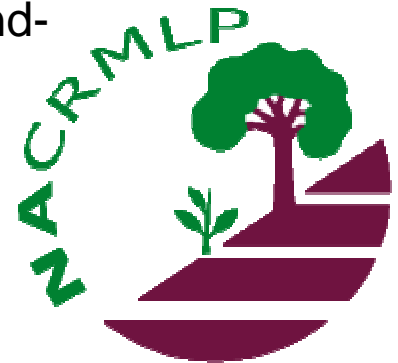


NEPAL AUSTRALIA COMMUNITY  
RESOURCE MANAGEMENT AND  
LIVELIHOODS PROJECT

Using the NACRMLP's Farmland-  
Use Management Program  
(FUMP) to Improve Family  
Livelihoods in Project Areas



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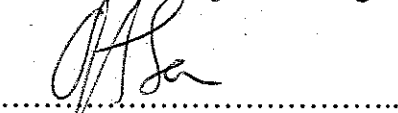
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## Summary

In order to enhance the livelihoods of people living in the mid-hills of Kabhre Palanchowk (KP) and Sindhu Palchowk (SP) districts, the Nepal Australia Community Resource and Livelihoods Project (NACRMLP) encouraged farmers to adopt a broad-based, integrated farming system which provides for the holistic use of forest, arable, and pasture land. By demonstrating its balanced farmland-use management program (FUMP), the Project strove to motivate the members of community forestry user groups (CFUGs) and community development groups (CDGs) to, through their own initiative, improve farm environments, boost agricultural productivity levels, and strengthen family livelihoods. The three-day, hands-on program aimed to inspire local people to improve the management of their farm resources, by, for example, diversifying products, producing better quality grains and vegetables, and cultivating forage, fodder and firewood species. Benefits of these changes included a reduction in the outlay of labour, greater household incomes, less dependency on natural resources, and biodiversity conservation.

The FUMP was initiated from June 2003 in 20 CFUGs and CDGs identified through the Project's Livelihood Improvement Planning (LIP) process. This report is an assessment of the strengths and weaknesses of that program.

### Changes in the Production and Consumption of Vegetables

In LIP identified poor and dalits households (disadvantage groups – DAGs), both the production and consumption of vegetables increased significantly. In KP, production increased by about 108 kg and consumption by about 38 kg; while in SP, the increases were about 82 kg and 9 kg over the baseline levels of an average of 12 kg of vegetables production and 17 kg consumption per month before the start of FUMP activities. This group reported that they had a surplus of vegetables to sell: every month an average of 70 kg in KP and 68 kg in SP.

In LIP identified comparatively well-off (advantaged) households, both production and consumption increased, but not as substantially. In KP, this increase in production was about 57 kg and consumption just 3 kg, while in SP production increased by 72 kg and consumption 9 kg.

### Changes in the Use of Chemical Fertiliser

Before the program was initiated, participants in KP used about 142 kg of chemical fertiliser per year while those in SP used about 259 kg in the same time frame. Due to the Project's interventions such as livestock management; fodder and forage production and integrated soil fertility management, they reduced annual chemical fertiliser use by about 42 kg in KP and about 89 kg in SP.

### Changes in forage production

In 2005, with the introduction of improved grass and legume species suited to the tropical, sub-tropical and temperate areas of Kabhre Palanchok and Sindhu Palchok<sup>1</sup>, the FUMP participants in SP increased the green forage production on their farms by 3.2 mt, from

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<sup>1</sup> In grasses Mott napier (*Pennisetum purpureum*), Setaria (*Seteria splendida*), Mulato (*Brachiaria brizantha x B. ruziziensis*), Gamba (*Andropogon gayanus*), Signal (*Brachiaria decumbens*), Cocksfoot (*Dactylis glomerata*), and Ryegrass (*Lolium perenne*), and in legumes, Desmodium (*Desmodium intortum*), Forage peanut (*Arachis pinotoi*), Joint vetch (*Aeschynomene americana*), Stylo (*Stylosanthes guianensis*), Wynn cassia (*Cassia rotundifolia*), and White Clover (*Trifolium repens*) are the most important.

5.5 mt per year to 8.7 mt after one year of fodder and forage program implementation. Their ground forage collection from forests during this period remained the same which was approximately 1.23 mt per year. The increase in the average production of on-farm forage in Kabhre Palanchok after the demonstration was 1.69 mt per year, from 3.21 mt per year to 4.90 mt per year. Ground fodder collection from forests was constant at about 4.0 mt per year.

The fodder and forage program has reduced the fodder and forage collection time of women by about 2 hours per day in Sindhu Palchok. These women reported that they used the extra time on other activities, including those part of the NACRMLP's women's empowerment program (WEP).

In Kabhre Palanchok, the program activities deemed the most beneficial to the participants and the most visible impact of these activities were livestock management; the participation of women, the poor and dalits in CFUGs and CDGs and community development activities; fodder and forage production; and integrated soil fertility management. Also significant were improvements in the quality of living, which were ascribed to savings in labour, increased availability and consumption of vegetables and legumes, and cash income generation from the sale of surplus vegetables, and forage seeds, slips and cuttings.

FUMP participants in Sindhu Palchok rated the following programs as most effective and most beneficial for them: farm management, fodder and forage production, the participation of women, dalits and poor, improvements in the quality of life, food and vegetable production.

It is recommended that the FUMP be implemented at three levels—subsistence, semi-commercial and commercial production--depending on socio-economic conditions, the prevailing land-use pattern, technical feasibility, market demand and accessibility, and the interest and approval of CFUG and CDG members.

The basic learning derived from the FUMP is that demonstrating balanced farmland-use management techniques is a simple, effective and sustainable means of motivating CFUG and CDG members to improve their management of available local resources not only to boost income generation through commercial production but also to improve livelihoods and socio-economic status.

# 1 Introduction

The ability of Nepalis who live in the middle and high hills of SP and KP to earn their livelihoods is severely constrained by steep topography, inaccessibility, unfavourable climate, a limited range of crops, a short growing season, poor soil fertility, water scarcity, low crop productivity, and degraded agricultural lands. On average, food grain production satisfies a household's requirements for not more than three or four months a year. To meet their needs, households rely on rearing livestock and on off-farm activities including trade, tourism and wage labour.

Because there are limited opportunities for food production, people depend heavily on livestock rearing. Unfortunately, the over-grazing of animals has degraded community and private pastureland, and the over-exploitation of forest resources including firewood, timber and non-timber forest products (NTFPs) like medicinal herbs has caused a similar degradation of forestland. Likewise, the unsustainable cultivation of arable land has resulted in declines in soil fertility and productivity. Rapid deterioration in the quality of seeds and limited improvements in the conventional cropping system have compounded the problem.

Because their landholdings are so small (most are less than half a hectare), farmers are forced to exploit nearby forests and pastureland for fodder and fuelwood. The workloads of women and of other collectors increase proportionately as ever greater distances have to be traveled in search of adequate resources. Women are further burdened because many men and young adults of both sexes live away from home either to pursue job opportunities in towns and overseas or to avoid the threat posed by Nepal's political instability.

In order to mitigate the constraints outlined above, all members of hill communities, but especially the poor and dalits, must improve their management of resources found on farms and in communal areas. By adopting a broad-based, integrated farming system which encompasses the management of forest, cultivated and pasture lands, Kabhre Palanchok and Sindhu Palchok farmers can enhance their livelihoods. As individual farm environments improve--through increases in soil fertility, water availability and the like—sub-watershed management also gets a boost. In addition, families that learn to manage their own land effectively are less dependent on natural resources.

The objective of the FUMP was to motivate CFUG and CDG members to take the initiative to improve the condition of their farms and environment and reap the benefits including increased productivity and improved livelihoods. They were encouraged to implement simple changes like diversifying farm products to include top-quality food grains, vegetables, fodder and firewood. The immediate benefits include a reduction in labour input and increased family income, while the longer-term benefits extend to less dependency on natural resources and biodiversity conservation.

## 2 Objectives

The main objectives of FUMP were as follows:

- To motivate CFUG and CDG members to manage their farms better and thereby increase land productivity. Specific improvements included increasing the use of organic and urine manure, managing water resources better, sowing good quality seeds, boosting the cropping system by adding crop and fodder legumes, and increasing the availability of good quality fodder and firewood;
- To motivate families to produce and consume more vegetables, legumes, grains, fruits and livestock products in order to improve family health and to have extra produce to sell; and
- To motivate enterprising and capable CFUG and CDG members to establish commercial production ventures without compromising soil quality, land productivity or the overall farm environment.

### 2.1 The FUMP Package

The FUMP package comprised the following activities:

- Managing local resources, including farmyard manure, compost and animal urine; waste and rainwater, forest products and forest and on-farm fodder and forage, in order to create a better farm environment, boost productivity and minimise the use of chemical fertilizers.
- Managing scarce on-farm water resources.
- Improving family nutrition and reduction of labour outlays by producing vegetables in kitchen gardens, intercropping food and fodder legumes with major food crops, and growing fodder on farmland.
- Increasing on-farm fodder production to mitigate the over-exploitation of forest resources for animal feed.
- Improving animal nutrition, husbandry and production to increase farm productivity as a whole.

## **3 Methodology**

### **3.1 Management of the FUMP**

The strategies of the FUMP were demonstrated in 20 CFUGs and CDGs which had, during LIP, identified that their major concerns, problems and interests lay in the management of farm resources to improve land productivity.

The intent of FUMP was to demonstrate techniques in a practical way in order to generate interest. Thus, participant farmers engaged actively in a three-day, hands-on training package before attempting to replicate the techniques on their own farms. Preparations for the program included orienting field workers to the importance of FUMP, collecting information, selecting a venue, fixing a date, selecting participants, inviting line agencies to participate, and planning.

The package was designed so that participants would themselves identify the steps in the FUMP process and the activities they needed to complete. Besides the basic concept of FUMP, technical feasibility and individual farm owners' interests were taken into account.

## 4 Participation

Women constituted about 32% of the total participants in Kabhre Palanchok and almost half in Sindhu Palchok. The representation of dalits and ethnic minorities was low: just 8% and 16% respectively of the total participants in Kabhre Palanchok and just 15% each in Sindhu Palchok.

### 4.1 Wintertime FUM Demonstration

In the winter of 2005, a follow-up on the springtime FUM demonstration was held for the same participants and using the same process. It promoted the use of multi-purpose legumes like peas and beans, winter vegetables, and winter wheat (either inter-cropped or planted separately) in order to improve soil fertility and family nutrition and to increase the supply of fodder and forage for animals. Other components were soil fertility management, water conservation and animal shed management. The winter version of the FUMP was conducted in 11 CFUGs and CDGs in nine Village Development Committees (VDCs). There were 151 women participants (60%), 100 men (40%), 14 Dalits (6%) and 3 members of ethnic minority groups (1.2%).

## 5 Results and Discussion

### 5.1 Preliminary Assessment

In the preliminary assessment of the impact of the FUMP, the following changes were observed.

The participants in both districts (55% in Kabhre Palanchok and 67% in Sindhu Palchok) reported that even within a year they had noticed an improvement in overall farm environments. They primarily appreciated how much better farmyard manure management, compost making and urine collection and use were, especially since chemical fertiliser is scarce and expensive.

The second biggest improvement noted (by 35% in Kabhre Palanchok and 73% in Sindhu Palchok) was in their farming systems. Another important change (appreciated by 35% in Kabhre Palanchok and 53% in Sindhu Palchok) was the improvement in the quality of women's lives brought about by the increases in the availability of vegetables for family consumption, the production of fodder and forage on farmland, the improvement in the quality of compost, and the increased availability of urine to use as liquid manure.

All the dalits and poor participants realised some improvement in farm environments, farming systems and the quality of women's lives.

What all appreciated most about the FUMP was the hands-on approach? They understand that the full benefits of the changes introduced will not be fully realised for another two or three years.

Even after only a year of implementing FUMP, the participants recorded an average increase of 68% in their daily consumption of vegetables. About 42% of the participants consumed 100% more vegetables and 24% had surpluses to sell vegetables for cash.

The participating families saved between Rs. 300 and Rs. 800 each month by cutting back on the purchase of vegetables by about 14 – 38 kg.

The assessment revealed that the most popular component of the FUMP in both districts was vegetable production followed by, in order of decreasing popularity, on-farm fodder production, compost making, urine collection and use, shed improvement, and waste water conservation. The importance of each component to any individual participant, however, was found to vary according to the constraints faced. For instance, in the water shortage areas of Sagarupa CFUGs, Kabhre Palanchok most participants liked the water conservation component best, although some identified the increased availability of vegetables as the best change.

One important aspect of the FUMP is that each participant has to pass on the concept of FUM and technical know-how to other members of his CFUG. For example, in Sagarupa CFUG, Kabhre Palanchok, 10 participants trained 33 others and in Ryale Taldhunga, in Sindhu Palchok, seven FUM participants trained other 31 farmers. In most areas, participants have organised themselves into FUM groups; some have even decided to establish commercial ventures. In both Sagarupa and Ryale Taldhunga, for example, participants have started cultivating onions for sale.

## 5.2 Rapid Sample Survey

In May 2005, about two years after Farm Use Management (FUM) techniques were first introduced, a quick assessment was conducted among 38 participants (12% of the total) representing all socio-economic groups. More could not be included because of the civil disturbance that was going on in many areas of both districts.

## 5.3 Production and Consumption

In terms of production, the most notable impact of the FUMP was on vegetable production. The increase in vegetable production and consumption was most apparent among the poor and dalits groups of both districts as they produced (12 kg per month) and consumed (17 kg per month) before the intervention. This figure shows that they were buying or collecting wild vegetables to meet their needs. The well-off or advantaged groups, on the other hand, produced and consumed about 23 kg and 22 kg per month. Poor and dalits in Kabhre Palanchok increased production and consumption by about 108 kg and 38 kg respectively, while same group in Sindhu Palchok recorded increases of about 82 kg and 9 kg respectively. More socio-economically advantaged participants also increased production and consumption, but not as substantially. In Kabhre Palanchok, the rates of increase were 72 kg and 18 kg respectively, while in Sindhu Palchok production increased 57 kg and consumption 3 kg. Table 1 shows that an average amount of surplus vegetables to sell was higher in poor and dalit families compared with well-off or advantaged groups in both districts.

Before the FUMP began in Kabhre Palanchok, the most commonly grown vegetables in participating households were pumpkin, cucumber, squash, beans, spinach, garlic, onion, mustard and radish (a local variety). After FUM was demonstrated, the number of commonly grown vegetables increased to 15 and included cauliflower, chilly peppers, carrot, eggplant, coriander, peas and the total number of vegetables grown in the area increased to 31 from 25. Among the legumes, the people of Kabhre Palanchok preferred peas, beans and soybeans; instead of the traditional legume crops such as red lentils, black gram, chick peas, and beans etc.



In Sindhu Palchok, six major vegetables were grown in the past--mustard, radish, pumpkin, garlic, squash and cucumber--out of a total of 18 types grown in the area. After the demonstration, the number of major vegetables included is: cauliflower, cabbage, peas, beans, and carrot. Altogether about 23 types were found growing in the area.

In short, the participants in the FUMP made appreciable gains in vegetable production and consumption and also realised some positive change in food crop production even within just two years. FUM is still in its infancy and is not yet fully stabilised. It will take at least a few more years to realise the full benefits of the new farming system.

## 5.4 Changes in the Use of Chemical Fertiliser

One of the major components of the FUMP was to produce good-quality organic fertiliser with farmyard manure, compost and urine collection and use, and to gradually reduce the use of chemical fertiliser. The end goals are better returns and improvements in farm environments. Before the intervention, FUMP participants in Kabhre Palanchok used about 142 kg of chemical fertiliser per year and those in Sindhu Palchok used 259 kg per year. In Kabhre Palanchok participants cut usage by 42 kg year (30%) and in Sindhu Palchok usage declined by 89 kg per year (35%). Participants appreciated the use of animal urine to fertilise vegetables and food crops. This also helped in reducing insects and pests attack in vegetable crops.

## 5.5 Changes in the Production of Fodder

With the introduction of improved grass and legume species for ground cover in tropical, sub-tropical and temperate climates, the FUMP participants of Sindhu Palchok were able to increase the production of ground forage on their farms from 5.47 mt per year to 8.7 mt per year, an increase of 58% in just two years. The average amount of ground fodder collected in forests was about 1.23 mt per year both before and after FUMP. No changes were observed in ground fodder and forage collection from the forest.

In Kabhre Palanchok, the average on-farm production of ground fodder increased from 3.21 mt per year to 4.90 mt per year, an increase of 53%. There were no changes in the average amount of ground fodder collected from forests: it stayed stable at about 4.0 mt per year.

Before the intervention, households spent three or four hours each day collecting fodder from the forest and about the same time collecting firewood. After improved varieties of fodder species introduced they were able to collect the required fodder on their farms in about two hours. FUMP has reduced women's workload by about two hours per day. Some women spent the extra hour doing other activities, include those of WEP. In other words, after FUM was demonstrated, farmers began to rely more on resources they cultivated themselves than on natural supplies. As a result, pressure on forests declined. In addition, the burden of work on women decreased.

**Table 1: Changes in the production and utilisation of vegetables**

Products	<i>Sindhu Palchowk District</i>				<i>Kavre Palanchowk District</i>			
	Before FUM		After FUM		Before FUM		After FUM	
Vegetables:	DAG	AG	DAG	AG	DAG	AG	DAG	AG
Production (kg)	12	23	94	95	12	33	120	90
Consumption (kg)	17	22	26	40	12	35	50	38
Purchase (kg)	5	-	-	-	-	2	-	-
Sale (kg)	0	1	68	55	-	-	70	52

## 6 Evaluation of the Program by Participants

Participants were asked to evaluate the FUMP based on the benefits and impacts of the activities listed below. Each was awarded a maximum score of ten. The criteria for giving scores are given in Annex 1.

- Farm management and environment
- Integrated soil fertility management
- Water management
- Fodder and firewood management
- Fodder, vegetable and horticulture crop management
- Livestock management
- Forest management
- Participation (of women, the poor, ethnic groups and community elites) in CFUGs and CDGs and in community development activities
- Changes in the quality of family life
- Institutional management of interest focus groups and cooperatives and establishment of linkages with line agencies and local institutions

Table 2 shows that soil fertility management, farm management, fodder and forage management, livestock management and participation of women, poor and dalits in FUMP have received highest score compared with other activities.

**Table 2: Participant Evaluation of the FUMP**

S. No.	Criterion	Average Performance (out of 10)	
		Sindhu Palchok	Kabhre Palanchok
1.	<b>Farm management, including sustainable terrace management and farm environment</b>	7.00	6.63
2.	<b>Integrated soil fertility management, including soil conservation</b>	5.41	7.06
3.	Water management	3.64	5.64
4.	Fodder and forage, and firewood management (on- and off-farm)	5.96	7.20
5.	<b>Food and vegetable crop and/or horticulture crop management</b>	5.60	6.82
6.	Livestock management	5.55	7.32
7.	Forest management (firewood, fodder, timber, NTFPs)	4.26	5.31
8.	Participation of women, the poor, ethnic groups and elites	5.80	7.25
9.	Changes in the quality of family life (for women and other family members)	5.76	6.94
10.	Interest focus group/cooperative institution management (production, service, marketing, information etc.) establishment of linkages with line agencies (support, technical guidance, credits, etc.)	4.22	6.81
Total Score (out of 100)		53.24	59.92
Average Score		5.32	5.99

The most successful activities in both districts are vegetable production, fodder promotion, animal shed management, fodder management in CF area, community, terrace management, effective linkages, women's participation in community development works, increased availability of vegetable and livestock products in family diet etc.

The five most effective groups in FUMP are Pancha Kanya CDG, Sapa Rupa CFUG, Lampate, Antarpu Salayani, Ansetar Batase, Dubledanda and Lagansil women group.

The participants were pleased that most can now manage their resources effectively by themselves.

The water management component is a composite package which includes drinking water, waste water, rain water, surface irrigation and spray irrigation. The only component promoted in the first year was wastewater collection and use. For this reason, this component was not ranked highly.

Forest management was also ranked quite low in both districts. While it is possible that farmers are not very satisfied with the new system, it is also possible that they have not yet been able to reap the benefits of this activity. Similarly, the food and vegetable promotion and integrated soil fertility management programs have shown satisfactory results but the full benefit will only be realised after several years of continuous effort.

Participants in Sindhu Palchok reported that they benefited most from farm land management, while those in Kabhre Palanchok appreciated farm animal management most. The participation of women and the fodder promotion programs were rated quite high by participants in both districts. The overall effect of the FUM package was improvements in the quality of life of the participants. All appreciated this change.

Although the overall performance of CFUGs and CDGs in SP was less than that of groups in KP, their interest, effort and zeal was equally high.

## 7 Workshop on Lessons Learned in FUM

In order to exchange information about, and experiences in, FUM and to discuss the issues farmers face, participating CFUGs and CDGs, various line agencies, NGOs and CBOs attended a FUM “lessons learned” workshop at Budol Training Centre from 25 to 28 April, 2005. Participants from Sindhu Palchok identified the following five activities as the most beneficial: vegetable cultivation, animal shed improvement, wastewater collection and use, fodder and forage cultivation, and urine collection and use. The top five in Kabhre Palanchok were waste water collection, animal shed improvement, vegetable cultivation, fodder and forage cultivation and urine collection and use. Activities with long-term social benefits like bamboo, *nigalo* and *amriso* plantation, livestock improvement, fruit cultivation, savings mobilisation and WEP were ranked lower, though the participants thought they were no less important.

Some of the most important recommendations made during the workshop follow.

### 7.1 Vegetable Cultivation

Participants need more technical knowledge, skill training, top-quality seeds of improved varieties, and a marketing system before they can commercialise vegetable production. They also need more information about organic insecticides and pesticides, especially about how they can be used to control red ants, white grubs and other pests.

### 7.2 Animal Shed Improvement

Participants need additional training in the overall management of livestock and livestock sheds, especially in maintaining hygienic conditions and improving the quality and purity of animal products, including milk and milk products. They would like to see local people trained in appropriate technology and management systems so that they, under the supervision of CFUGs and CDGs, extend improved animal shed management, animal health, fodder production and animal breeding services throughout the community.

### 7.3 Utilisation of Waste Water

NACRLMP should provide the physical support and technical skills needed to build permanent tanks or ponds in which wastewater, rainwater and/or spring water can be collected. Protective fences should be erected in order to avoid accidents.

### 7.4 Fodder Cultivation

Participants liked the savings in cost associated with feeding livestock improved fodder varieties, but they need more seeds and seedlings.

### 7.5 Urine Collection and Use

Participants now realise that urine can replace chemical urea usage and can be effective in controlling certain plant diseases as well. They want to raise more awareness about the importance of urine as a fertiliser.

## **7.6 Improved Animal Manure**

Demonstrations of the techniques of improved farmyard manure management, compost making and water conservation helped most participants start growing cauliflower and selling the surplus in the market. They need support in constructing permanent structures (animal shelters). Participants recommended promoting EM (Effective Micro-organism) technology to improve the quality of organic manures and to shorten the period of maturation. They also suggested promoting farmer-to-farmer extension to transfer technology quickly and to provide services to community members on demand.

## **7.7 Other Recommendations**

The participants recommend that all concerned line agencies, including DADOs, DLSOs, WDOs, DFOs, DSCOs, and DDCs, establish, recognise and support integrated farmers' groups. These groups should be organised under the umbrella of established institutions of CFUGs and CDGs, whether networks or cooperatives, as sub-committees or sub-groups.

The Project should develop mechanisms and procedures to advocate the active involvement and participation of key stakeholders--CFUG and CDG networks, government line agencies, local NGOs, CBOs, cooperatives and other trading and business houses—in the promotion of rural enterprises.

## 8 Recommended Strategy for the Promotion of FUM

The information collected during the program evaluation workshops, the lessons learned exercise and the rapid field survey suggest that a number of changes are needed if the promotion of FUM is to be made more effective.

- Promote appropriate interventions in traditional farming systems in order to improve land productivity. These activities include improving soil fertility by making better farmyard manure, composting, using urine as manure; growing crop and fodder legumes; promoting terrace and livestock shed management; minimising the loss of soil nutrients; and improving water availability by conserving waste water.
- Promote kitchen gardening in order to produce more vegetables for home consumption (and thereby to improve family nutrition) and for sale in markets (and thereby to generate extra income).
- Promote commercial production ventures considering their technical feasibility and the sustainability of market demands.
- Produce more fodder and firewood on farmland to promote the stall-feeding of animals, which in turn will produce more organic manure and thereby increase land productivity; to reduce dependency on nearby forest areas; and to increase the efficiency of family labour.
- Help community members to manage resources on communal lands, wastelands and CF areas in order to produce more fodder for the benefit of the poor and DAGs.
- Promote the use of more organic manure to reduce the cost of agricultural production and dependency on chemical fertilisers.
- Promote the use of organic insecticides and pesticides to reduce the use of chemicals and thereby avoid health hazards.
- Train local resource persons from different socio-economic and ethnic groups within the community to provide services to community members on demand under the umbrella of CFUGs and CDGs and adopt a system so that they train others.
- Motivate trained people to establish community service provider groups under the umbrella of CFUGs and CDGs.
- Establish linkages with concerned district line agencies in order to get technical and other support for enhancing land production systems and, ultimately, to organise community members to establish enterprises in feasible and economically viable commodities of their choice.
- Identify networks of CFUGs and CDGs, women's groups, agriculture and livestock groups and cooperatives, including dairy and multipurpose cooperatives, which are interested in FUM and commercial production systems and establish linkages with FUM groups and resource centres for marketing fodder seeds and drugs for animals.
- Identify NGOs and CBOs, like Tuki (an effective NGO in SP), which are interested in the promotion of FUM systems and establish linkages with CFUG group members involved in FUM and use them to promote commercial production.

Not only should the improved strategy for promoting FUM incorporate the recommendations above, but it should also be implemented at three levels--subsistence, semi-commercial, and commercial--depending on socio-economic conditions, prevailing land-use patterns, technical feasibility, market demand and accessibility, and the interest and approval of CFUG and CDG members.

The ultimate aim of promoting improved FUM practices among CFUG households is to reduce pressure on nearby forests and to visibly improve the overall condition of natural resources and communities.

## 9 Basic Learning and Conclusions

The FUMP is a simple, effective and sustainable means of motivating CFUG and CDG members to adopt improved management systems for the available local resources and, in doing so, to generate income through commercial production and to improve family livelihoods and socio-economic status.

Future efforts in FUM should focus on the following goals:

- Adoption of a phase-wise strategy which culminates in the introduction of commercial ventures.
- Establishment of local institutions and management procedures so that all household members of CFUGs and CDGs that are interested in the management of local resources can receive proper guidance.
- Mobilisation of CFUGs and CDGs and their sub-groups to reach target groups, especially women, DAGs and the poor.
- Selection of participants based on the condition that people who receive training must in turn teach others how to improve their existing farming systems, and that they meet any other requirements laid out by concerned CFUGs and the NACRLMP. The farmer-to-farmer learning approach should be adopted as it is a quick, effective, sustainable approach to spreading the concept of FUM and its associated technologies throughout a community.
- Extension of the FUM demonstration program through women's groups in the community or within CFUGs.
- Selection of crops for inclusion in the demonstration training program based on season, crop types available, the market situation and the skills of the participants.
- Identification of active monitoring groups within CFUGs which can select indicators to gauge the progress of any future FUMP they initiate.

## **Annex 1**

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# **Farmland Use Management Demonstration Effectiveness Assessment**

## Annex 1: Farmland Use Management Demonstration Effectiveness Assessment:

**FUG/CDG Name:** \_\_\_\_\_ **Demonstration Venue:** \_\_\_\_\_  
**Date:** \_\_\_\_\_ **Facilitator :** \_\_\_\_\_ **FUMD Participants:** \_\_\_\_\_  
**Male:** \_\_\_\_\_ **Female:** \_\_\_\_\_ **DAG members:** \_\_\_\_\_

Ser. No	Criteria	Assessment by	
		FUG/CDG (score)	CM/CFT/ (score)
<b>1.</b>	<b>Farm management including Sustainable Terrace Management and Farm Environment:</b>	<b>10</b>	<b>10</b>
	- <b>Terrace Management</b> (slope, soil, bonds, risers, boundary areas, barilands, wastelands, khetlands etc.) : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Family House Management (including toilet, household wastes): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Animal Shed Management (internal & external condition) : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Farm Vegetation management/coverage (tree, shrubs and ground Vegetation cover etc.) (%): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Overall farm condition : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
<b>2.</b>	<b>Integrated Soil fertility Management including soil conservation: :</b>	<b>10</b>	<b>10</b>
	- Improved Shed/Compost & making and use: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Urine/Liquid manure/gobar gas waste/night soil management etc: 2 Score – minimum : average : excess :: 2 : 1.5 : 0.5)		
	- Chemical fertilizer use : 2 (Score – minimum : average : excess :: 2 : 1.5 : 0.5)		
	- Crop and fodder legumes used as inter- crop/relay crop for sustaining Soil fertility level: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Improved cultivation & terrace management technique to improve/sustain soil fertility status (bonds, minimum cultivation technique and vegetation coverage to minimize soil erosion and water leaching etc.): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
<b>3.</b>	<b>Water Management:</b>	<b>10</b>	<b>10</b>
	- Drinking water management (Household , animals etc.): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- waste water management & drainage system (small pit/pond/drum/soil pots etc): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Rain water management (pond/drum/tank/soil vessel etc): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Surface irrigation management : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Improved technology adoption e.g. Spray irrigation/ Dip irrigation/+ energy generation etc.: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		

Ser. No	Criteria	Assessment by	
		FUG/ CDG (score)	CM/ CFT/ (score)
<b>4.</b>	<b>Fodder and Firewood Management (On – Farm &amp; Off – Farm):</b>	<b>10</b>	<b>10</b>
	- Fodder production in bonds and risers: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Fodder nursery + block fodder production etc:2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Fodder conservation. hay/silage, chaffing, urea treatment: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Multipurpose fodder trees/shrubs/tree management etc.: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Community grazing/kharka management etc.: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
<b>5.</b>	<b>Food, Vegetable and/or Horticulture Crop Management:</b>	<b>10</b>	<b>10</b>
	- Summer crop management (cereals, legumes, etc.) (family consumption, cash income, enterprise etc.) : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Winter crop management (cereals, legumes, etc.) (Family consumption, cash income, enterprise etc.) : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Vegetable Production Management (all year round) (family consumption, Cash income generation, enterprise etc.) : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Horticulture crop Management (family consumption, Cash income generation, enterprise etc.) : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Cash crops Management (oil seeds, tobacco, tea , ginger , Coffee etc.): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
<b>6.</b>	<b>Livestock Management:</b>	<b>10</b>	<b>10</b>
	- Animal Feed Management (fodder , hay, min. use of concentrates, mineral mixture supplements, chaffed feed use etc.): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Grazing Management (Stall feeding, controlled grazing etc.): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Animal Health Management (parasite control, disease control, treatment etc.): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Animal Breeding Management (large animals, small animals. etc.) (controlled breeding system): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Improved Livestock Husbandry (Breeding Male , Female, Young ones, castrates etc.): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
<b>7.</b>	<b>Forest Management (firewood, fodder, timber, NTFPs) :</b>	<b>10</b>	<b>10</b>
	- Fodder Management within CF area (improved fodder, cut & carry system, Fodder tree/shrubs, ground fodder, controlled grazing etc.: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Firewood tree/shrub management (Silviculture etc.): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Timber management (+ poles): 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- NTFPs management: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- wild food/fruits management : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		

Ser. No	Criteria	Assessment by	
		FUG/CDG (score)	CM/CFT/ (score)
<b>8.</b>	<b>Participation Of women, poor, ethnic groups and elites:</b>	<b>10</b>	<b>10</b>
	- Participation of women in FUGs' activities and its management affairs: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Participation of Women in community development and income generation activities: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Participation of women in WEP activities: 2 Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Participation of DAG members in CF and community development activities: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Participation of WEP and DAG members in service providing activities. 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
<b>9.</b>	<b>Change in quality of family life (Women and other family members):</b>	<b>10</b>	<b>10</b>
	- Family's labour especially Women's labour either in collecting fodder or Firewood or in grazing animals.:2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Increased availability of vegetables and livestock products in the normal family's Diet leading to better family health: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Ease in life due to family's time saving in weeding field crops by the use of legumes as inter –crops/relay crops : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Increased cash income by the sale of surplus farm products on family welfare: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Direct/Indirect effects of improved farm environment on family's quality life: 2		
<b>10.</b>	<b>Interest focus group/cooperative institution management (production, service, marketing, information etc.) and linkage establishment with line agencies (support , technical guidance , credits etc.)</b>	<b>10</b>	<b>10</b>
	- Group management: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Group/cooperative establishment and it management : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Market information flow through group members : 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Marketing/trading activities through group members:2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	- Effective linkage with line agency/VDC/DDC for support and technical cooperation: 2 (Score – good : average : poor :: 2 : 1.5 : 0.5)		
	<b>Total Score</b>		
	<b>Average Score</b>		

## **Limitations**

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