HORTICULTURE BASED MICRO-ENTERPRISES FOR SUSTAINABLE LIVILIHOODS OF LOW-INCOME FAMILIES IN THE PERSPECTIVE OF POVERTY ALLEVIATION IN NEPAL

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INTRODUCTION

The Context

The incidence of poverty in Nepal is high. About 42 per cent of the population subsists below the poverty line (The definition of the national Planning Commission – as income level of NRs. 4,404 at 1996 prices) and as high as about 73 percent of households do not have enough income for their sustainable livelihoods. The incidence of poverty and deprivation is disproportionately higher in the rural areas and among the women. Inequality in the distribution of income is high; and as a consequence the bottom 40 percent share less than 21 percent of the per capita income whereas the top 20 percent enjoy more than 50 percent of the income (CBS 1996).

The statistics on agricultural sector is also not satisfactory. According to the Nepal Living Standard Survey (NLSS), about 83 per cent of the economically active population depend on agriculture for livelihood, mainly as self-employed and unpaid family workers (about 71%). About 12 per cent of them are agricultural wageworkers. The agricultural cycle has peak periods when intensive labour input is required and during such periods many farmers are even over-employed. But, during slack seasons, there is hardly any need for labour, causing economic hardships for the small farmers and the landless labourers. According to the National Agricultural Census (NAC) of 1991/92, about 39 per cent of the farm workers find work for less than 8 months a year (CBS, 1993).

Many of the rural poor have small farms. According to the NAC, 1991/92, the size of about 70 per cent land holdings is one hectare or less (0.5 hectare or less in the case of 43 per cent land holdings). Progressing land parcellization and landlessness have increased the need to combine the main occupation with various other jobs to complement meager agricultural income. Rural poverty in Nepal is mainly the result of dependence on small farms and insufficient off-farm employment opportunities.

Past growth in agriculture owes much to the expansion of acreage under cultivation and partly to increase in cropping intensity. There remains scope to further apply improved techniques in increasing cropping intensity through more irrigation, crop diversification, and better husbandry combined with emphasis on high value crops, which have market demands both within and outside the country. Potential new cultivable land is reaching to its limit and, in some places, has even crossed the limit. Hence, Agricultural growth in future may be achieved through measures such as enhancing specialisation, commercialisation and cropping intensity and improving yields and by setting up agro-based micro-enterprises to safe guard their risk of marketing as fresh products, which will help to reduce underemployment and to alleviate rural poverty. However,

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this is not likely to absorb much of the incremental labour force, and therefore, the non-agriculture sector including the off-farm activities will have to grow faster than in the past.

The Ninth Five-Year Plan (1997-2002)

The alarming situation of poverty incidence in Nepal compelled His Majesty's Government, Nepal (HMG/N) to design and implement its periodic plans with the overarching goal of poverty reduction significantly. It has been observed particularly from the Eighth Five Year Plan (1992 – 1997). However, the Ninth Five Year Plan has developed and implemented a number of Targeted Programmes focused to the poor people. To name some of them are ***Mahila Jagaran, Garib Sanga Bisheshwar, Western Tarai Poverty Alleviation Programme, Self-Employment Programme for Unemployed Youths, etc.*** Likewise, the donors and (I) NGOs also have supported government and communities to implement the programmes that are designed to address the poverty in Nepal. However, most of such programmes have micro-credit as an entry point and some of them focus on skills formation training. The Ninth Five Year Plan has one of its strategies to enhance the capacity of the human resources through building of entrepreneurial competency to create and develop enterprises that can generate employment.

Micro-Enterprise Development Programme (MEDEP)

The Micro-Enterprise Development Programme (MEDEP) has been designed to support the HMG's Ninth Plan's objective of achieving poverty reduction through the development of micro-entrepreneurs from low-income families. MEDEP is executed by the Ministry of Industry, Commerce and Supplies (MOICS) in collaboration with technical and financial supports of the UNDP in partnership with several other national and district level agencies. This programme is implemented in ten districts representing all five-development regions, two districts (one hilly and one Terai) from each region. The selected districts have been prioritised based on the potential for poverty reduction through micro-enterprise development and from a gender perspective. Dadeldhura is one of such districts in the remote area of the Far Western Development Region.

The Ninth Five Year Plan of the HMG/N has laid emphasis on poverty reduction through micro-enterprise development and employment creation in both rural and urban areas. Keeping in view of the past experiences in the cottage and small industries (CSI's) sector MEDEP has been designed to help achieve HMG's Ninth Plan overriding goal of poverty reduction. Aiming to develop 6,000 micro-entrepreneurs with 70 percent women participation in five years, MEDEP has been designed based on six pillars such as Market Development and Marketing, Entrepreneurial Competency Development and Skill Training, Management Information System, Monitoring and Evaluation, Micro-Finance, Appropriate Rural Technology, Product Development and Quality Control. Gender equity and mainstreaming and environmental protection are the cross cutting agenda across all the components mentioned above. Together with MOICS and other partner agencies such as the Department of Cottage and Small Industries (DCSI), Cottage and Small Industries Development Board (CSIDB), the Agricultural Developmental Bank (ADB/N), the Federation of Nepalese Chamber of Commerce and Industries (FNCCI), Federation of Nepalese Cottage and Small Industries (FNCSI), and Industrial Enterprise Development Institute (IEDI), MEDEP seeks to provide package services to its target beneficiaries in the areas of entrepreneurial and skill development, appropriate rural technologies, market information and micro-credit.

MEDEP aims to reduce poverty of hardcore poor families through development of sustainable micro-enterprise, and capacity building of service delivery mechanism related to micro-enterprise development.

Micro-enterprises can be developed in a variety of ways e.g. as seasonal, part-time and full-time activities (in terms of time engaged), as self-employment, family firms and more structured enterprises (in terms of organisation and management), and in agro-processing, traditional handicrafts and activities of a new origin including repair works (in terms of product line). While there exists a backlog of untapped potential due to lack of access and supportive infrastructure in the past, growth in agriculture and formal sector also creates demand for a wide range of such activities. Moreover, access provided by construction of rural roads and power generated by rural electrification plants offer new opportunities. Meanwhile, the existence of isolated hill micro-economies also creates opportunities, particularly in food processing and localised import substitution. Micro-enterprises are developed when the market demands small enterprise products or services. Development is often constrained by a lack of information on market demand and the ability of micro-entrepreneurs to meet the needs of the customer. To improve the abilities of micro-entrepreneurs to respond to market forces support services are needed.

Process of Programme implementation

Demand driven is the foremost important strategy of MEDEP where all programme activities are embedded on the potentials and needs of micro entrepreneurs and their market. The starting point for all programme initiatives is thus based on the demands of low-income families (target group) to improve their sources of income and the demand for their products in the market.

The programme implementation at the grassroots level starts with the selection of a suitable site for enterprise development taking into consideration marketing aspects and comparative advantages (such as natural resource potential, traditional occupational skills, already trained manpower, target group, etc.) for market penetration and competition. Following the selection of programme locations interested participants within the target cluster are selected through entrepreneurial screening. Side by side, market oriented district level customer survey for market opportunities are also conducted by staff of the programme's marketing partner. After the completion of the above process of market survey and participant selection, the participants are made aware of their marketing opportunities, their comparative advantages and strengths to do enterprise work through a package called Micro Enterprise Creation (MEC) for completely new participants and through Micro Enterprise Assistance (MEA) for stunted enterprise owners. The MEC package basically motivates people to be involved in businesses, help them build up confidence and most importantly help to match enterprise with the entrepreneurs.

After the entrepreneurship training, other components such as skill and appropriate technology requirement, credit process follows and finally the products are launched in the market. The whole process is monitored and evaluated regularly to explore existing and new areas of intervention for Business Development Service providers which are MEDEP partners representing the District Programme Implementation Committee. Logical network showing the main process in micro-enterprise development is given in Figure 1.

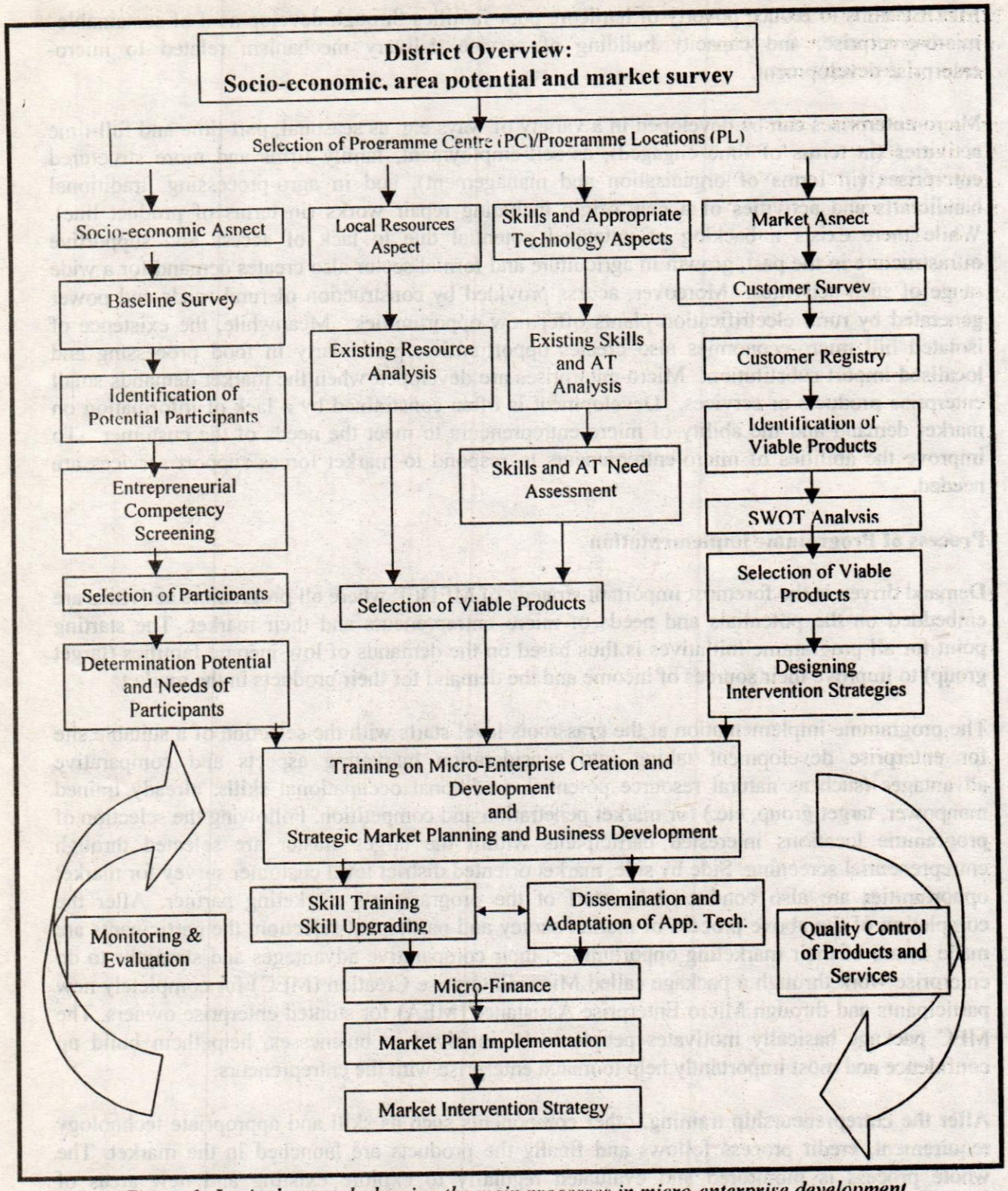

Figure 1: Logical network showing the main processes in micro-enterprise development

MEDEP – AGRO-HORTICULTURE BASED ENTERPRISE SECTOR

Very diverse agro-ecological condition is allowing Nepal to grow a wide range of vegetables, fruits and spices in different seasons. At present, there are more than 50 different types of vegetables, 15 types of fruits and 5 different types of spice grown in the commercial basis in hills and terai.

In 1995/96, the area covered by farming of fruits, vegetables and spices are estimated to have reached 32,600 hectors with the total production of about 2.85 million metric tons. The breakdown of the production area, production quantity and productivity of fruits and vegetables and spices are shown in the Table 1.

Table 1: Total productive area, production and productivity of fruits, vegetables and spices in Nepal in 1995/1996

Crop	Productive area (hector)	Total production (MT)	Productivity (MT/hector)
Fruits	41,000	3,67,000	8.96
Citrus	8,977	88,600	9.87
Temperate	9,137	78,300	8.57
Tropical	22,894	2,00,600	8.76
Vegetables	1,44,470	13,27,300	9.19
Potato	1,06,000	8,97,820	8.47
Cardamom	9,000	3,600	0.40
Ginger	6,000	60,000	10.00

Sources: HMG/MOA, 1997, Cardamom and Ginger Section, of Dept. of Agriculture

Following the demand driven process, MEDEP has been supporting micro enterprise based in the local resources of agro product particularly horticultural products. The range of horticultural products intervened by MEDEP is diverse based on the resource potential of the districts.

Horticulture based enterprises supported by MEDEP can be broadly classified into two sectors: **Marketing:** Horticultural products marketing enterprises; **Value addition:** Horticultural products processing enterprises

Marketing enterprises are service oriented that collect products from the primary producers (farmers) in the rural area or wholesalers from the urban area and retails the products in the urban as well as in the rural market centers. These enterprises which are run all year round deals with seasonal products and are doing pretty well in the urban and market centers of the rural area. When there is surplus production, these commodities are processed into value added products as jam, chutneys, pickles, dried, juices, concentrates, etc. depending on the nature of the commodities. The main problem, these resource based value addition enterprises are facing, is running them around the year, as most of the horticultural products are seasonal. The techniques of preserving the juice or pulp of the fruits to be processed later in the off-season making it all year round enterprise has been practiced in a few enterprise like lapsi processing, jam and chutney enterprise, and so forth.

Table 2: Major horticulture based micro enterprises supported by MEDEP.

District	Micro enterprises based on horticulture products
Nuwakot	Pear processing, pears marketing, vegetable vendor/retailing,
Parbat	Plum processing, lapsi processing, fruits and vegetables marketing, pickles processing
Nawalparasi	Ginger processing, pickles processing, fruits and vegetable marketing
Sunsari	Fruits and vegetables marketing, mushroom cultivation, spice (turmeric) processing and trading
Baitadi	Citrus fruits processing, pickle processing,
Dhanusha	Fruits and vegetables vendors

Plum processing in Parbat and Pear processing and marketing in Nuwakot

The abundance of Plums in Parbat district through the initiation of Lumle Agriculture Research Center (LARC) has largely been under-utilized by the local people. Lekhphant and Salija VDCs of Parbat district have a tremendous potential to contribute to the economy, income and employment generating activity if the resources (Plum) could be utilized to the optimum. As marketing opportunities have not been explored, MEDEP has taken the initiative. The fruits have little or no value in its raw form in the two Village Development Committees as the fruit has to be carried all the way down to Milanchowk (3-hrs walk which is the nearest road head) for marketing which is not viable commercially. The profitability in marketing the fruit also has its limitations due to the locals' inability to handle the fruits to withstand the harsh handling condition during the transportation.

Small Farmer Development Project of the Agriculture Development Bank had initiated a similar programme in Nuwakot district to farm pears. There are approximately some 500 fruit bearing trees in Kaule and Fikuri VDCs in Nuwakot and there have been no marketing initiatives besides trying to sell the fruit in the local market and the neighboring district of Kathmandu. The market for the fruit also has its limitation due to the lack of accessible roads from the farms to market locations. The fruit trees have been generally used as staking for vegetables like cucumber, sponge gourd while a number of farmers in the district have begun cutting their trees considering them a liability rather than an asset to produce any economic gain. The fruits have been so much under-utilized that it has also been used as fodder for cattle and used to make compost fertilizers.

In Fikuri and Kaule VDCs, the estimated amount of fruit bearing pears tree is 500 (200 in Kaule and 300 in Fikuri) and the annual estimated quantity of fruit produced is 125 T (@ 250 kg per tree).

Pears marketing group enterprise involved in the marketing of fresh pear fruit are also supported by MEDEP. To prevent the fruits from bruising and loss of quality during the transportation from the farmers to the end consumers, appropriate post harvest technology viz, use of scissors for cutting the peduncle from its base, and improved design of bamboo baskets, was disseminated. Two batches of fresh pear fruit collected from Kaule and Fikuri VDC were brought down to Kalimati wholesale market at Kathmandu. The fruit traders in the wholesale market now have become aware of the availability of fruits at Nuwakot and there are chances for further business in this sector this season.

The Micro Enterprise Development Programme identified the abundance of these resources, their potentials based on demand of the people, and resource potential of the areas as outlined in

the programme's documents and supported farmers in Nuwakot. MEDEP took the initiative to add value to the fruits rather than market them as fresh fruits. Initiatives in Parbat and Nuwakot district were taken to make jam and pickle from plum and pear respectively. MEDEP, with the technical support of the Department of Food Technology and Quality Control, trained micro entrepreneurs supported by the programme on pulp preservation, processing of jam and pickle also known as chutney, standards of the product, quality control and costing of the product. Fruits being seasonal, it is necessary to preserve the pulp for processing at convenient times to make the business as a year round enterprise.

The participants in fruit processing training were imparted with the knowledge of pulp preservation so that the pulp can be preserved and used for processing of the final products as and when required. Technology of jam and chutney processing was transferred to the participants. Importance of food hygiene and quality control was also emphasized. The quality of fresh fruit desired and the specification of final products were also dealt in the training.

Entrepreneurs in Parbat district were able to produce 515 bottles of plum jam and chutney and make income of Rs. 25,250 while entrepreneurs in Nuwakot were able to produce 400 bottles of pear jam and chutney and made income of Rs. 20,000.

Lapsi processing in Parbat

Lapsi is a common Nepalese name for Nepalese Hog Plum (*Choerospondias axillaris of Anacardiaceae family*). *Lapsi* is a large spreading deciduous tree found especially in the mid-hill (1500 - 1800 m) conditions of Nepal. The tree is mainly popular for the pulpy mesocarp covering the stony endocarp of the fruit. The lapsi fruits are harvested from September till January.The pulp tasting pleasantly sour in taste is utilised by mixing in vegetables as chutneys or made into candy, marmalade, pickle and other preparations. Lapsi has not been cultivated commercially as a fruit crop in Nepal. Only a few households grow Lapsi in the sloppy landscapes. It grows mostly in the deciduous forests. Fruits are harvested from the forest itself. In the recent years, Lapsi has been taken as a commercial fruit crop as well. However, there are very few such orchards. In addition, such orchards are again not in the prime horticultural lands, rather they are in the sloppy unfertile lands. Because Lapsi is a dioecious species, all plants do not bear fruit. It requires only one male tree among fifteen female trees. However, in the natural seedlings, there are more of male plants and thus the planted orchards have fewer fruiting female trees. Due to this problem, farmers are reluctant to plant Lapsi plants. Very recently, some work has been done in Lapsi grafting technology, and graftlings are available in few Government Horticultural Farms.

MEDEP has been supporting lapsi processing enterprises in two programme location viz. Thapathana (2000) and Tilahar (1999).

Before the intervention, the buyers (middleman) from Pokhara used to come to the villages and buy the fruit of the whole tree giving a very little margin to the farmers. Now, the farmers have visualized the economic value of fruits and have started to process lapsi into lapsi candy, lapsi *paun*, and lapsi leather and lapsi peel powder. MEDEP trained the entrepreneurs in hygienic processing of lapsi to different products and storage technique of lapsi pulp to be processed later making it a year around enterprise. This season, the lapsi entrepreneurs have processed 684 Kg of lapsi pulp to lapsi candy and were able to make income of Rs. 75,570.

Nawalparasi

The MEDEP beneficiaries are from below poverty level and do not have land for cultivation. The data, which are shown in the production column (Table 3), are not the product of their farm it is the purchase cost. MEDEP beneficiaries used to purchase goods from the wholesale market of Narayanghat, Butwal or sometimes directly from farmer. Considering the growing crowd in the weekly market with the increasing number of people in the district, prospect of such petty traders is good. The tendency of vegetable farming is also increasing significantly but due to low investment capacity, low risk bearing capacity and limited information of other district market, MEDEP beneficiaries are still not capable for grasping full opportunity and the growth of such level seems stagnant.

Table 3: Area covered by horticultural crops in the district

Crop	Area in ha	Production M.T.	Productivity t/ha
Potato	1700	18700	11
Vegetables	947	9300	10
Fruits	640	1465	2
Ginger	100	750	8
Turmeric	15	150	100
Chilli (Green)	50	350	7
Garlic	16	140	8.75
Coriander	5	4	0.8
Onion	20	200	10

Source: Annual Agricultural Programme and Achievements (056/57), Agriculture Development Office, Nuwakot

Dry ginger entrepreneurs case is bit different. Entrepreneurs do have their own production of ginger and it is the main source of income for them. Before MEDEP, they used to sale the fresh ginger in the local market and make Sutho if stock remains unsold. Looking the process of traditional Sutho and its impact to deforestation, solar dryer was installed one year ago with an initiation of MEDEP and RECAST. Technically the solar dryer is workable and the product quality of such dryer is found acceptable to the Central Food Research Laboratory also. The challenge lies in the marketing. Comparatively ginger entrepreneur are uneducated and unaware about market and marketing so they cannot market their product (dry ginger) from their own effort at least for another two-three years. And another challenge is that the productivity of solar dryer is very small if we calculate the time value of money the current price of dry ginger tends to Rs 400 to 500 per kg, which is not possible to sell. Current price of dry ginger is Rs 200 per kg. Therefore, commercially viable technology has to be developed to get the maximum return from ginger. Out of the 63 ginger producing districts, Nawalparasi deserve the second position, which is producing about 13000 metric ton of fresh ginger per year.

A group of 25 women have formed a cooperative and started making papaya jam at Bhitta, near Arunkhola from last year. Papaya and banana are available in huge quantity in this area total production of papaya and banana from this area is estimated about Rs 40 to 50 million per year. About ninety percent of the product goes to Kathmandu market.

Orange is available in hilly area and Kawasoti is the main center for orange. About Rs 100 to 200 thousand worth of orange is produced from hilly VDC, of this district. Average price of orange in the pick season tend to Rs 15 to 18 per kg.

Nuwakot

In Nuwakot, out of 311 enterprises established 20 are direct based on fruits and vegetables. Besides these, there are enterprises established such as bee-keeping in which fruits and vegetables contributed a lot by providing pollen sac (food) to the bees. Nuwakot district provide profitable opportunities for fresh vegetable production, ginger and turmeric production and fruits with comparative advantage. The opportunities for horticultural based micro-enterprises development is high using locally available resources.

Table 4: Horticultural crops cultivated in the district

S. N.	Horticultural crop	Cultivars / variety
1	Cowpea	Sarlahi Tane
2	Rayo (BLM)	Khumal Broad Leaf, Marpha Broad Leaf and Marpha Red
3	Potato	Kufri Jyoti, Kufri Sinduri, Cardinal, Descree, T.P.S, P. B. S
4	Cauliflower	Kathmandu Local, Snowball-16, Snow Crown, Snow Queen, Pusa Deepali
5	Cabbage	Green Coronate, Copenhagen Market, Pride of India
6	Radish	Mino Early, Pyuthane Red, 40-Days, Tokinashi
7	Turnip	Purple Top
8	Onion	Red Creole, Nasik Red
9	Tomato	Pusa Ruby, Roma, CL 1131, Hybrid
10	Carrot	New Kuroda, Nantes Forts
11	Bean	Trisuli, 4 season, K.Wonder
12	Chilli	Pusa Jawala, Surya Mukhi and Dandikot
13	Capsicum	California Wonder
14	Egg Plant	Pusa Purple Top, Pusa Purple Red, Kranti, Nurki, Nilam hybrid
15	Cucumber	Bhaktapur local and Kusle
16	Summer Squash	Grey Zucchini
17	Pumpkin	Local
18	Mango	Malda, Bombay green, Dashari
19	Banana	Willium Hybrid, Malbhog
20	Peach	Peri green
21	Pear	Pharping Local, Hosui, Kosui
22	Oranges	Local
23	Cardamom	Ramsahai and Gol Sahai
24	Strawberry	

Source: Agriculture Development Office, Nuwakot, (FY 056/057)

Issues and Problems of the Micro-Enterprise development

A number of constraints have affected the micro-Enterprise Development process in Nepal. These constraints are:

- Difficult geographical conditions
- Inadequate Physical Infrastructures
- Market Limitations
- Shortage of skilled, Technical and Professional Personnel

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