenditure on children' education has been increased (about 90 percent).

7.2 Guiding by Human Rights Standards and Principles

Human rights standards and principles in VPPI intervention in all Plan Nepal PUs have been observed.

Consistent with Plan's history and vision, however, the Convention on the Rights of the Child (CRC) is the main reference document for Plan's work. The CRC describes the child rights principles, which must be given special consideration in all matters relating to children. These principles are:

- ☐ the best interests of the child (Art. 3 of the CRC);
- ☐ respect for the views of the child (Art. 12);
- ☐ non-discrimination (Art. 2);
- ☐ and the right to life, survival and development to the maximum extent possible (Art. 6).

By accepting human rights standards and principles, vegetable production program initiatives has focused on following right based approach in all stakeholders and children during program planning and implementation:

- Dalits and other very poor people are involved in VPPI program through different scheme of vegetable production like leasehold, riverbank, agro-forestry and semi-commercial. Special focus has been given to the landless, women, DAGs and very poor community members.
- Children right and women right have focused in the community and tied up with line agencies for implementing these rights.
- Special emphasis has been given to execute VPPI program where the children were living in poverty and social exclusion.

7.3 Responsibility and Accountability

By adopting a rights-based approach, Plan recognises the different obligations and responsibilities of different actors as set out in human rights treaties. Plan has committed itself to working for, with and on behalf of children to claim their rights, to support the duty bearers to deliver on those claims, and to hold the duty bearers to account.

Plan Nepal PUs have coordinated with different line agencies of DDC, DADO, DFO, VDCs and schools in planning and implementing vegetable production program initiatives intervention in all study districts. Responsibility and accountability with partner NGOs and other direct and indirect beneficiaries have been cleared for institutionalization of the program. There is good coordination with stakeholders and other duty bearers for VPPI intervention and cross-cutting aspect of children. The responsibility and accountability of VPPI intervention is observed very strong in Makwanpur, Rautahat and Morang PUs whereas good and gradually improving in Banke and Sunsari PUs (Refer **Annex 2:** findings from FGDs and **Annex 3:** findings from KII in details).

7.4 Inclusion and Non-discrimination

Children are invariably socialised into specific roles, identities and social groups. This can become a source of discrimination and exclusion, resulting in violating the rights pronounced in Article 2 of the Convention on the Rights of the Child. Promoting an environment of social inclusion and protecting children from discrimination is therefore a key principle of Plan's CCCD approach.

VPPI interventions is focused children right and all children are hold equal right in all PUs. Birth registration and awareness of the children for their schooling without any discrimination are observed in VPPI intervention in the community. The VPPI intervention in all PUs has been observed inclusion of women and DAGs and non-discrimination of all keeping children as a centred.

The vegetable production program initiatives (VPPI) for livelihood program has special focus on the inclusion of women, deprived communities, disadvantage and marginalized groups (DAGs), landless or near landless households. Participatory and action-oriented approach has been reported to adapt right from the selection of the households to preparation and planning, appraisal, implementation, monitoring and evaluation of program intervention. It is observed that all Plan Nepal PUs have taken an active position of positive discrimination to ensure that all children, boys and girls, can live to their full potential in VPPI intervention.

7.5 Gender Equality

Since gender discrimination takes place across the world, gender equality has been identified as a separate principle of CCCD that looks specifically at inclusion and non-discrimination from a gender perspective.

It is observed that the VPPI intervention focused on promotion of gender equality and addressing the structural causes and consequences of child poverty. In all PUs, gender-based discrimination directed against girls and women has been used by focusing more women in VPPI program as a direct beneficiary.

Number of positive and significant changes in women's role and their control over income and household assets after Plan Nepal vegetable production program initiatives have been observed. About 76 percent of the respondents reported women participation each in family decision-making process, economic activities and community meetings and decisions. Increased women participation in family decision-making was reported by 81 percent, 80 percent on economic activities and marketing and in decision making on community meeting by 81 percent of respondents. About 75 percent and 69 percent of respondents reported increased level of women's control over income and assets respectively.

7.6 Participation

Participation is a right guaranteed in Article 12 of the Convention on the Rights of the Child. Plan firmly believes that children have the right to take part in the decisions that affect their lives, keeping in mind their evolving capacity to understand and to contribute. Participation should be free and meaningful and cannot be imposed. It should contribute towards results that are among the priorities of the participants themselves.

At all steps in the VPPI program cycle, participation of women and children are observed satisfactory. Participation of children and women are identified in the following aspects in VPPI:

- Empowerment of children and women through VPPI intervention.
- Capacity building and organization skill (through group and child club formation and mobilization)
- Participation in community development and in the decision of their family and schools
- decision-making and accepting the responsibilities of their decisions

It is observed that an active participation of women and children in decision making and other aspects in VPPI (Refer **Annex 2, 3** of findings from FGDs and KII and **Annex 4** of case studies).

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

Based on the analysis of information obtained from various sources and considering the suggestions provided by different stakeholders during the survey, following conclusions are made for policy implication and improving overall structure of the program:

1. Semi-commercial vegetable production is very much effective to initiate commercial vegetable production in all the studied area. The technology is innovative and also replicated by other people in the neighbouring areas due to demonstration effect.
2. Semi-commercial vegetable production is very much effective in Makwanpur, Banke and Rautahat especially for those people who do not have other source of income in the family.
3. The food habit of the people of Banke and Rautahat has been changed with the vegetable production program initiative.
4. In Sunsari and Morang the vegetable production programs are found the complementary to raise the households' income by providing working opportunity to households' women besides their husbands' income because male are engaged in labor market.
5. Vegetable production under agro-forestry farming is effective to increase the income and livelihood of the poor landless farmers in Rautahat district. Community forestry is optimally used by raising agricultural crops and NTFPs. However, agricultural crops within community forestry are not allowed by **Community forestry Development Regulations, 2065**. Agro-forestry under high tension electricity line is very much impressive. However, in the long run it may create problem for forest encroachment. Vegetable production under newly established agro-forestry system in Morang is effective only for the short period (1 to 3 years) and it is not sustainable in long run due to competition between growing tree with the vegetable for light and nutrients.
6. Leasehold river bank cultivation is quite effective in Morang in term of income, skill and optimal use of bank land. On the other hand, River bank cultivation in Rautahat is observed not much effective as that of Morang. It could be due to the type of sand of Baghmatti river basin is coarse texture and has less water holding capacity. The farmers are found less trained compared to Morang for river bed cultivation regarding selection of land and adaption of technology. Further efforts may be necessary to

make it sustainable; otherwise the farmers may discontinue the activities in the riverbeds upon the discontinuation of support from Plan Nepal.

7. Some technical problems are identified in Rautahat, Sunsari and Morang for vegetable production which could be due to lack of well-trained agriculture manpower at farmers' level.
8. Plan Nepal has addressed CCCD principles in vegetable production program initiatives (VPPI) intervention in all PUs keeping as children are at the centre, responsibility and accountability and inclusive approach with positive discrimination of women and girls in program participation.

8.2 Recommendations

Based on findings of the study following policy guidelines are recommended:

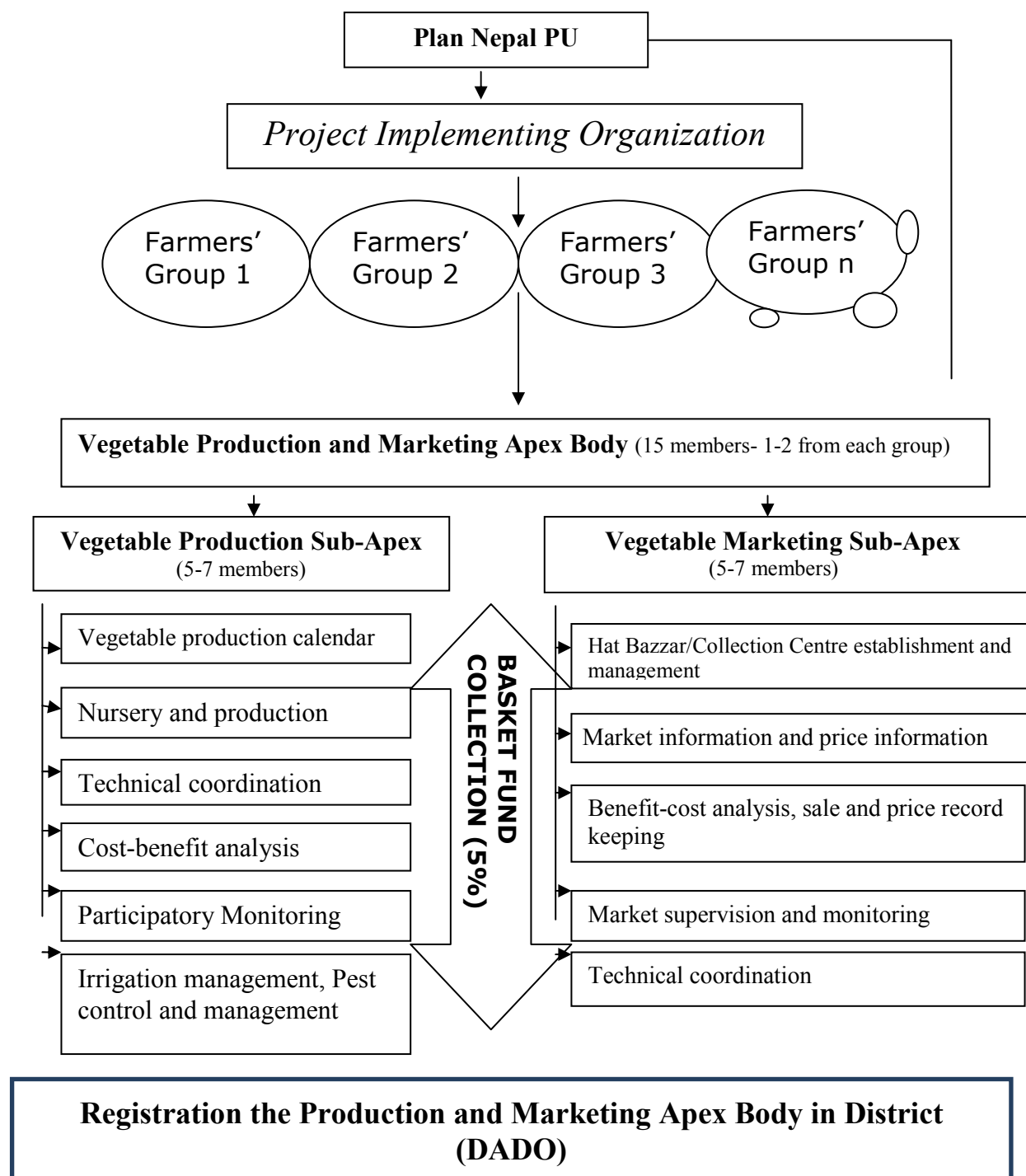
1. Weak vegetables market and linkage is observed in all PUs. Well established vegetable markets should be developed through **backward linkage** with inputs suppliers and **forward linkage** to the outputs market by considering farmers as a centre (Sustainable Market Development Model of Vegetable is presented in **Annex 1**).
2. Value chain development (VCD) practices should be establish through linkage with input suppliers and output market of vegetable at community and district level for improving sustainable profit to the vegetable producers.
3. Provide intensive trainings to the farmers on different scheme of vegetable production and business plan development and marketing initiatives.
4. It is desirable to have more emphasis on promotion of Integrated Pest Management (IPM) practices, particularly vegetable production in view of increasing trend in the use of pesticides for sustainable production.
5. The coverage of MFIs should be expanded with effective linkage with groups involved in vegetable production. This is crucial in view of gradual phasing out of subsidy of inputs.
6. It is essential that coordination and working linkage with concerned government line agencies in the district like ASC, DADO, DFO, DDC should be improved furthermore for handover the Vegetable Production Apex Body and groups in a sustainable manner. Such linkage is important not only for the groups in vegetable production but also technical local resource persons (group leaders, LRPs) for periodic upgrading of their skill, knowledge and attitude in view of changing technology.

7. Increased emphasis should be given to gender sensitization, awareness raising and capacity building activities so that more women are actively participated and brought in the forefront in managing vegetable production and marketing.
8. Integrated package and participatory action-oriented approaches involving the provision of skill development and entrepreneurship development trainings, credit and market linkage should be adopted in promoting profitable vegetable farming and non-farm enterprises as well.
9. Sharing of experiences on regular interval with partner NGOs and other line agencies is essential for effective implementation of the program and avoiding duplication. It is important not only for improving the synergy between various components of the program but also for improving conflicting practices during program implementation and extension services.

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ANNEXES
Annex 1:
Sustainable Vegetable Production and Marketing Model



Annex 2:

Findings from Focused Group Discussions

2a. Banke PU

The study team Visited plan Nepal office at Banke and information related to this program was collected thorough conducting meeting with staffs. In Banke, Plan Nepal is working with 28 VDC and 1 municipality with various sectors including vegetable production for livelihood improvement of poor and marginal people. FORWARD was the partner organization to implement vegetable production imitative program of plan Nepal. Subsidy was given to landless farmers to initiate vegetable production however size of the subsidy reduced over the passage of time and eventually it was stopped at the end of third year

The study team conducted focus group discussions of semi commercial vegetable producers at two places, one at Manikapur, Ranjha and another at Newaji village, Belabhar to study the impact of vegetable production initiative program. FORWARD was the partner organization to execute vegetable production activities in the district. In both the places, marginal farmers were the target groups. Each individual family was supported to semi commercial vegetables production as Plan-Nepal's scheme. In the both the places similar kind of facilities, inputs, trainings have been provided by the FORWARD.

Participant farmers at both the places reported that the Plan support was very much encouraging them to produce vegetable for the market. The income was more than 3 times higher compared to cereals. It was in the range of NRs.15,000 to 40,000 per Kaththa. In Newaji area all the program participant's farmers reported that they are continuing the semi commercial vegetable production and are still getting some kinds of technical and economic support from Plan Nepal PU. On the other hand, only about 25% farmers at Ranjha are continuing the vegetable production. Those who have continuing vegetable production have increased their land under vegetable production. Some farmers have increased the area up to 20 Kaththa. Those who have increased the area and are interested to increase area under vegetable crop, indicated availability of labor is the main constraints. Labor cost is high i.e NRs. 200-400 per day. It is to be noted that Newaji area was nearer to the Nepalganj market, the area was very much suitable for commercial vegetable production and the house wives had no other source of income. Some of the male had gone outside country while, others go for Rixa pulling, Tanga driving and job in the market. Regarding gender issues concern, in vegetable production groups 80-90 percent

participants were Ladies and from Dalits and backward families. There was no alternate source of income and opportunities for the ladies in the area.

Compared to Newaji area Ranjha was at more distance from the city and was nearer to forest area. The area was dominated by Tharus and Janjati migrants. The reason for not continuing vegetable production by some people in this area could be due to (i) Availability of easy money; some of the strong people who have good stamina go to the forest collect wood and sell to the market. They earn NRS. 1000-1500 per day by selling fuel wood; (ii) Long growing period; production of vegetable needs patience. Vegetables require a minimum of 30 days and above for production; (iii) High production risk: some times, vegetable suffer from disease, pest and environmental hazards; and (iv) Not customary: Vegetable production is new approach and is not customary. Generally people easily adapt customary practices which his parents had done in the past.

Irrigation was the major problem for commercial vegetable production. Vegetables require more water for production. During summer months the hand irrigation was less effective, the movement of water in the field was too slow. Participant farmers showed interest for further field training and visit for commercial production. They also indicated the problems in getting land in lease, and suggested that government should formulate policy for providing land in lease for the production of vegetables. Farmer's perception about the PU Banke was very good. They indicated that Plan had opened their eyes by providing skills and initiation of vegetable production. Per capita income and food security have been increased, awareness have been created for nutrition, education health and sanitation among the beneficiaries households. Women have been empowered, educated and brought forward for facing groups and mass of the people in the society. They have been organized in the groups and saving deposit cooperatives is being operating.

At present they are selling their produce at local market and hatbazar by themselves. Sometimes, vendors come to buy their vegetables especially tomato and beans. The vendors purchased vegetables are often supplied to the distant markets like, Surket, Dailekh, Jumla, Kalikot and sometimes exported to India during off season. During main season price of vegetable is low as because Indian vegetables are supplied in the Nepalganj market at cheaper rate. Before 6-7 years more than 80 % vegetables used to come from India, while now 80% is supplied by local producers.

Strength of the vegetable production program

- Some of the Poor and marginal farmers who initiate vegetable production in 2 kaththa lease land now even doing vegetable production in 12-20 kaththa
- Farmer's earned comparatively higher income from vegetable production than cereals.
- Average annual net income received by Farmers from vegetable production in leasehold is about Rs 20-40 thousands per kaththa. This figure is as much as three times higher than earning from cereals
- People from minority groups and ethnic caste are engaged in vegetable production
- Plan Nepal still support these farmers on technical issue and even for capacity strengthening of the group participant's farmers reported that they are continuing the
- Farmers are being united in groups and cooperative for financing and marketing their produce. They becoming aware about potentiality of vegetable production in terms of nutrition, food security, incentive and improvement in way of life.
- There is nearly 80 percent import substitution of vegetable compare to only 10 percent before about 6-7 years ago.

Constraints in vegetable production program

- About 25 percent of the farmers don't continue vegetable production initiative because these farmers don't follow traditional vegetable production as kitchen gardening and availability of alternative options such as wage labour, NTFP collection. Indeed these particular people opted aforementioned options due to daily needs of capital to sustain their life and there is high natural and biological risk in vegetable production as well.
- Female involvement is high in vegetable production and marketing due to engagement of male in abroad labour market and male members of the family believe that vegetable production is traditionally practiced by female
- Unavailability of qualitative inputs such as seed, fertilizer, pesticides, micro-nutrients etc. Irrigation is major bottleneck to increase yield and production of vegetable.
- Price of vegetable in main season is mainly influenced by Indian market

Farmers still expect support and encouragement toward solving the aforementioned constraints and to the establishment of sustainable vegetable enterprise for improving livelihood of small farmers.

2b. Makwanpur PU

The study team Visited Plan Nepal Program Unit Office, Makwanpur and informations were collected on their activities regarding vegetable production program initiative. The program was implemented in 29 VDCs including 908 groups. Each group comprises 5 to 25 members based on common characteristics such as sex, ethnicity, occupation and income level. Altogether, 9688 HHs were supported in the district by this program. FORWARD was the partner organization to implement vegetable production imitative program of Plan Nepal. Leasehold farming was just a pilot program launched in small pocket. FGDs were conducted in Hill and Terai with semi-commercial vegetable production group. In the hill, FGD was conducted at Bhaise-2 Simaltar, Kalitar, Makwanpur. The participants were from *Laligurans Mahila Tarkari Utpadan Samuha and Mehenati Mahila Tarkari Utpadan Samuha*. Another FGD was conducted at Newarpani, Basamadi VDC-1 with *Namobudhdha Tarkari Utpadan Samuha* which comprises 45 members including 24 female.

Bhaise' farmers reported dramatic change in their life with the production of vegetable as results of Plan-Nepal's vegetable initiative program. Plastic ponds have been built up to collect spring water as well as rain water and are much effective than ordinary cement pond. None of the person had left the group even after the termination of project. The farmers have been organized in the groups. They have saving cooperative in which each family deposit i.e NRs 20/month. The deposited amount is used for providing loan to the producers group for vegetable production as well as for social activities like marriage and construction house, purchasing land. Rice is grown as main crop and vegetables are produced during winter season. At present about 10 % of rice producing area (khet) also brought under vegetable production by replacing rice. Previously they used to grow maize and millets. At present the production of the maize and millets has been already replaced by vegetable production. Most of the group member have 10 to 20 kaththa of land under vegetable production and earn about 5,000 to 10,000 from a kaththas of land. Production of chillies during summer months and tomato inside plastic tunnel were the most profit making vegetables in this area. The semi commercial vegetable production program of Plan Nepal in Bhaise (hilly area), Makwanpur has become very much successful and will run for ever in the future.

In Basamadi also semi commercial vegetable production was very much effective. Even upon the termination of program the activities are continuing very effectively. There has been increase in the membership in the cooperatives. Most of the farmers have increased their areas under

vegetable cultivation. It ranges from 3-4 kaththas to 20 kaththas. Usually they get net return of about NRs 10-15 thousands per kaththa land. They showed further interest to increase area under vegetable production, but irrigation is the major problem. They indicated the possibility of large irrigation from Rapti River.

Almost all the vegetables are sold to Hetauda wholesale fruits and vegetable market. In Bhaise there is collection center in the road head. Farmers usually collect their produce at road head and carry their produce on the top of bus, jeep, small vehicle to Hetauda wholesale market by themselves or send it to wholesaler. Farmers have already established good linkage with the wholesalers. Farmers themselves go to Hetauda market for getting their money. Wholesaler receives 8% commission on the sold vegetables. The system has already developed for the marketing. In case of Basamadi, the producers sell their produce to Hetauda. There is no collection centre in that area and they were seeking support for the establishment of collection centre.

In the conclusion it can be said that the semi commercial vegetable production was very much effective in Makwanpur district to enhance the socio economic status of very poor and marginal farmers.

Strength of the Program

- Vegetable production emerge as one of the most pertinent income generating enterprise so new members are joining the group day by day
- Farmers initiate vegetable production as semi commercial group. Now, they even buy land and build home from earned income of vegetable production
- Vegetable production replaced maize and millet crop in hilly area and There is increasing tendency of vegetable production instead of rice crop particularly among hilly farmers because there seasonal production becomes off-season for lower belt.
- Production of chillies during summer and tomato inside plastic tunnel during cold season were most lucrative business in the hilly areas
- Ten collection centres was already established and well organized at farm level. Collection centres near to the road head are comparatively efficient in terms of sales volume and profit.
- Farmers are earning about average annual net income of 3000 to 40000 NRs per kaththa. The figure is even higher for off season producers

Constraints of the program

- Some of the collection centre are far from production centre especially in hilly area so compelled to bear high transfer cost
- Small group of farmers initiate water harvest technology in hilly area to irrigate vegetable however irrigation seems major constraint to reduce vegetable production and yield
- Seed replacement rate is almost nil so heavily depend upon questionable quality of inputs; e.g., quality of hybrid seeds imported from India might not be known; mixed seed and low quality Seed

2c. Rautahat PU

Focused Group Discussions (FGDs) were carried out in three types of vegetable production program, leasehold normal farming, leasehold river bank farming and agro forestry farming. Farmers groups were interacted at Mithuwa for leasehold normal farming, Samanpur for Bagmati leasehold river bank farming and Judibela, Bantole for agro forestry farming.

MADE Nepal and SODEC Nepal were the partner organization to execute the semi commercial vegetable farming and river bed farming respectively, while, Agro Farm Forester Association of Nepal (AFFAN) the partner for agro-forestry farming system.

In Mithuwa leasehold normal farming, the group had 16 participants. In the beginning they have started with 2 kaththas of land for vegetable production. They have been provided training and necessary support as per the program of Plan Nepal. Now the program has been terminated and out of 16, 13 are continuing semi commercial vegetable production. All of them have increased their area from 3 to 12 kaththas. They reported that the profit from vegetable production is usually 4-5 times higher as compared to crop and sometimes it exceeds than that. Previously no body produced green vegetables in that area.

Upon the imposition of vegetable production program of Plan Nepal, they have learned to cultivate vegetable and started to home consumption. The most important in this area is that other farmers and land owners have also copied the technology of vegetable production and started to cultivate vegetables in their own land. Along with the production of vegetable by Plan group farmers, more than 40 hectares of land has been brought under vegetable production by the neighbours. The problems addressed by the groups were about irrigation, leasing land and availability of quality inputs. The system of irrigation was Treadle pump. The group reported the

difficulty to irrigate more land with this kind of technology. Treadle pump was effective only up to 4-5 kaththas of land. For extensive cultivation irrigation was the problem in that area. There is great possibility to extend vegetable production in this area in large scale if irrigation is available. The technology can be transferred to other irrigated land nearby where cereals are the major crops grown. Now because of political slogans and own interest of land owners they are reluctant to give land on lease to the poor or landless people. This is one of the major problems for the extension of land lease program for semi commercial vegetable production. The group also complains about the quality of seed in the market and lack of availability of fertilizers at planting time. They expressed their continuous interest in vegetable production and very much interested for exposure visit.

For river basin¹⁴ farming, farmers group *Baudhimai Krishak Samushaat Samanpur* who were involved in river bank farming were discussed and field was also visited. Various crops such as banana, *parbal* (pointed guard) and turmeric were observed. It was noticed that the site selected land was not much appropriate for the cultivation of crop. The river bed selected for crop production was at upper level requiring large amount of water for irrigation. The water holding capacity of the soil was very less. The amount of coarse sand was very high and crop growth was poor.

Interactions with the river bank farming groups revealed that they have got good return i.e., about NRs. 10,000 – 15,000 from a kathatha of land but were reluctant to continue river bed cultivation as they told the land was very far from their residential area. It was across the Bagmati river and difficult to go during rainy season. The cost of production is higher. There was problem of thief as well as wild animals. The production was pointed guard was very good. They indicated that the river bed is not as good as that of Morang district. In this river sand is very coarse and at the same time water level in the bank is low and seepage of water was very high.

From the field study it was revealed that, though the crop was poor the efforts made to produce crop in desert like place was appreciable and encouraging. Since, river bed farming is highly skilled agriculture production technology, some technical weakness were absorbed. It is further advised to bring large area under production with a suitable and better technical approach. Further technical improvements may be necessary to extend the program. Drip irrigation

¹⁴ ***Plan Nepal mentioned river bank leasehold farming system is technically river bed/basin farming.***

technology along with nutrient management practices and large coverage of land (commercial) can be suggested.

For agro-forestry farming system, FGD was done with *Mahila Kalyankari Krishi Ban Samuha* and *Milan Samuha Krishi Ban* at Judibela, Bantole, Rautahat. There were 37 and 15 women members respectively in the groups. Altogether there were 28 groups in agro forestry farming. Agro farm Forest Association of Nepal (AFFAN) was the partner organization. A total of 881 kaththas of land has been bought under cultivation and 232 families have been involved. Each individual has been provided with 3-4 kaththas of land. There has been agreement with the community forestry. Those persons engaged in agro forestry farming were also the member of community forestry.

The crops grown in community forestry were ginger, turmeric, asparagus, sarpagandha (*Serpentina spp.*) and other herbs which do not compete with the forest trees. Fodder trees were also maintained in the forest. Group members had net working and saving deposit in which they contribute Rs 20 per month. Interaction with *Sudhir Kantha* coordinator of AAFAN and producers groups indicated good forest management and protection has been made by agro-forestry farming approach.

In another agro forestry study, cultivation of zinger, turmeric and medicinal plants were also observed under high tension electricity line. The program was also equally effective as that of community agro forestry farming system. They reported a profit of NRs. 7,000 to 10,000 from a kaththa of land. Regarding problems; poor fertility, lack of irrigation, poor productivity and encroachment of wild animals were the major problems. From the production and livelihood point of view the program seems effective. Moreover, in the long run there may be forest encroachment and national problem. Cultivation of ginger and turmeric needs disturbances in the soil and is not allowed by the *Community Forestry Development Guidelines 2065*.

FGD of all the 3 types of program indicated that per capita income, food security, living standard, child education has been raised by Plan Nepal's activities.

Marketing: All the products are usually sold in the local market. The consumption of vegetables has been increased in the district. With the production of vegetable food habit of the people has been changed. The people have started to consume vegetables in their diet. The impact of Plans vegetable production is in the district. In the last year some amount of vegetables has been sold

to Kathmandu from Chandranigahapur. Turmeric and zinger produced in the community forestry is usually sold to vendors who collect and take it to India or other places.

Strength of the Program

- Most of Poor and marginal farmers from ethnic cast who initiate vegetable production as leasehold normal are doing vegetable production in 3-12 kaththa
- Farmer's earned comparatively higher income from vegetable production than cereals.
- People from minority groups and ethnic caste are engaged in vegetable production
- Landlord also follows vegetable production enterprise due to demonstration effect. It is reported that there is ten times or more increase in area of vegetable production than program direct beneficiaries
- Change in food habit of the people. Now people consume vegetable as their main dietary requirement.

Constraints of the program:

- Lack of year round irrigation infrastructure to increase productivity and production. People generally used micro-irrigation technology (Dhiki Pump) however farmer argued that it only covers 3 to 4 kaththa land and required drudgery to operate it.
- Lack of technical manpower at farm level such as for selecting land for leasehold river bank vegetable production.
- Farmers earning average income of Rs 7-10 thousands /kaththa even from land allocated under community forestry however it is not mandatory to grow agricultural crops in community forestry
- Poor access to credit and capital particularly who don't have land

There is Possibility to increase yield and production at leasehold river bank through choosing appropriate crop and site along with drip irrigation technology.

2d.Sunsari PU

Vegetable production program has been implemented since 1998 in Sunsari. Whereas, SEWAC Nepal has been doing since 2007 as a Plan Nepal partner for livelihood improvement of poor and marginal people. SEBAC Nepal is the partner organization to execute vegetable production

program. Altogether there are 450 HH involved in semi-commercial and 31 HH as leasehold normal. Two FGD were conducted in Sunsari, one at Simaria VDC for semi commercial group and other at leasehold normal group.

FGD were done at Simaria VDC for semi commercial vegetable production, lease farming and agro forestry. In semi commercial vegetable farming, there were 12 group members each having 2 kaththas of land in the beginning. Now upon the termination of the Plan Nepal's program the activities are continued and they have increased the area to 5 to 10 kaththas per family by themselves.

In rainy season rice is the main crop. Vegetables are usually cultivated during winter months and the return is more than double compared to cereals. The net return from vegetables is about NRs. 5000 to 7500 per kaththa. Usually in this area men are employed in the factories or go for *Rixa* pulling and ladies perform the activities of vegetable farming organized in group but having separate land. They have selected team leader one male person so that communication with others is easy and accounting, record keeping supported as because almost all the ladies in the groups were illiterate only can write their names. All the members in the groups were landless Muslim families.

It was noticed that all the participants' farmers had electricity, television in their house, children go to school. The economic status, living standard and food security has been increased. The problems they highlighted by them were lack of availability of fertilizers in the market during planting time. They also expressed that they feel humiliation when someone's in the groups get some prize or award from the donor. They demanded some discount or support in the electricity for irrigation.

Another lease holding vegetable farming visited was '*Pasupati Byabasaik Tarkari Utpadan Samuha*'. In this group also similar condition was noticed. In this all the participant farmers were "*Rishidev (Mushahar)*" family. Each family was found working with 2 kaththas of land. They told that getting additional land in lease is the problem. There is no available land in lease. The rent of land is NRs 1250 per kaththa half of which is paid by Plan and half by the farmers. A maximum of NRs 19000 has been earned from 2 kaththas of land by producing vegetables. The vegetables produced were onion, cauliflower, brinjal, chillies and potato. They were using Treadle pump for irrigation and expressed the efficiency of *Treadle pump* during summer months is very poor and they were expressing support for electrical pump.

We also visited another place in the same location where the project was already terminated and observed that about 50% of farmers had already left lease farming. They expressed that they left the occupation because they did not get land on rent. It was understood that the land owner were reluctant to give land on lease.

For vegetable production under agro-forestry study farming, the study team visited “*Shanti Krishi Ban Samuha*”. About 2 bighas land of school has been provided in rent for 10 farmers. Each individual farmer had 2 kaththas of land. The trees planted were *kadham*, *mango*, *tik*, *eucalyptus* and *amala*. It was the 3rd year. Irrigation was provided through Tradel pump. The performance of crop was not good. The group expressed that in the first year they got about NRs. 25000 return from 2 kaththas. In second year NRs 15000 from the same area and now it is further decreasing. It was noticed that for the establishment of forest trees vegetable farming has complimentary effect in the beginning but as the tree grow in size production of vegetable is not possible or in other word it is not remunerative. The group members expressed that they will discontinue the vegetable production upon the termination of project. They have also realized that the program have supplemented the economic support for their house hold activities. Interactions with other people in the area also expressed that unavailability of suitable land is the major constraints for semi commercial vegetable production. It has also been observed that in both the places the land used for vegetable production was nearer to the trees and was not very much suitable for vegetable production

Strength of the Program:

- Farmers who initiate vegetable production as leasehold normal are doing vegetable production in 3-10 kaththa land
- Income earned from vegetable production is almost thrice as compare to cereal production. Farmers gain average net income of NRs. 7,000-10,000 per kaththa per annum
- School enrollment rate is increased due to the earnings from vegetable production
- Now female are expressing their views and opinion in front of male without hesitations

Constraints of the Program:

- Lack of year round irrigation infrastructure to increase productivity and production. People generally used micro-irrigation technology (*Dhiki Pump*) however farmer argued that it only covers 3 to 4 kaththas land and required drudgery to operate it.
- Yield of Vegetable production decreases over the time in agro-forestry program where vegetable is grown with tree species. In *Shanti Krishi Ban Samuha*, farmers earned net

income of NRs. 10000/kaththa for first year while net income decreased by 25% on next year.

- Unavailability of qualitative inputs such as seed, fertilizer, pesticides, micro-nutrients etc. These inputs even not available in time.
- Unavailability of appropriate lease land due to various forms of threat feel by landlords.

2e. Morang PU

Vegetable production program initiative was implemented in Morang about 14 -15 years ago for livelihood improvement of poor and marginal people. FORWARD Nepal was the partner organization to execute as per the norms and regulation of the program. Two FGD were conducted at Morang, one at Rangeli VDC with leasehold river bank group and other at Banigama VDC-4 with leasehold normal group.

River bank farming was observed at Rangeli, Morang. The groups interacted were with “*Jaimaa Sansari Bagar Kheti*” and “*Krishi Jagdamba Samuha*”. From the discussions it is revealed that river bank cultivation in this area was promoted by PLAN Nepal. Previously some of the Indian farmers used to cultivate in the river bank. Plan Nepal provided technical as well financial support to extend cultivation in river bank. River bank Production group has been formed and registered in the district agriculture office. In the groups each individual had 3-4 kaththas of land for which they got support. They had obtained the sample seed, fertilizers sprayer and electrical pump in the group. Now upon the termination of the project they are continuing their activities.

During field observation, all the river basin in that area was found covered by water melons, pumpkins, bottle guard and sponge gourd. Each individual farmer was having about 20 kaththas of land in river bank. For some land they have to pay rent while, other is freely available. The peoples in that locality were highly motivated for river bank cultivation and earned about 70,000 to 1.5 lakh/ annum from 10 to 20 kaththas of land. It was perceived that the activities are sustainable and will be continued in the future. There was no need of continuous technical support as the farmers are well trained and acquainted with river bank cultivation.

Regarding constraints in river bank farming, unavailability of quality seed in Nepal and fertilizers was the major problem faced by the producers. All most all of them told that they get seed and fertilizer from India. As there is no availability of fertilizers in Nepal during planting time, they buy fertilizer in nearby India and pass to Nepal through illegal process during night. The types of fertilizers needed for river bank farming were Ammonium Sulphate, Calcium, DAP and Urea. They buy quality seed from Dagara, India which is near to Katihar. Some of them go

to buy seed to that place during sowing time. Marketing was also one of the problems faced by them. Sometimes vendors used to come, while often producers look by themselves. They take their product up to Lahan in the main season for sale.

Competition with Indian product in the market is the major problem. They mentioned that the cost of production in India is less. Government of India provides subsidy in fertilizers and other inputs, easy availability of fertilizers, improved seed and other inputs. In Nepal the quality of seed, fertilizer and pesticide is inferior. They had very less faith on fertilizer, seed and pesticides which are available in Nepal. Last year hail storm caused more damage. They expressed some kind of provision to overcome the problem of such damage. Crop insurance policy may be the one important to secure the farmers from unpredicted natural loss.

For lease normal vegetable farming, field was visited at Dhikiabari, Banigama VDC-4. Vegetable production group of “*Ujjal Tarakari Utpadan Samuha*” was visited and FGD was done. Ten landless women farmers have been organized in the group. About 20 kaththas of land of Ganesh secondary school has been taken on lease. The rent of the land was NRs 13,000/ annum of which farmers were paying 50% for this year as per the scheme of the Plan Nepal. The profit from 2 kaththas of land ranged from 20 to 30 thousand in a year. The produced vegetables were sold in the local markets by carrying in bicycle or on *tokaries*.

Six among ten ladies have their husband abroad in the job, are working as a labor and one is working in the factory. None of the women showed interest to increase their land. They said children go to school and there are no other persons in the family to help them. It seems the program may not continue upon the termination of the project or once the linkage of plan is disconnected the program will be automatically wiped out. Only a few of them said they will continue if they got land. It was also reported that it is very difficult to get land on lease in that locality. That was the only school land available in lease through FORWARD. The program has uplifted their economy and livelihood. The income generated from vegetable production was used as seed money to apply for foreign employment.

Strength of the Program

- Farmers earn average annual income of about NRs 10000 per kaththa from leasehold river bank. It seems farmers are gaining nearly equal amount of profit from this system as from their private land. Water melons, pumpkins and guard are major profitable crop in leasehold river bank

- At present, A single farmer even producing vegetable up to 20 kaththa land in lease hold river bank
- Farmers are technically efficient for producing vegetable in lease hold riverbank

Constraints of the Program:

- Lack of supply chain of qualitative seed and agricultural inputs such as fertilizer, pesticide and micronutrients
- Intense market competition by subsidized Indian products

Annex 3:

Findings from Key Informant Interviews (KII)

Banke PU: Plan Nepal Banke PU staff, partner NGO of FORWARD, DADO office and DDC were visited and interacted during KII. The KII revealed that there is weak linkage and coordination of the Plan Nepal VPPI with ADO and other DADO officers in Banke. Banke PU officials reported that the coordination with DADO office is progressing now. Nevertheless, coordination with DDC has seemed strong for the programming and allocation of the budget at targeted beneficiaries.

Makwanpur PU: Plan Nepal Makwanpur PU staff, partner NGO of FORWARD, DADO office and DDC were visited and interacted on the issues of program implementation process, relevancy and effectiveness. Interaction with ADO and other DADO staff revealed that there is strong technical and legal coordination with Plan Nepal VPPI program interventions and DADO, Makwanpur. There is also strong and effective coordination with DDC, Makwanpur for programming and action plan with budget allocation in each fiscal year.

Rautahat PU: Plan Nepal Rautahat PU staff, partner NGOs of AFFAN and SODEC, DDC as well as school were visited and interacted during KII. In addition, Telephone interview with MADE Nepal Bharatpur, Chitwan was done. There is good coordination between district level line agencies and Plan Rautahat PU on program intervention, process and implementation.

Sunsari PU: Interactions with Plan Nepal, SEBAC personnel, District Agriculture Development Office (DADO), Regional Agriculture Training Centre (RATC) Jhumka, DDC Sunsari, ASC Simaria. ADO personnel indicated that now there is good coordination with Plan Nepal for the development of agriculture in the district. ASC personnel in the ASC centre, Simaria indicated there is no formal linkage with plan Nepal, but they invite them for training program on vegetable production on personal basis. He stressed there should be formal linkage. He was not aware about the linkage in the district. It has been perceived that all the Plan Nepal programs in the district are being sanctioned by DDC during the annual program and budget meeting in the district.

Morang PU: For KII, offices and persons visited and interacted were Plan Nepal Morang PU, Chief ADO, Horticulture Development Officer, LDO at DDC, Assistant Forest Officer at DFO, FORWARD of Morang. From the interactions, it revealed that there has been good coordination

with LDO, ADO and DFO in the district for the improvement of livelihood of poor and very poor people. ADO has been involved in providing training for vegetable production.

Annex 4: Case Studies

Semi-commercial vegetable producer:

I am 45 years old **Madan Rana** from Bhimphedi-8, Makwanpur. I have five members in my family and we all are dependent on agriculture. Plan Nepal has supported for vegetable production in our semi-commercial scheme since 2000 AD. I grow vegetable in 5 kaththa of land. Plan Nepal and FORWARD have supported agriculture inputs of improved seed, fertilizers and provided us vegetable production trainings. I grow tomato, beans, cabbage, cauliflower, brocauli, potato and hot chilli and sell in Hetauda market. After the intervention of the support by Plan Nepal, now I am able to increase our vegetable product compared to before project support which has increased my household income.



I attended IPM training from Plan Nepal. This gave me hope and confidence to pursue vegetable farming as income generation. I applied the standard practice in IPM and obtained very good harvest of vegetables.

I sold 5 tons of these vegetable and earned revenue of Rs. 150,000/- in last year. This is my earning from winter, spring and summer vegetables. I thank Plan Nepal and FORWARD for enabling me to pursue vegetable farming livelihood.

Leasehold Normal Vegetable Producer:

My name is **Mira Devi Bista** and I am 48 years old. I am from Rabe-5, Sunsari. We are total 4 household members. Our family major occupation is agriculture. Plan Nepal has supported me for vegetable production in leasehold normal farming. I have grown cauliflower, hot chilli, brinjal, onion and ginger in 2 kaththa *bari* lease-in land since 3 years. I sold 2 tons of these vegetable and earned net profit of Rs. 85,000/- last year.



I am president of saving and credit group which gives information of monetary help to the people. I am very thankful towards Plan Nepal and SEBEC for supporting me in vegetable production which helps in income generation of my family.

Vegetable Production under Agro-forestry Scheme Producer:

I am **Nani Devi Mandal**. I am 48 years old. I am From Banigau -5, Morang. We are total 6 members in my family and our major occupation is agriculture. We have been supported by Plan Nepal for vegetable production under Agro- forestry system for total 2 kaththa of land where we grow cauliflower & hot chilli, ginger, termeric. After the support by PLAN Nepal, we are now able to increase our product by 600 kg land are able to earn up to Rs. 131,500/- per year. Due to this project now we are able to produce our own food for 12 months and saving has been increased up to Rs. 40,000/- per year. I received nursery management training. Both male & female members in my family are responsible for making decision on activities related to vegetable production, marketing income generation , borrowing & selling assets ,family planning , children's education & woman Empowerment has been increased after plan Nepal vegetable production support in our context , work load on woman, child labor, expenditure on medical treatment & alcohol consumption has been decreased. I would be more happy with Plan Nepal if we can receive training on vegetable production & marketing in advance.

Annex 5:
Name List of Farmers Participated in FGDs in Different PUs.

Annex 5a: Name list of farmers participated in FGD, Manikpur VDC-8, Banke on 2068/11/3
(Semi-commercial)

Sn	Name	Address
1	Maduram Chaudhary	Manikpur VDC
2	Mina Sharma	Manikpur VDC
3	Ramsaran Chaudhary	Manikpur VDC
4	Jitu Tharu	Manikpur VDC
5	Laxmi pd Tharu	Manikpur VDC
6	Khagendra pd Neupane	Manikpur VDC
7	Bishnu Pd Regmi	Manikpur VDC
8	Nanda Shai	Manikpur VDC
9	Tulsi Ram Giri	Manikpur VDC

Annex 5b: Name list of farmers participated in FGD, Belvar VDC-9, Banke on 2068/11/4
(Semi-commercial group)

Sn	Name	Group name
1	Mina Adhikari	Hariyali Vegetable Production
2	Rajesh Burma	Pragati Vegetable production
3	Khemraj Burma	Vikash Vegetable Production
4	Bbawan Singh	Hariyali Vegetable Production
5	Rumesh Kumar Kurmi	Hariyali Vegetable production

Annex 5c: Name list of farmers participated in FGD, Bhaisa 2, kalitar, Makwanpur on
2068/11/17 (Semi-commercial group)

Sn	Name	Group name
1	Parbati Thapa	Laligurash Vegetable Production
2	Sarada Ale	Laligurash Vegetable Production
3	Chunumaya Gopali	Laligurash Vegetable Production
4	Sunita Balami	Laligurash Vegetable Production
5	Ranumaya Thapa	Laligurash Vegetable Production
6	Purnamaya Thapa	Laligurash Vegetable Production
7	Laxmi Jurga	Laligurash Vegetable Production
8	Bee Kumari Ale	Laligurash Vegetable Production
9	Sita Thapa	Laligurash Vegetable Production
10	Balbair Thapa	Laligurash Vegetable Production
11	Tritha Bahadu Thapa	Laligurash Vegetable Production
12	Ram Hari Ale	Laligurash Vegetable Production
13	Radhika Thapa	Laligurash Vegetable Production
14	Tara Ale	Laligurash Vegetable Production
15	Sarswati Bidari	Laligurash Vegetable Production

Annex 5d: Name list of farmers participated in FGD, Barsamadi VDC-1, Newarpani, Makwanpur on 2068/11/17 (Commercial group)

Sn	Name	Group name
1	Prem Ball	Nawabuddha Farmers
2	Hira Ball	Nawabuddha Farmers
3	Pabitra Ball	Nawabuddha Farmers
4	Bir Bahadue Goale	Nawabuddha Farmers
5	Sanchamaya Thing	Nawabuddha Farmers
6	Uma Thokar	Nawabuddha Farmers
7	Chandra Baadur Goale	Nawabuddha Farmers
8	Maan Bahadur Goale	Nawabuddha Farmers
9	Reekam Goale	Nawabuddha Farmers
10	Setimaya Ball	Nawabuddha Farmers
11	Dolma Ball	Nawabuddha Farmers
12	Sunita Ball	Nawabuddha Farmers

Annex 5e: Name list of farmers participated in FGD, Mithuwa VDC-6, Rautahat on 2068/11/19 (Leasehold normal)

Sn	Name	Group name
1	Mahindra Paswan	Hariyali Vegetable Group
2	Salima Khatun	Hariyali Vegetable Group
3	Sayl Kumari ray	Hariyali Vegetable Group
4	Siladevi Yadav	Hariyali vegetable group
5	Anandi Devi	Hariyali vegetable group
6	Koshila Khatun	Hariyali vegetable group
7	Ramjyoti Devi	Hariyali vegetable group
8	Janarsi Devi	Hariyali vegetable group
9	Sarada Devi	Hariyali vegetable group
10	Sukali Devi	Hariyali vegetable group
11	Sanjuriya Devi	Hariyali vegetable group
12	Lalbahadu Sahani	Hariyali vegetable group
13	Kadir Mansuri	Hariyali vegetable group
14	Ganesi Paswan	Child Progressive Centre
15	Rang Lal Yadav	Child Progressive Centre

Annex 5f: Name list of farmers participated in FGD, Samanpur VDC-1, Rautahat on 2068/11/20 (Leasehold riverbank)

Sn	Name	Group
1	Ram Ekbal Sahani	Boudhimahi Farmers Group
2	Bhadyi Mahato	Boudhimahi Farmers Group
3	Anita Sahani	Boudhimahi Farmers Group
4	Santosiya Sahani	Boudhimahi Farmers Group
5	Sunaina Devi	Boudhimahi Farmers Group
6	Hirmatiya Devi Sahani	Boudhimahi Farmers Group
7	Jayamatiya Sahani	Boudhimahi Farmers Group
8	Pachiya Devi Sahani	Boudhimahi Farmers Group
9	Shivachandra Pandit	Boudhimahi Farmers Group
10	Rajaram Mahoto	Boudhimahi Farmers Group

Annex 5g: Name list of Women Agro-forestry group formed under Bantole Women CFUGs (Community Forestry Users Group) participated in FGD, Chudibela VDC-1, Rautahat on 2068/11/20

Sn	Name	Group
1	Ganga Lama	Women Agro-forestry group
2	Mishree Lama	Women Agro-forestry group
3	Geeta Shrestha	Women Agro-forestry group
4	Sunmaya Manandhar	Women Agro-forestry group
5	Anita Rai	Women Agro-forestry group

Annex 5h: Name list of farmers participated in FGD, Simriyola VDC-3, Sunsari on 2068/11/22 (Semi -commercial)

Sn	Name	Group name
1	Haidar Ali	Krishi Chhad Saving and Credit group
2	Juma Khatun	Krishi Chhad Saving and Credit group
3	Rakibon Khatun	Krishi Chhad Saving and Credit group
4	Kitawani Khatun	Krishi Chhad Saving and Credit group
5	Wakila Khatun	Krishi Chhad Saving and Credit group
6	Sahisa Khatun	Krishi Chhad Saving and Credit group
7	Dhansar Khatun	Krishi Chhad Saving and Credit group
8	Rojidon Khatun	Krishi Chhad Saving and Credit group
9	Maherun Khatun	Krishi Chhad Saving and Credit group
10	Hamida Khatun	Krishi Chhad Saving and Credit group
11	Madina Khatun	Krishi Chhad Saving and Credit group
12	Sahajan Khatun	Krishi Chhad Saving and Credit group

Annex 5i: Name list of farmers participated in FGD, Simriyola VDC-3, Sunsari on 2068/11/22 (Leasehold normal)

Sn	Name	Group
1	Phulmatiya Rishidev Mushar	Pashupati Commercial Vegetable Production
2	Kalamatiya Rishidev Mushar	Pashupati Commercial Vegetable Production
3	Rajkumari Rishidev Mushar	Pashupati Commercial Vegetable Production
4	Laharidevi Rishidev Mushar	Pashupati Commercial Vegetable Production
5	Radhadevi Rishidev Mushar	Pashupati Commercial Vegetable Production

Annex 5j: Name list of farmers participated in FGD, Rangeli VDC, Morang on 2068/11/23 (Jayama Sarswati Riverbank group and krishijagdamba Agro-forestry group)

Sn	Name	Address
1	Chitba Mandal	Rangeli-6
2	Shree Prasad mukhiya	Rangeli-6
3	Binod Mandal	Rangeli-6
4	Ramkhalan Mandal	Rangeli-6
5	Papuu Kumar Mukhiya	Rangeli-6
6	Bhuriya Mandal	Rangeli-6
7	Dhiraj Mandal	Rangeli-2
8	Suraj Mandal	Rangeli-2
9	Pramana Lohar	Rangeli-2
10	Madiya Mandal	Rangeli-2

Annex 5k: Name list of farmers participated in FGD, Banigama VDC-6, Morang on 2068/11/23
(Leasehold normal)

Sn	Name	Group name
1	Anta Kumari Chaudhary	Ujjal vegetable production group
2	Padam Kumar Magar	Ujjal vegetable production group
3	Jitiyadevi Majhi	Ujjal vegetable production group
4	Indramaya Magar	Ujjal vegetable production group
5	Bhutii Devi Majhi	Ujjal vegetable production group
6	Bathiya Devi Majhi	Ujjal vegetable production group
7	Nirmala Magar	Ujjal vegetable production group
8	Gogari Devi Majhi	Ujjal vegetable production group
9	Indra Bahadur Magar	Ujjal vegetable production group
10	Pannalal Majhi	Ujjal vegetable production group

Annex 6:
Name list of the personals participated in key informant interview (KII) in all PUs

District/PU	Organization	Name	Working Position	Met Date
Banke	Plan Nepal, Banke PU	Kaniya Pokhrel	Program Manager	2068/11/02 and 2068/11/04
		Keshav Acharya	PME	
		Ganak Giri	Bardiaya, PM	
		Tularam Kumi	CDO	
		Shiva Pradhan	Livelihood	
	FORWARD	Omkar Raj Kafle	Field Technician	2068/11/02
		Chhalu Pdr. Chaudhary		
	DADO	Yugal Kisor Tiwari	ADO	
		Kishor Man Shrestha	Horticulture Officer	
		Suma Karki	Agri. Extension Officer	
	ASC	Chitra Pathak	Kohalpur, Agri. Market Coordinator	
Bardiya	Plan Nepal Program Office	Nathu Pdr. Chaudhary	Coordinator	2068/11/04
	DADO	Puspa Bimal Belase	ADO	2068/11/05
		Danaraj Gautam	Horticulture Officer	
		Sujan Kandel	Planning Officer	
		Rabin Dhital	Plan Protection Officer	
		Ganga Bhandari	JT	
		Krishna Khanal	JT	
Makwanpur	Plan Nepal PU	Dr. Chandra Kumar Sen	Program Manager	2068/11/16 and 2068/11/17
		Bandana Aryal	Livelihood & Micro-finance Officer	
		Rama Bogati	M&E	
		Chandra Pradhan	Gender & Children	
		Laxmi Pathak	Street & labor children	
		Bharat Gurung	DO	
		Kush Thapa	DO	
	FORWARD	Khem Prasad Oli	Project Coordinator	2068/11/16
		Maiya Giri	Field Technician	
	DADO	Min Pdr. Budathoki	ADO	2068/11/17
		Bashu Dev Sharma	Planning Officer	
		Yogendra Poudel	JT	
Rautahat	Plan Nepal PU	Jeevnath Parajuli	Program Manager	2068/11/18
		Dan Bdr. B. K.	Coordinator	
		Rudra Nath Dahal	Program	
		Pawan Rai	Development Coordinator	2068/11/19
		Nitu Acharya	DC	
	MADE Nepal	Min Raj Bhandari	Project Coordinator	2068/11/26

	SODEC	Ram Pukar Adhav	Program Coordinator	
	AFFAN	Sudhir Kumar Kantha	Program	
	Shree Radha Krishan Secondary School, Mituwaha-7	Binod Kumar Mahato	Teacher	
		Mahan Baita	Teacher	
		Ram Akawal Rahot	Teacher	
		Subas Chandra Shah	Teacher	
	DADO	Ram Pdr. Shah	ADO	
		Ram Pratab Aydu	Horticulture Officer	
Sunsari	Plan Nepal PU	Kalabati Changanj	Program Manager	2068/11/22 And 11/24
		Binod Koirala	Livelihood Coordinator	
		Yogesh Niraula	Sponsor program	
		Mitra Rai	M & E	
	SEWAC	Ram Bdr. Majhi	Program Coordinator	
		Ganesh Katuwal	Field Technician	
		Laxman Khan (Tharu)	Field Technician	
	DADO	Ashok Kumar Das	ADO	
		Rudra	Planning Officer	
		Kul Pdr. Dawadi	Agronomy Officer	
		Tirpti Narayan Mishra	Horticulture Officer	
		Heman Kumar Mahato	Officer	
	RATC, Jhumka	Prakash Kumar Dagi	Officer	
		Mitra Lal Poudel	Extension Officer	
		Benup Pdr. Poudel	Officer	
	DDC	Bhesh Raj Gimire	Officer	
Morang	Plan Nepal PU	Kalu Dhan Rai	Program Manager	2058/11/23
		Rajan Poudel	Planning & Monitoring	
		Binod Koirala	Livelihood	
	FORWARD	Durga Basnet	Agri. Technician	
		Pankaj Koirala	Coordinator	Telephone interview
	DADO	Manoj Kumar Adhav	ADO	2068/11/24
		Kashi Kumar Chaudhary	Horticulture Officer	
		Basanta Raj Aryal	Planning Officer	
		Sagar Bhattari	Plan Protection Officer	
		Abimanu Adhikari	JT	
	DDC	Pashupati Pokhrel	LDO	
		Saroj Gautam	Social Dev. Officer	
		Mahendra Khadka	Program Officer	
	DFO	Arun Sharma Poudel	Forest Officer	
		Ganesh Chaudhary	Asst. Forest Officer	

Annex 7: Household Survey Questionnaire

Questionnaire Number

Date entry No.

Impact Assessment of Vegetable Production Program Initiatives of Plan Nepal

Name of Interviewer:.....

Signature of Interviewer:.....

Signature of Supervisor:.....

Survey District: (Please tick ✓ the right ones)

Banke ☐

Makwanpur ☐

Sunsari ☐

Bardiya ☐

Rautahat ☐

Morang ☐

Types of Vegetable production supported by Plan Nepal: (Please tick ✓ the right ones)

Leasehold Normal (Type.....) ☐

Leasehold River-bank (Type.....) ☐

Semi-commercial (Type.....) ☐

Agro-forestry ☐ Other (specify.....) ☐

Section A: Identification Particulars:

1. **Name of Respondent:**..... Is he/she HH head: Yes () No ()
If no, who is HH head? Male () Female ()
2. **Age:**..... Gender: Male ☐ Female ☐
3. **Address:** VDC/Municipality..... Word No... Village/Tole..... Telephone No.: (if have)...
4. **Social background of the household:** ☐

(1-Brahmin, 2-Chhetri, 3-Indigenous/ethnic, 4-Dalits, 5-Madheshi, 6-Other (specify.....))

5. **Education status information of the respondent:** ☐ ----- (Years of schooling)
(0-Illiterate, 1-Literate only, 2-Primary level, 3-Lower secondary, 4-Secondary, 5-Higher secondary, 6-Collage/university)

6. **Could you please provide me information about your family size?**

Age group	No. of HH members		
	Male	Female	Total
Below 6 years			
6-14 years			
15-60 years			
Above 60 years			

7. What is your major occupation? ☐
(1-Agriculture, 2-Wage labor, 3-Trade/Business, 4-Service, 5- Study, 6-Other (Specify.....))

¹⁵ Type means whether private indicates or government or community ownership of the land.

Section B: Socio-Demographic Information of Household (as on the date of interview):**

8. Operating land: Do you have cultivated land? 1=Yes, 0=No ☐

If yes, please give the following information,

Type of land	Bigha-Katha-Ropani-Dhur-Ana-Paisa					Who own the land? 1=Male HH 0=Female HH
	Owned	Leased in	Rented in (Bandaki)	Other	Total	
Khet						
Bari						
Other (specify.....)						
Crop grown (A)						
How much land do you have with year round irrigation?					Area:.....	

Rental Value of land in this area (Rs./unit) Khet: Rs...../ (unit). Bari: Rs...../(unit)

Code for question 8 Table:

Code A: 1-Rice (lowland), 2-Rice (upland), 3-Wheat, 4-Maize, 5-Millet, 6-Tomato, 7-Beans, 8-Cabbage, 9-Cauliflower, 10-Broccoli, 11-Hot chilli, 12- Sweet pepper, 13-Carrot, 14-Brinjal, 15-Potato, 16-Onion, 17-Ginger, 18-Garlic, 19-Turmeric, 20-Sugarcane, 21-Cut-flower, 22-Mustard, 23-Buckwheat, 90-Other (please specify).....

9. Has your cropping pattern changed after Plan Nepal Vegetable Production Program Initiatives?

1=Yes, 0=No ☐

If Yes, feel the Table below:

Sn.	Before Plan Nepal Project			After Plan Nepal Project (Now)		
	Crops in different cropping season (A)			Crops in different cropping season (A)		
	Rainy	Winter	Summer	Rainy	Winter	Summer
1						
2						

Code for question 9 Table

Code A: 1-Rice (lowland), 2-Rice (upland), 3-Wheat, 4-Maize, 5-Millet, 6-Tomato, 7-Beans, 8-Cabbage, 9-Cauliflower, 10-Broccoli, 11-Hot chilli, 12- Sweet pepper, 13-Carrot, 14-Brinjal, 15-Potato, 16-Onion, 17-Ginger, 18-Garlic, 19-Turmeric, 20-Sugarcane, 21-Cut-flower, 22-Mustard, 23-Buckwheat, 90-Other (please specify).....

10. Average area and production of vegetable by Plan Program Support

Type of Vegetable	Record of last one year		Before Plan Project		Response on Change (A)
	Area	Production (Kg)	Area	Production (Kg)	
Semi-commercial					
Leasehold normal Veg.					
Leasehold River bank Veg.					
Agro-forestry					
Others (Specify....)					

Code for question 10 Table

Code A: Response on changes in Support Services and Inputs Use on vegetable production Over Last Three Years: 1-Increased, 2-Decreased, 3-Same and 4-Don't Know.

Section C: Vegetable Production, Marketing and Income:

11. Particular Vegetable production, consumption, sale, and chain actors (per agricultural year in 2068)

1	2	3	4	5	6	7	8
Vegetables	Area	Land Type	Yield	Home consumption	Sold quantity	To whom did you sell? (see Code B below)	Selling Price
	Katha/ropani	(A)	Kg	Kg.	Kg.		Rs./Kg
Cauliflower							
Brocauli							
Cabbage							
Hot Chilli							
Capsicum							
Tomato							
Potato							
Brinjal							
Onion							
Pumpkin							
Water melon							
Ginger/Turmeric							
Garlic							

Code for question 11 Table

Code A: 1-Bari-semi commercial, 2-Bari-leasehold normal, 3-Bari- leasehold river bank, 4-Khet-semi-commercial, 5-Khet-leasehold normal and 6-Khet- leasehold riverbank, 7-Other (specify.....)

Code B: 1-Hat bazaar, 2-Collection center, 3- Wholesaler, 4-Middleman, 5-Retailer at local market, 6-Other (specify.....).

12. What types of support have you got from Plan Nepal?

Sn.	Type of support	Support: 1-Yes, 0-No	Purpose
1	Agri. Input availability		
2	Institutional loan		
3	Agri-extension services		
4	Veterinary services		
5	Compost use		
6	Chemical fertilizer use		
7	Insecticide use		

13. How much level of Confidence do you have in Undertaking Vegetable production?

a) High..... B) Medium..... c) Low.....

14. Will you produce vegetable continually after Vegetable Program Initiatives project terminated by Plan Nepal? Yes (....) No (....)

If Yes, is it increased or decreased or same? (tick ✓ the right ones)

a) Increased.... Increased land:...(Katha/Ropani) b) Decreased..... Decreased land:...(Katha/Ropani) c) Same.....

Why (opinion of the respondent).....

If No, What are the reasons (Multiple Response)

Sn.	Reason	tick √ the right ones
1	Resources Unavailability (fertilizers, seeds,..)	
2	Unavailability of land for vegetable production	
3	Production risk (diseases, pests	
4	Lack of support (Plan Nepal or by others)	
5	Lack of Agri. human resource	
6	Competitive Crop enterprises (Crop choice) like.....	
7	Lack of proper marketing (market risk)	
8	Capital (finance).....	
9	Other (specify)	

15. Is there any problem associated with vegetable production, marketing and finance? 1=Yes, 0=No ☐

If Yes, which one is the biggest problem? Please prioritize it

Problem	1-Yes, 0-No	If Yes, specify..	Ranking (1 st , 2 nd , 3 rd)
Vegetable production			
Vegetable marketing			
Finance			

Section D: Income and Expenditure:

16. Do your family income increase over last three years due to vegetable program initiatives supported by Plan Nepal? Yes (....) No (...)

16. Response on Change in family income in last year after Plan Nepal project (tick √)
Increased (.....) Decreased (.....) Same (.....) Don't Know (....)

17. Which of the following income generating activities have your family been involved in? Please give details of activities you have undertaken

17.1 Farm enterprises-cash crops

Particulars	Record of last one year			Annual record -Before Project		
	Area/No.	Quantity Produced (kg)	Sale (Rs.)	Area/No.	Quantity Produced (kg)	Sale (Rs.)
<u>Vegetable species</u>						
1.....						
2.....						
3.....						
4.....						
5.....						
Total Income from veg (Rs.)						
Fruit Production						
Fishery						

17.2 Farm enterprises - livestock

Particulars	Record of last one year		Annual record -Before Project	
	No.	Sale of animals and products (Rs.)	No.	Sale of animals and products (Rs.)
Goat raising				
Pig raising				
Poultry raising				
Cattle				
Buffalo				

17.3 Non-farm enterprises

Particulars	Record of last one year	Annual record -Before Project
	Annual Income (Rs.)	Annual Income (Rs.)
Sewing/Tailoring		
Grocery shop		
Vendering		
Handicraft.....		
Others.....		
Others.....		

18. Do you practice kitchen gardening? 1=Yes, 0=No ☐

18.1 If yes, how many months do you get vegetables from your kitchen garden?months

18.2 Names of vegetables grown in Kitchen garden

1.	3.	5.	7.
2.	4.	6.	8.

18.3 Did you sell vegetables from kitchen garden during last 12 months? 1=Yes 0=No ☐

If yes, income from vegetable sale: NRs.....

19. Who is mainly responsible for the management of the income generating activity in your family? 1=Male, 0=Female ☐

20. How much is your monthly expenditure?.....(NRs.)

20.1. How much did you spend for the following items?

Sn.	Categories	Record of last one year	Annual record-3 years ago
		Total Amount (Rs.)	Total Amount (Rs.)
1	Food Consumption		
2	Education		
3	Health (Medicine)		
4	Social (Celebration and funerals, donations)		
5	Non-Food (Rent (for housing), personal care suppliers, clothes, shoes, bags, accessories,		
6	Transportation and Communication		
7	Expenses for Loan Interest Rates		
Total:			

Section E: Food Security, Burrowing and Saving

21. How many months in a year did you have sufficient food from your own farm production in?

a. Last Year:------(Months) b. Three Years Ago:------(Months), c. Before Plan Project: -----(Months)

22. If own produced food is not sufficient for 12- months, how do you meet food requirement during food deficit months? (Multiple Response) tick ✓ the right ones

1	Buying on Credit basis from market	
2	Barter/exchange in neighbors (Burrow...	
3	Reduced consumption	
4	Consuming forest edible collection and less preferred food	
5	Seasonal Migration to earn	
6	Wage labor (Daily wage earning)	
7	Selling Asset	
8	Trade	
9	Other (specify.....)	

23. Response on change in Food and Nutrition Practices: per Household

Particulars	Last Year (A)	Before Project (A)
Expenditure on food		
Consumption of meat/fish		
Consumption of vegetables		
Consumption of fruits		
Nutritious food to pregnant and lactating mothers		
Nutritious food to children		

Code for question 30:

Code A: 1=Increased, 2=Decreased, 3=Same, 4=Don't Know

24. Average quantity of Food Consumption: per Household

Particulars	Unit	Now	Before Plan Project (date:.....)
Quantity of food grain consumed in family in a day	Kg		
Quantity of milk consumed in family in a day	Liter		
Quantity of pulse consumed in family in a week	Kg		
Quantity of vegetables consumed in family in a week	Kg		
Quantity of eggs consumed in family in a week	No.		
Quantity of meat consumed in family in a month	Kg		

Section F: Borrowing and Saving:**Borrowing:**

25. Have you or your family member borrowed credit (loan) to meet the household needs during the last one year? 1=Yes, 0=No ☐

26. If yes, what are the sources and purpose of credit

Purpose of the loan (A)	Where did you borrow from?(B)	Amount of loan	Interest rate (%)	Duration (Months/Year)

Code for section F Question 26:

Code A: 1-Farming, 2-Buying food, 3-Treatment/Health, 4-Business, 5-Education, 6-Buying livestock, 7-House construction/improvement, 8-Buying equipment/tools, 9-Other (specify.....)

Code B: 1-Borrowed from Relative/Friend/Neighbor, 2-Local Money Lender, 3-Borrowed from Bank (specify.....), 4-Borrowed from Cooperative, 5-Borrowed from Village Level Saving and Credit group, 6-Borrowed from Micro-finance Institute (specify.....), 90-Other, please specify.....

27. Do you have access to credit at formal/informal credit institute? 1=Yes, 0=No ☐

If Yes, from which institute?.....

28. What is your income source if you will need immediately? (Access to credit, also interest rate in%)

- Formal credit institution (please specify which) -----
- Saving group-----
- Money lender-----
- Friends/neighbour/relative-----
- Other (specify) -----

Savings:

29. Do you have any saving? 1=Yes, 0=No ☐

30. Could you save part of your yearly farm income from vegetable production? 1=Yes, 0=No ☐

31. What is your saving status change in over last three year due to vegetable production?

- Increased (.....)
- Decreased (.....)
- Same (.....)
- Don't Know (.....)

32. How much your yearly income do you save from vegetable production?

Last Year: Rs...../year. 3 Year Ago: Rs...../year. Before Plan Nepal: Rs...../year

33. During the last three years, have you made any addition to your physical assets as a result of income from vegetable production? 1=Yes, 0=No ☐

33.1 If Yes, what types of assets have you added?

Sn.	Type of Asset	Quantity	Value (Rs.)	Ownership (1-Male, 2-Female, 3-Joint)
1	Land			
2	House			
3	Cattle			
4	Buffalo			
5	Goats			
6	Pigs			
7	Agri. Tools/implements			
8	Ornaments			
9	Radio/TV			
10	Other (specify.....)			

Section G: Social Capital:

Cooperation and Membership:

34. Are you member of any organizations? 1=Yes, 0=No ☐

34.1 If yes, please give the following information.

Sn.	Which	Type of Membership 1=Executive 2=General	No. of meeting/month	Function
1	Saving and credit group (name).....			
2	Women group (name) If different from above).....			
3	Irrigation management group (specify).....			
4	Agriculture cooperative (name).....			
5	Community forest user group (CFUG)			
6	Livestock group.....			
7	Drinking water group			
8	Other (specify).....			

35. What kind of help/cooperation do you get from the fellow members of the organization to which you belong to?

- a) Labor exchange.... b) Equipment exchange.... c) Information sharing.... d) Monetary help....
e) Other, please specify.....

36. If not a member, do you at least cooperate in some of village level organization? 1=Yes, 0=No ☐

37. What kind of cooperation? Please specify.....

38. Do you also cooperate with cooperative from other areas? 1=Yes, 0=No ☐

Rely on the following service:

39. Do you agree that most of the **people in your village** (community) can be relied?

- a) Strongly agree... b) Agree... c) Indifferent... d) Disagree... e) Strongly disagree...

40. Do you think the level of rely over last five years?

- a) got much better... b) better... c) stayed the same... d) got worse... e) got much worse...

41. How much do you rely the **officials or agricultural (government) department**?

- a) very much..., b) much... c) medium... d) little... e) not at all... f) not sure...

42. How much would you rely **people from the cooperative**?

- a) very much..., b) much... c) medium... d) little... e) not at all... f) not sure...

43. How much do you rely the **NGO/INGOs (Plan Nepal)**?

- a) very much..., b) much... c) medium... d) little... e) not at all... f) not sure...

Section H: Framework Condition and Others:

44. Did you attend education meetings on vegetable production and marketing related issues in last year?
1=Yes, 0=No ☐ If Yes, How many times?.....

45. Are there agro-vets in the community supported by Plan Nepal? 1=Yes, 0=No ☐

45.1 If Yes, do you take service from them? 1=Yes, 0=No ☐

45.2 How effective it is?

a) Excellent... b) Very good... c) Average.... d) Poor... e) Very Poor...

46. Do you know a locally trained resource person on vegetable by Plan Nepal? 1=Yes, 0=No ☐

46.1 If yes, do you take service from him/her? 1=Yes, 0=No ☐

46.2 How effective it is?

a) Excellent... b) Very good... c) Average.... d) Poor... e) Very Poor...

47. Is there a vegetable marketing outlet supported by Plan Nepal? 1=Yes, 0=No ☐

47.1 If yes, what are they?

a. Collection Center (...) b. Marketing Cooperative (...) c. Market Center (..) d. Other.....

47.2 If yes, Do you take services from it? 1=Yes, 0=No ☐

48. How do you normally update your technical knowledge?

Through agro-vets (...) Through leader farmer (...) Through Govt. JTA (...) Don't know (....)

49. Do children work in the farm? 1=Yes, 0=No ☐

49.1 In what farm?

Vegetable production (...) Livestock (...) Off-farm wage labor (...) Non-farm enterprise (...)

49.2 If Yes, How many days in last year?days.

50. Did you or your family members receive any agricultural/skill development training during the last three years? 1=Yes, 0=No ☐

50.1 If Yes, give the following information

Name/types of training received	Relevance of training (1-High, 2-Medium, 3-Low, 4-Not relevant)	Improvement in knowledge and skill (1-Yes, 0-No)	Actual use of knowledge and skills (1-Yes, 0-No)	Who provided training?

51. Who takes decision on following particulars in your home? (tick ✓ the right ones)

Particular	Only Male HH	Only Female HH	Both Male & Female in HH
Vegetable production			
Vegetable marketing			
Changing cropping pattern			
Changing seed options			
Management of income generating activity			
Cash utilization			
Borrowing			
Loan utilization			
Purchasing Assets			
Selling Assets			
Saving			
Other crop production and sale			
Livestock raising			
Marriage			
Family planning			
Children's education			
Investment on enterprises			

52. Response on changes in Children's Education & Women Empowerment after Plan Nepal Vegetable production support:

Particulars for Children:	Status (A)	Particular for Women:	Status (A)
Expenditure on Boys' Education		Women participation in family Decision Making	
Expenditure on Girls' Education		Women participation on Economic Activities	
Girls' Enrollment		Women participation in Marketing	
Girls' Drop Out		Women's Control Over Income	
Boys' Enrollment		Women's Control Over Assets	
Boys' Drop Out		Women's participation in Community Meeting	
Code A: 1=Increased, 2=Decreased, 3=Same, 4=Don't Know		Women's participation in Community Decision	
		Opportunity for Women's free movement	

53. Your opinion on Miscellaneous Change after Plan Nepal Vegetable program: (tick ✓ the right ones)

Particular	Increased	Decreased	Same	Don't Know
Work load on women				
Use of child labor				
Expenditure on Medical Treatment				
Expenditure on Alcohol Consumption				

54. At last, do you like to give any suggestion/comments on? (Vegetable production, marketing, Plan Nepal Support, Increasing income and sustainability)

.....

.....

.....

.....

Thank you for your kindly cooperation!!

For Enumerator Only!

How much confident do you have on reliability of the information (RoI) given by respondent?%.

How much confident do you have on collected information yourself?%.

Annex 8:

Checklist for Focus Group Discussion (FGD)

Following issues would be addressed during Focus Group Discussion (FGDs)

2 FGDs in each proposed district with targeted beneficiaries (8-12 members together) in each proposed district.

Total FGDs in 6 proposed district: ----12

The assessment will be addressed following parameters:

1. Program/project relevance:

How well the program addresses the key issues or problems that affected the Plan communities over the program period. Particularly, Program would assess economic impact on targeted households and their families. This would be analyzed and draw inferences through before and after research design question checklist.

- Annual Household food and Income Status before Plan Nepal Vegetable Production Program initiatives and Current
- How they were addressed the Key issue (Core Problem) in community and Is implementation process effective for community or not?

2. Program/project impact:

- The systematic analysis of the changes in people's lives (children, families and communities), duty bearer's priority and capacity, and capability of civil society organizations at different level, brought about by the program.
- Specifically it would assess programs impact on livelihood and food security of targeted households and surrounding environment.
 - Impact of Vegetable Production Program Initiative (VPPI) on household food security
 - Impact of VPPI on household income

3. Program/project sustainability:

- The extent to which objectives of the program will continue to be met without Plan's support after the program is over.
- Is the targeted households (Group) continue their activities if it change their livelihood and food security level.
- **To what extent the project intervention continue after Plan pulls out?**

4. Social Inclusion and Gender Equity:

- How and to what extent equity aspect has been addressed by the program/project especially gender equity and equity to socially excluded groups
- What are the major activities under Vegetable Production Program Initiative for addressing DAGs?
- Are these activities focused on specific target groups (Dalits, Landless, Women, Children-disable)? If **Yes**, what are they?
- How are activities planned? Who are involved in the planning process? Are DAGs (Dalits, women and Landless) equally participated in planning process?

5. Scale up:

- To what extent the program has demonstrated or has potential for scaling up in a large scale to benefit landless or marginal land holders and create employment and income for them.
- Assess the potentiality of Leasehold normal, Semi-commercial and Leasehold river bank vegetable production in community and household level for commercialization in vegetable production

6. Innovation:

- To what extent the program/project adopted or inherited innovation and how the program/project did evolved during its life period.
- New technology adoption and innovation approach for vegetable program initiatives followed by Plan Nepal and its partners in community and household level
- Adoption level in community and household (Effectiveness of trainings received and extension visits)

7. Responsibilities and accountability:

- To what extent the responsibilities and accountabilities of different stakeholders, namely, government line agencies, DDC, VDCs, Plan and its partners and community groups have been clarified, and what mechanism is there to hold them to account with regard to their responsibilities.
- Are Participatory Monitoring & Evaluation (PME) and Social Auditing conducted by Community (Beneficiaries group) and Plan Nepal' Partner Organizations?

8. Participation:

- Assess how the best interest of children is ensured and their issues addressed in this program.
- **Children's Education & Women Empowerment** after Plan Nepal Project Initiatives (School enrollment and women participation in different task in community and household).
- Decision and participation in vegetable production, marketing and income sharing

In addition, SWOT analysis will be done during FGD for identifying Vegetable Production Program Initiative "Strength, Weakness, Opportunities and Threat".

Example of SWOT Analysis Matrix:

Strength on Vegetable Production:	Opportunities on Vegetable Production:
???????	?????
Weakness on Vegetable Production:	Threat on Vegetable Production:
????	????
Strength on Vegetable Marketing:	Opportunities on Vegetable Marketing:
?????	?????
Weakness on Vegetable Marketing:	Threat on Vegetable Marketing:

More specifically following issues are addressed during FGD:

Date:

District:

VDC:

Ward,:

Tole:

Name of the Group and Participants (participated in FGD)

1. What are major activities under Vegetable Production Program Initiatives (VPPI) at community and HH level?
2. What are the major outputs, outcomes and effects from VPPI at community and household level for addressing food security and beneficiaries' livelihoods?
3. Are there activities focused on specific target groups (Dalits, landless, women)? If Yes, what are they?
4. How are activities planned at community level? Who are involved in the planning process?
5. What are the implementation modalities in practice at community level? Who are important stakeholders/beneficiaries?
6. Impression about efficiency of implementation modality, approach, strategy, structure for delivery of services at community and HHs.
7. What are the arrangements for inputs and support services for promotion of VPPI including marketing? Subsidy policy? At community level.
8. How VPPI is linked/integrated with other activities (microfinance, health, education, etc.)?
9. Strengths and weaknesses of the program (Methodology: process, approach, strategy);
10. Problems and constraints encountered during implementation?
11. Suggestions for improvement
12. Do you think the existing Vegetable Production Program activities of the Plan Nepal should be continued or disseminated to the other potential areas? Yes (..) No (..) With reasons.....
13. What is your level of satisfaction on performance and effectiveness of Plan Nepal vegetable production program activities?
 - a) Excellent... b) very good... c) good... d) fair... e) poor...

Annex 9:

Checklist for Key Informant Interview (KII)

Following issues would be addressed during KII (General):

1. Entry and existence of plan Nepal in district (Approach and Methodology)
 - Partner Organizations selection, program orientation in district, VDC selection, Targeting beneficiaries (HHs), Implementation of the activities, Monitoring, Information sharing mechanism (partnerships).
 - What are the major activities under Vegetable Production Program Initiative?
 - Are these activities focused on specific target groups (Dalits, Landless, Women)? If **Yes**, what are they?
 - How are activities planned? Who are involved in the planning process?
2. Plan Nepal Vegetable Production Program Initiative relevance, effectiveness.
3. Innovative (River bank, leasehold and semi-commercial vegetable production, Agro-forestry are these effective / innovative for targeted community? And which component (river bank, leasehold and semi-commercial) of these program is more effective and why?).
4. Contribution of Plan Nepal in vegetable production and its sustainability (continuity)
5. Employment generation
 - transfer of technology/skills/knowledge
 - Players in the market
 - Access to market
 - Capacity to influence market
6. Utilization of local knowledge
7. Utilization of available resources
8. Contribution on poverty reduction and food security
9. Contribution of Plan Nepal activities on “Living Standard”.
10. Contribution of Plan Nepal on gender empowerment and equity
11. Contribution of Plan Nepal in education and school enrollment of children
12. Contribution on Capital Formation (saving group, cooperative formation, access to credit, linkage to micro-financial institutions)
13. Contribution on Supply Chain Management for inputs, products and market link (Value Chain Development)
14. Accountability (Coordination in planning and implementation with line agencies)
15. Transparency (Monitoring and supervision in coordinated way)
16. Social inclusion (Coverage of targeted people, participation of minority groups)
17. What are the major Strength, Weakness, Opportunities and Threat (SWOT) of the Plan Nepal vegetable production program initiative in your district and targeted community?
18. Do you think the existing Vegetable Production Program activities of the Plan Nepal should be continued or disseminated to the other potential areas? Yes (..) No (..) With reasons.....
19. What is your level of satisfaction on performance and effectiveness of plan Nepal vegetable production program activities?
 - b) Excellent... b) very good... c) good... d) fair... e) poor...

Checklist for interaction with Staff of Plan Nepal and its Partners (PU and Field Level)

Date:

Organization:

Name(s) and designation of the person(s) met:

1. What are major activities under Vegetable Production Program Initiatives (VPPI)?
2. Are there activities focused on specific target groups (Dalits, landless, women)? If Yes, what are they?
3. How are activities planned? Who are involved in the planning process?
4. What are the implementation modalities in practice (Direct implementation by Plan/partnership with GOs, NGOs and CBOs)? Who are important partners?
5. Impression about efficiency of implementation modality, approach, strategy, staffing structure for delivery of services
6. What are the arrangements for inputs and support services for promotion of VPPI including marketing? Subsidy policy?
7. How VPPI is linked/integrated with other activities (microfinance, health, education, etc.)?
8. Linkage and coordination with VDC/DDC/line agencies/NGOs/other donors
9. Strengths and weaknesses of the programme (Methodology: process, approach, strategy);
10. Problems and constraints encountered during implementation?
11. Suggestions for improvement
12. Do you think the existing Vegetable Production Program activities of the Plan Nepal should be continued or disseminated to the other potential areas? Yes (..) No (..) With reasons.....
13. What is your level of satisfaction on performance and effectiveness of Plan Nepal vegetable production program activities?
c) Excellent... b) very good... c) good... d) fair... e) poor...

Checklist for Interaction with Local Leaders and related Agencies

Date:

District, VDC, Ward, Tole:

Name and designation of the person met:

1. Knowledge about Programmes of Plan and its partners
2. Impression about overall Programmes of Plan and its partners
3. Impression about Vegetable Production Programme Initiative (VPPI)
4. Linkage and coordination with VDC/DDC/line agencies
5. Strengths and weaknesses of the Programme
6. Problems and constraints faced during implementation
7. Do you think the existing Vegetable Production Program activities of the Plan Nepal should be continued or disseminated to the other potential areas? Yes (..) No (..) With reasons.....
8. What is your level of satisfaction on performance and effectiveness of Plan Nepal vegetable production program activities?
d) Excellent... b) very good... c) good... d) fair... e) poor...
9. Suggestions for improvement

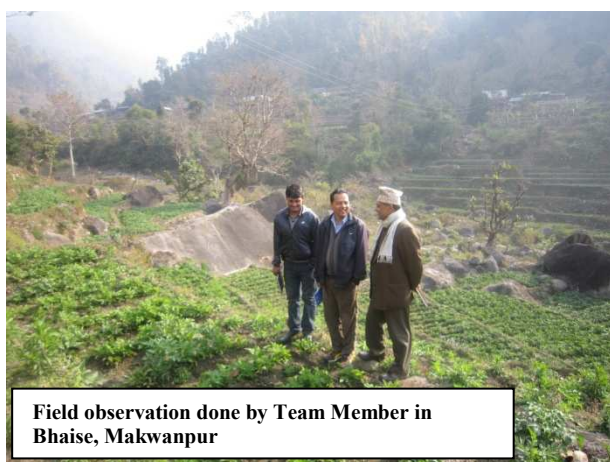
Annex 10: Some Photo Glimpse



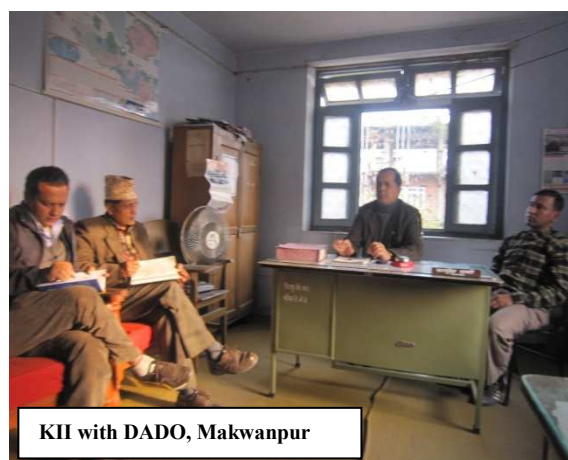
Team Leader participated in FGD at Banke



KII with Plan Nepal PU, Morang



Field observation done by Team Member in Bhaise, Makwanpur



KII with DADO, Makwanpur



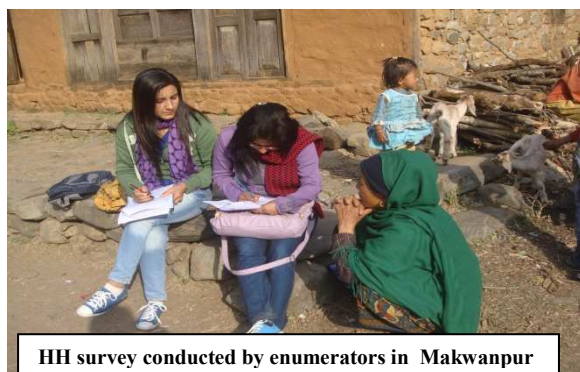
FGD in Rautahat



Photo 1: Leasehold vegetable production in Sunsari



FGD in Makwanpur



HH survey conducted by enumerators in Makwanpur



Annex 11:

Plan Nepal Terms of reference for the Impact Assessment of Vegetable Production Program initiatives of Plan Nepal

1. BACKGROUND

Plan Nepal is a humanitarian, child focused development organization without religious, political or governmental affiliation, serving in the communities of Nepal since 1978 to uplift the situation of children and women from the deprived and marginalized socio-economic groups. Plan's vision is of a world in which all children realize their full potential in societies, which respect people's rights and dignities. Its mission is to achieve lasting improvements in the quality of life of deprived children in developing countries through a process that unites people across cultures and adds meaning and values to their lives.

Vegetable production is a key activity to support food and income security of the Plan community identified through sub-sector analysis carried out in all the Plan program units. Plan is implementing leasehold vegetable scheme, semi-commercial vegetable schemes, riverbank vegetable production scheme, kitchen-home gardening scheme and vegetable production under the leasehold farm forestry. Landless families are either organised under the leasehold or river bank or leasehold farm forestry schemes or provided training and agricultural inputs on a subsidy scheme which goes down every year and ends at the fourth year. Families having some land first enter with the kitchen-home gardening scheme and those who progress well enter into the semi-commercial scheme in the second year. They are also provided subsidized inputs which reduce each year and completes in the fourth year. In all the cases, agricultural technicians from the partner NGO organization, local resource persons (leader farmers) and agro-vet suppliers provide technical backstopping. Producers are organised in the producer's groups and in the Producers apex committees (PACs) in the village development committee (VDC) level and registered with the government agencies.

When vegetable production pockets starts evolving, vegetable collection centres marketing cooperatives and interactive sessions between the wholesale buyers and farmers are organised to promote marketing. Producers are encouraged to join the microfinance program for working capital. Approximately 9,000 families were covered under the vegetable program in the FY 2010 alone. The last five years database reveals the following families participating in different schemes (Annex-1).

As a substantial amount of its resource is invested in promoting vegetable production, Plan Nepal is interested to carryout in-depth assessment of this program to ensure that the program is contributing to increased income and food security of the participating families. It is also crucial for Plan to ensure that the vegetable production is ultimately contributing to the realization of rights of children, especially better nutrition, access to basic health services and education.

2. EVALUATION OBJECTIVES

- To assess level of impact on promoting food and income security of families that participated in vegetable production program.
- To assess the extent of transfer of technology, knowledge and skills in producing, diversifying and marketing vegetable by the participating families.
- To assess relevance, effectiveness and sustainability of technical/human, physical and market infrastructures and channels supported to develop the vegetable production sub-sector by Plan for promoting food and income security.
- To assess the extent to which the elements of right-based child centred community development (CCCD) approach have been embedded in its process.

3. SCOPE OF ASSIGNMENT

The assessment requires addressing following seven parameters:

Program/project relevance: how well the program addresses the key issues or problems that affected the Plan communities over the program period.

Program/project effectiveness: an assessment of effectiveness analysis whether the program has achieved what it is set to achieve in its plans.

Program/project impact: the systematic analysis of the changes in people's lives (children, families and communities), duty bearer's priority and capacity, and capability of civil society organizations at different level, brought about by the program.

Program/project sustainability: the extent to which objectives of the program will continue to be met without Plan's support after the program is over.

Social Inclusion and Gender Equity: how and to what extent equity aspect has been addressed by the program/project especially gender equity and equity to socially excluded groups

Scale up: To what extent the program has demonstrated or has potential for scaling up in a large scale to benefit landless or marginal land holders and create employment and income for them.

Innovation: To what extent the program/project adopted or inherited innovation and how did the program/project evolved during its life period.

Responsibilities and accountability: To what extent the responsibilities and accountabilities of different stakeholders, namely, government line agencies, DDC, VDCs, Plan and its partners and community groups have been clarified, and what mechanism is there to hold them to account with regard to their responsibilities.

Participation: Assess how the best interest of children is ensured and their issues addressed in this programme.

The consultant is required to review the Household Economic Security program (currently renamed as Household income Program), develop methodology and tools to measure the impact of the program by using both qualitative and quantitative methods. The consultant must be able to produce quantitative data about production, income and impact on food and nutrition, saving, changes in the asset level etc. It is expected that the consultant generates relevant quantitative information at least on three main areas namely leasehold, semi-commercial and home gardening.

The evaluation will cover all the six Plan program districts namely Sunsari, Morang, Rautahat, Bara, Makwanpur and Banke. The sample, activities and areas in the VDCs will be selected randomly by the consultant. Plan Livelihood and Microfinance program coordinators from the program units will help, coordinate and support to the consultant.

The report should be presented both in soft and hard copy and should not be more than 50 pages long excluding the annexes.

4. DURATION OF ASSIGNMENT

The assignment will have to be completed within 15 February 2012.

5. METHODOLOGY

The consultant may suggest a better methodology and may not limit to the following.

Focus group discussions: with producers in different dimensions (home/kitchen garden, semi-commercial, leasehold, river bank, agro-forestry etc),.

Household interviews: with producers in lease, semi-commercial, river bank and agro-forestry schemes

Key informant interviews: with chairs of the producer groups/apex committees, partner NGOs, Plan frontline staffs, Local resource persons, Agro-vets, Vegetable traders, collectors/wholesalers, Chairpersons of the marketing cooperatives, village leaders etc.

Case studies: Representative case studies covering all the program units and dimensions (home/kitchen garden, semi-commercial, leasehold, river bank, agro-forestry etc). At least two representative case study in each dimension are recommended.

6. SAMPLE SIZE

The sample size, location and tools shall be finalized upon discussion with Plan. The respondents for the individual interview will be randomly selected from the list of formed SRG and who are in action of microfinance. At least, 10% of the sample should be selected for the household survey (2010 coverage excluding home garden, which comes around 716 households). Sample selection and size in each tool above should be determined in such a way to have good representation of all the thematic components of the project.

7. STUDY TEAM

The evaluation should be lead by a qualified technical person having proven track record of carrying impact evaluation of vegetable production program. The team should be gender balanced with capability to bring out gender and child rights issues and perspective in the study. It is strongly suggested that the team leader spends at least 4 weeks in the field and facilitates all the focus group discussions.

8. REPORTING REQUIREMENT AND FORMAT

The evaluation report should include the chapters regarding all the specific objectives and results as specified above. The following processes are expected:

- Presentation of detailed research methodology with the program team in Plan Nepal country office before the study initiated
- Finalize research methodology including sample size, sample location at Banke PU
- Draft report for comments and feedback
- Presentation of the draft report to receive feedback
- A final report, incorporating feedback and comments
- Completed checklists, questionnaires, cases, photos (if any) have to be submitted to Plan Nepal.

The draft report should be submitted to Plan country office no later than 15 February 2012. The consultant is required to present draft findings in a workshop to be organized by Plan in the country office.

9. DEADLINE FOR PROPOSAL SUBMISSION

A complete technical proposal, with detail methodology as mentioned above and the detail budget including local transportation estimate must reach to the following addresses by 5 pm, Friday 23 December, 2011.

Plan Nepal Country Office

Laldarar, Lalitpur

<http://www.plan-international.org>

PO Box 8980,

Nepal

Email: sunita.shrestha@plan-international.org.

Annex-1 Families supported under different dimensions of vegetable over years

Area	Families involved under different schemes over Fiscal Year					Total
	2006	2007	2008	2009	2010	
Home garden	2329	2204	1876	1075	1981	9465
Leasehold	2898	2948	808	1692	2313	10659
Semi-commercial	4267	7083	3203	4369	3720	22642
River bank	359	204	88	536	270	1457
Mushroom	0	225	0	336	363	924
Veg under agro-forestry scheme	684	0	0	1271	490	2445
Total	10537	14671	7983	11288	11147	47592

Source: Plan Nepal country program progress reports