HARYANA COMMUNITY FORESTRY PROJECT
FOREST DEPARTMENT
GOVERNMENT OF HARYANA

VILLAGE BENEFIT STUDY 2007

Some plantation benefits for village communities: trees, fodder grass, fuelwood, wage employment

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PREFACE

In this village benefit study, Dr. Joseph Viruthiyel and a team of field researchers have brought together an impressive analysis of the benefits derived by the village community in a sample of 40 villages representing the 338 villages of 11 districts targeted under the Haryana Community Forestry Project.

During 8 years of working with village communities, particularly the most disadvantaged sections namely women, scheduled castes and landless, have derived considerable benefits from the natural resources in the shape of fuel, fodder and water for agricultural and dairy activities.

I believe that the study covers, in a unique way, various topics like changes at household level and stakeholder analysis. Various case studies have been cited to support the view that the villagers have been benefited in one way or the other. It sends a strong positive message for future implementation of forestry projects based on participatory approach.

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CHAPTER I

INTRODUCTION

The Haryana Community Forestry Project, supported by the European Union, has been in operation since 1998 and would be completing its scheduled life in 2008. It has spread its activities in 338 villages of 11 districts. In order to achieve its goal of sustainable management of natural resources, the project pinned its strategy solidly on the principle of participatory project planning, implementation and monitoring, involving fully the village community through its community based institutions like Village Resource Managing Committees (VRMCs) and Self-Help Groups (SHGs). The attempt has been to initiate a process of self-directed development, with a significant role in decision making by disadvantaged groups and women.

Selection of villages itself was based on a well thought out selection criteria system, using objective indicators on relative needs and backwardness of the villages as well as potential for initiating sustainable participatory community forestry activities.

Mass awareness campaigns were initiated at the project start in every village through a systematically planned Information, Education and Communication plan at the stages of village entry, micro-planning and project implementation. Entry point activities, based on the felt priorities of the community, were taken up at the very start, enabling the village community to have access to certain critical missing infrastructure or inputs. Then the village community initiated, with the help of the facilitating team of the Forest Department, the process of participatory appraisal of problems, both relating to natural resource management and general development, and tried to find possible solutions to the problems. These were documented into the Participatory Appraisal reports for each village, which established baselines and benchmarks on critical developmental indicators.

These reports formed the basis for micro-planning, documented into Village Micro-plan reports, copies of which were forwarded to the village Panchayats and block and district level authorities. The micro-plans had two sections, the first relating to the natural resource management and development plan and the other relating to general village development. While the former was to be the guidepost for forest development activities to be taken up through technical and financial assistance of HCFP, the latter was to be implemented by the Village Panchayat through the ongoing programmes of different line departments.

The natural resource management micro-plans were to be implemented in a phased manner, and most of the plantation activities in a village were to be completed in three planting years, the remaining project period being the maintenance and management phase.

The actual natural resource management activities included establishing village woodlots on community land, establishment of village tree groves to improve the village environment, encouraging farmers to undertake various models of farm forestry on their own lands, encouragement and support to establish poplar plantations with intercropping in the northern Circle, different models of plantations of wind eroded wastelands, both private and community, promotion of kitchen gardens and water resources harvesting and conservation (earthen dams in the Shivalik foothills and Johad rehabilitation in the south-western arid region). Different region specific species and spacing mixes were tried out, keeping in view people's choice of species, local suitability and technical appropriateness. In other words, people were exposed to various possibilities of incorporating tree farming into the economic and social environment of the village communities.

In implementing and monitoring the execution of the activities and watching their outcomes, the community based institutions were involved. It was expected that this close involvement of the people, close interaction with project staff and external consultants, and the intensive IEC activities would instill in the CBOs and the community at large the capacity to undertake natural resource management activities on their own steam. This way an exit strategy was already in-built into the process based implementation strategy of the HCFP.

Documentation of the processes has been a unique feature of HCFP and this is perhaps the most richly documented project. Various baseline, planning, monitoring and evaluation reports were prepared, using local wisdom, knowledge of external consultants and the implementation experiences of forestry staff. In fact one of the aims of the project was to bring about an attitudinal change in the working styles of the forestry staff, from a technically oriented workforce to an atmosphere of working in partnership with the village community. To a great extent this institutional capacity development of the Forest Department has come about and has been replicated in other similar forestry projects in Haryana and elsewhere.

As part of its lessons learning strategy the Project initiated studies on how far the benefits of HCFP has percolated down to various stakeholder groups in the village community. The stakeholder groups include the VRMCs, women – organised into SHGs or otherwise – the ordinary residents of the village, people who were depending on community land previously and who could have been affected adversely from the closure of common land for plantations. Through a set of simple questions on selected critical indicators an assessment was made of the differential impacts and perceptions about benefit flow. This Village Benefit Study is the third in a series of such studies, the other two being conducted in 2005 and 2006.

The main issues to which answers are sought from this study are the following:

- What differential impacts did the project interventions have on the economic life of various stakeholders in the village, particularly with reference to availability of cooking fuel, tree planting adoption, tree resources sufficiency, etc?
- Did the project address the villagers' need for fuel, fodder, timber and fruits?
- Are people still willing to plant trees?
- Did the project have any impact on the village economy through increased livestock herd size?
- How do different stakeholder groups perceive the usefulness of the VRMCs?
- How vibrant are the village level institutions – VRMCs and SHGs – promoted by HCFP?
- Will VRMCs continue to function as resource management institutions after the project makes its exit?
- What lessons are there for an appropriate exit strategy for the project?

As in the previous years the village benefit study was conducted in 40 project villages, distributed equally among the five forestry divisions. The villages covered in the earlier rounds were excluded. Four of the villages selected were from batch 1 (plantation year 2), 6 from batch 2, and 10 each from batches 3 to 5. Thus the thrust was on latest plantation years, and it is likely that the benefit flow must be lower in the newer batches compared to batches 1 and 2. Out of these only 12 villages had SHGs, and only 16 had the benefit of smokeless chulhas (at the time of field survey). The details of villages covered during this round of the Village Benefit Study is provided in Annex 1.

The total area of village woodlots in these villages was 1400 ha, ranging from the lowest of 10 ha, to the highest of 98.75 ha (Ghani Khera village of Shahzadpur block of Ambala district). The total area of sand dune fixation plantations (in 22 villages of the south-western part) was 667 ha, ranging from the lowest of 4 ha to the highest of 133 ha (Dhani Silanwali village in Siwani block of Bhiwani district). The total area of farm forestry plantations was 1476 ha, ranging from the lowest of 1 ha to the highest of 120 ha (Zafarpur village of Barara block of Ambala district). In addition there was a poplar area of 797 ha in 16 villages of the Ambala and Kurukshetra divisions. All the villages, in addition, had tree groves and kitchen gardens. A few villages had earthen dams for rain water harvesting (in the northern Circle) and johad rehabilitation (in the south-western Circle). The perception of village benefit flow will depend on the size and spread of various community forestry activities taken up by HCFP in the respective villages.

The study relied on seven different types of data bases and data collection tools:

- The baseline survey conducted at the commencement of project activities in each village as part of Participatory Appraisal (the reference years differed for the villages and referred to the plantation year in which project activities commenced in that village).
- A re-survey of the villages on the same set of indicators used in the baseline survey (current household survey, part I – 40 villages).
- Fresh perception questions to the resurveyed villages (current household survey, part II – 40 villages).
- Questionnaire for SHG women in 12 villages.
- Questionnaire for women not formed into SHGs in 28 villages.
- Questionnaire for Common Land Users (herders, grazers, collectors of various biomass products from common land, farmers leasing in common land for cultivation etc) in 40 villages.
- Questionnaire for VRMC members in 40 villages.

The method for data collection for VRMC members, SHG women, non-SHG women and common land users was focus group discussion at a common place for each stakeholder group separately. For the re-survey of community members, door to door enumeration was conducted. Trained research personnel, who had best performance in the earlier VBS, VRMC assessment and other types of surveys and studies, were deployed to collect data as they had familiarity with the villages and information quality requirements. Prior to initiation of the field work they were given thorough briefing by the TA Sociologist.

In spite of best efforts some limitations which had come to light in the previous surveys cropped up in this round also, which related to differential understanding of the perception and awareness questions.

In spite of these limitations, this study is a serious attempt at a performance assessment at output-to-purpose level, which is extremely important at a time when the project is about to complete its term.

CHAPTER - II

CHANGES AT HOUSEHOLD LEVEL

This village benefit study depends on two data sources. The first is the baseline survey carried out at the start of initiation of the HCFP in all selected villages. The baseline survey was aimed to establish benchmarks on selected indicators on which the programme was expected to have an impact. Of the many indicators in the baseline survey the indicators related to medium of cooking fuel, number of trees on individual farms, tree species on farms, willingness to grow trees on individual farms, perceived sufficiency of tree products, number of livestock owned by the households etc. were considered as having been subject to impact by HCFP interventions to a great extent. Besides, the baseline survey included other independent variables like economic groups (grouping of households on the basis of land-ownership size classes), social categories, and gender.

The second source of information is a sample survey of a smaller sample of households in 40 villages that was conducted in October-December 2006 to understand the changes caused mainly by the tree planting and awareness creation activities under HCFP. These villages belonged to the first five batches (year of plantation initiated in the concerned village). For batch I villages, the baseline survey was conducted for the respective village one year prior to commencement of plantation activities in that village. For example, baseline survey year for batch I villages was 1999-2000. For batch II villages it was 2000-01. Thus the baseline survey years vary between village batches.

In order to understand the changes induced by HCFP, the "current" situation, that is the position of the sample households with respect to the dependent variables cited above obtained through the 2006 sample survey (hereafter referred to as "VBS"), was compared to data obtained on the situation before project start-up in the concerned villages (hereafter referred to as "BLS"). The comparison clearly brings out the with and without project situations and the project induced changes. The baseline survey enumerated all the resident households of the villages, whereas the VBS survey related to a 17% sample of village inhabitants.

In this section of the report we present the comparative analysis of data between the two data sets to understand what has taken place as a result of interventions by HCFP. The list of villages selected for the Village Benefit study is given at **Annexure 1**. The Circle-wise and Division-wise sample size is given in Table 1 below.

Table 1: Circle & Division wise sample Distribution

Division	Circle				Total	
	Ambala		Hisar			
	BLS	VBS	BLS	VBS	BLS	VBS
Ambala	1,389	484	0	0	1,389	484
Kurukshetra	2,163	551	0	0	2,163	551
Bhiwani	0	0	3,575	645	3,575	645
Hisar	0	0	5,500	591	5,500	591
Jatusana	0	0	4,510	650	4,510	650
Total	**3,552**	**1,035**	**13,585**	**1,886**	**17,137**	**2,921**

Women Headed Households

Households headed by women constituted 3.3 percent in the baseline survey sample and 2.3 percent in the current survey (Table 1a). This compares with 2.6 percent in base line and

4.2 percent current in the previous year's sample. These levels actually represent the overall situation in Haryana.

Table 1a: Percentage Distribution Household by Gender and Forestry Circle

Gender	Ambala		Hisar		Total	
	BLS	VBS	BLS	VBS	BLS	VBS
Male	96.7%	97.3%	96.7%	97.9%	96.7%	97.7%
Female	3.3%	2.7%	3.3%	2.1%	3.3%	2.3%

Economic Groups

The sample was drawn from five economic groups categorized on the basis of size of land holding. The groups are landless households, marginal farmers (owning less than 1 ha), small farmers (1-<2 ha), medium farmers (2-<10 ha) and large farmers (10 ha and above). Compared to 34.7% in the baseline, landless households constituted 27.8% in the VBS sample (Table 2). Landless households' proportion was higher than the state average in Ambala for both baseline and sample, as one of the criteria for selection of project villages has been the presence of a large number of landless households. The higher representation of large farmers in the sample of the current survey was due to purposive selection as we wanted to know the differential impacts of forestry interventions with a sample size of statistical significance for all economic categories (95% confidence level).

Table 2: Percentage of Distribution of Households by Economic Group and Circle

Economic Group	Ambala		Hisar		Total	
	BLS	VBS	BLS	VBS	BLS	VBS
Landless (LL)	42.5%	30.8%	32.6%	26.1%	34.7%	27.8%
Marginal Farmer (MF)	26%	23%	23.6%	18.4%	24.1%	20%
Small Farmer (SF)	12.9%	19.4%	15.9%	19.5%	15.3%	19.5%
Medium Farmer (MEF)	17.5%	23.3%	25.9%	24.8%	24.1%	24.2%
Large Farmer (LF)	1.1%	3.5%	2%	11.2%	1.8%	8.5%

Social Categories

As in the previous study, Scheduled Castes comprised one fifth of the households in both the sets of surveys, backward castes one third, the general castes being the most numerous.

Table 3: Division wise distribution of Household by Social Category

Division	SC BLS	SC VBS	OBC/BC BLS	OBC/BC VBS	GC BLS	GC VBS
Ambala	29.6%	15.5%	39.9%	45%	30.5%	39.5%
Kurukshetra	19%	22.5%	62.2%	54.8%	18.9%	22.7%
Bhiwani	23.5%	26.2%	25.3%	28.5%	51.3%	45.3%
Hisar	15.9%	20.3%	18.4%	17.9%	65.7%	61.8%
Jatusana	17.2%	17.2%	34%	33.5%	48.8%	49.2%
Total	**19.3%**	**20.5%**	**31.2%**	**35.2%**	**49.5%**	**44.3%**

Table 3a shows the cross tabulation of social groups and economic categories. It is clearly seen that there is a high relationship between landlessness and social origin as nearly three fourths of the Scheduled Castes (SC) and almost 30% of the Backward Castes (OBC/BC) are landless.

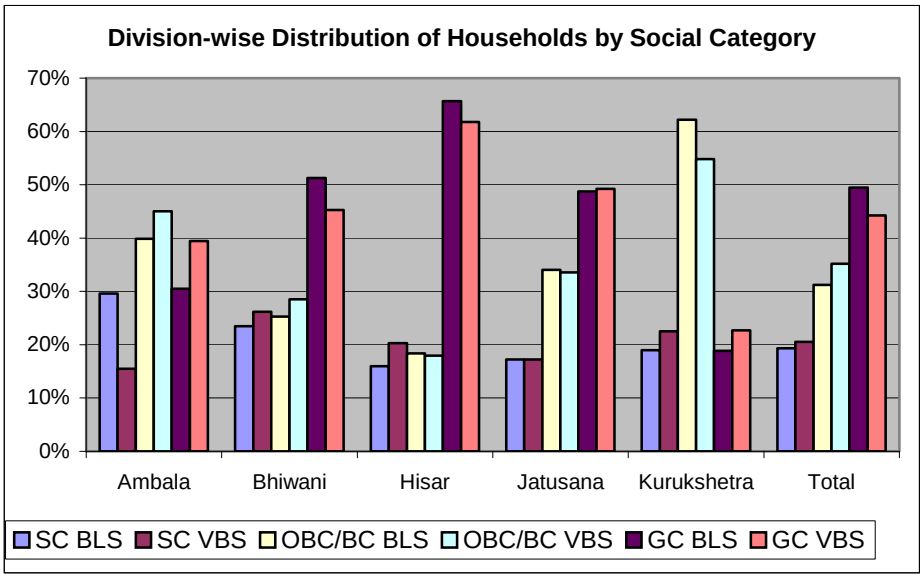
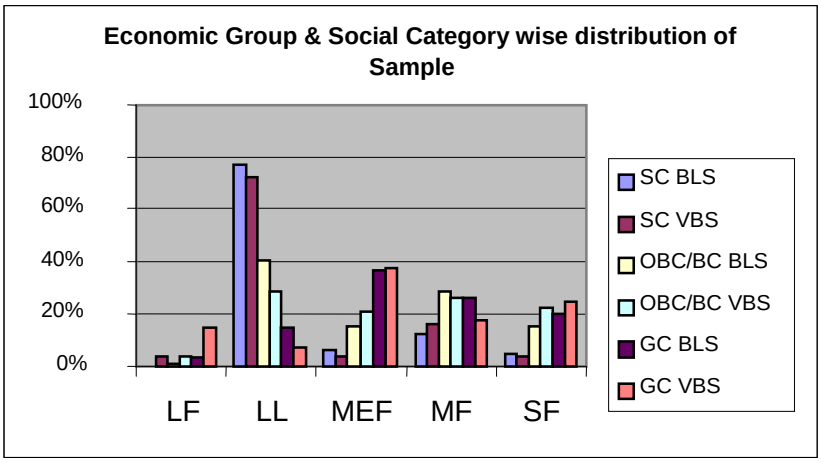


Table 3a: Economic Group & Social Category wise distribution of Sample

Economic Group	SC		OBC/BC		GC	
	BLS	VBS	BLS	VBS	BLS	VBS
LL	76.9%	72.8%	40.7%	27.9%	14.4%	6.8%
MF	12.6%	15.8%	28%	25.8%	26.2%	17.4%
SF	4.3%	4.2%	15.4%	22.1%	19.5%	24.5%
MEF	5.9%	3.5%	15.4%	20.2%	36.7%	37%
LF	0.3%	3.7%	0.5%	4%	3.2%	14.2%



TREE OWNERSHIP

Changes in tree ownership index shows a very interesting pattern, indicating the highly beneficial impact of project interventions in afforestation activities. Overall tree ownership index has increased from 23 trees per household at baseline level to 128 trees currently, representing an increase of 457% from the benchmark. The most remarkable increase was in Hisar Division, one of the most arid areas of Haryana. Here the number of trees per household increased from 7 trees per household to 52 trees, an increase of 643%. The tree species adoption also is on a set pattern. While the increase in the Northern circle is mainly on account of eucalyptus and poplar, the increase in the South Western circle is due to drought resistant species like ailanthus, shisham, kikar etc.

Table 4: Species wise average number of trees per household in Forestry Division

Tree Species	Ambala		Kurukshetra		Bhiwani		Hisar		Jatusana		Total	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
Eucalyptus	45	338	47	273	0	3	0	41	0	2	10	186
Poplar	39	261	6	63	0	0	0	27	0	3	4	164
Jand	0	0	0	4	32	32	8	7	3	8	3	17
Shisham	1	4	0	3	5	5	3	17	1	6	2	9
Kikar	0	2	1	4	1	12	0	39	1	3	1	12
Roheada	0	0	0	0	1	3	0	2	0	2	0	2
Ber	0	0	0	0	0	3	0	3	0	2	0	2
Mango	1	6	0	3	0	12	0	28	0	1	0	8
Ailanthus	0	0	0	0	0	318	0	22	0	27	0	104
Neem	0	2	19	2	1	2	2	3	1	2	0	2
Other	1	2	2	17	0	5	1	90	0	2	1	36
All Trees	75	344	57	258	17	70	7	52	7	17	23	128
% increase over BLS	**359**		**353**		**312**		**643**		**143**		**457**	

When we analyse this data by economic group, it is found that tree adoption has cut across all landholding categories. Even the landless have planted trees with whatever available space they have in their courtyards.

Table 5: Economic Group wise number of trees per household

Survey Type	LL	MF	SF	MEF	LF	Total
BLS	4	14	23	44	207	23
VBS	9	41	92	208	452	128
% increase over BLS	125	193	300	373	118	457

Among social categories, the adoption rate has been maximum among scheduled castes (1225% increase in tree ownership).

Table 6: Social Category wise number of trees per household

Social Category	BLS	VBS	% increase over BLS
SC	4	53	1225
OBC/BC	27	132	389
GC	26	152	485
Total	23	128	457

Thus the conclusion is inescapable that the landless and socially disadvantaged groups are ardent adopters of the philosophy spread by HCFP, though their share in overall tree index increase may not be much due to their limited access to land for planting.

SOURCES OF COOKING FUEL

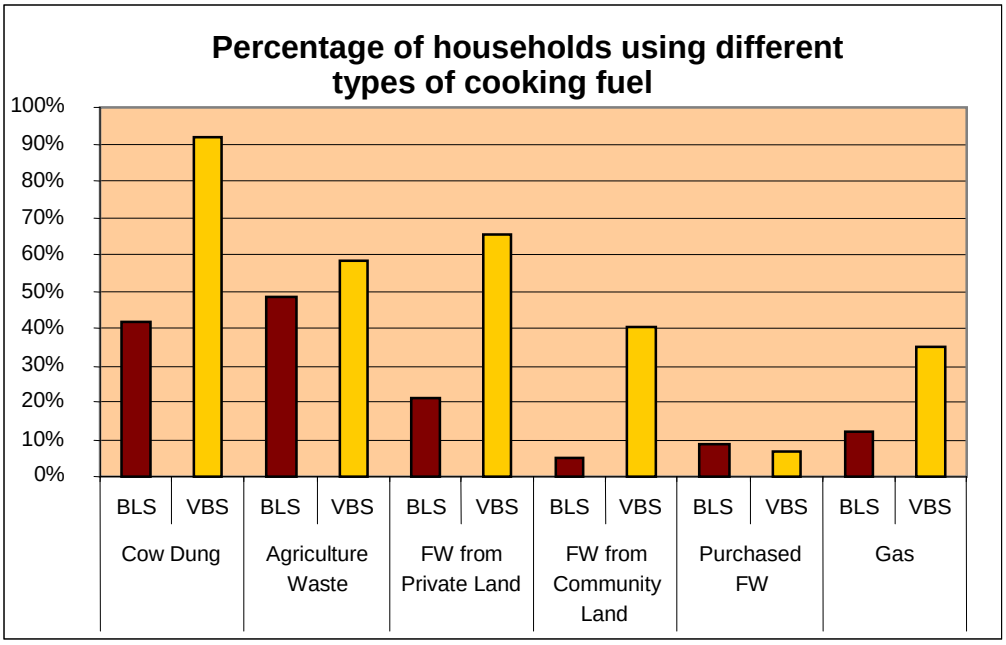
The large-scale tree plantation in project villages by HCFP is expected to enhance the availability of cooking fuel for the primary stakeholders and this is one of the major incentives for the stakeholders to participate in the programme and make community forestry sustainable. In this section, we attempt to examine whether this result has actually taken place. Tables 7 & 8 depict the changes that have occurred.

Table 7: Division wise percentage of households using different types of cooking fuel

Source	Survey Type	Division					
		Ambala	Kurukshetra	Bhiwani	Hisar	Jatusana	Total
Cow Dung	BLS	46.1%	52.5%	21.7%	53.1%	35.9%	41.4%
	VBS	89.5%	91.5%	98.1%	86%	92.6%	91.7%
Agriculture Waste	BLS	3.2%	14.1%	52.1%	80.7%	37.5%	48.7%
	VBS	10.1%	23.2%	94.4%	83.4%	66.3%	58.5%
Fuelwood from Private Land	BLS	37.4%	18.6%	41.9%	3.4%	22.2%	21%
	VBS	49.6%	41.2%	89%	74.3%	67.4%	65.7%
Fuelwood from Community Land	BLS	10.2%	1%	0.1%	0.7%	14.8%	5.1%
	VBS	48.8%	27.4%	35.7%	39.8%	50%	40.3%
Purchased FW	BLS	10.9%	0.2%	0%	11%	15.7%	8.6%
	VBS	7.2%	1.6%	3.3%	2.2%	18.3%	6.7%
Gas	BLS	7.5%	21.6%	7%	9.8%	15.1%	11.9%
	VBS	64.7%	36.3%	23.1%	19.8%	38.2%	35.2%

Table 8: Percentage distribution of HH by economic group and source of cooking fuel

Economic Group	Cow Dung		Agriculture Waste		Fuelwood from Private Land		Fuelwood from Community Land		Purchased Fuelwood		Gas	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
LL	38.5%	88.3%	40.5%	46.2%	30.1%	24.8%	5.6%	72.3%	5.1%	12.1%	7.3%	17.2%
MF	48.2%	94.9%	48%	59%	17.5%	73.3%	6.6%	45%	7.5%	7.5%	12.2%	34.2%
SF	43.2%	91.4%	56%	59.6%	16.6%	81.7%	5.6%	27.1%	9.1%	5.4%	13.7%	38.3%
MEF	38.9%	93.1%	57%	62.7%	14.7%	82.6%	2.8%	22%	13.5%	3%	16.4%	49.6%
LF	22.1%	92.7%	41.6%	83.8%	17.2%	96.4%	2.9%	6.9%	20.1%	1.2%	23.1%	47%
Total	41.4%	91.7%	48.7%	58.5%	21%	65.7%	5.1%	40.3%	8.6%	6.7%	11.9%	35.2%



Cow Dung

Use of cow dung has increased across all divisions and economic groups. While in the entire sample, there has been an increase of 50 percentage points from the baseline level in the use of cow dung, the increase was highest amongst large farmers (71 percentage points), and hovered around the medial increase in all other groups.

Agricultural Waste

While the mean increase for the sample was 10 percentage points, the highest increase of 42 percentage points was for large farmers. Other economic groups show only moderate increase. Use of agricultural waste as fuel is much more common in Hisar circle, where firewood is relatively scarce.

Fuelwood from Private Land

Privately owned land as a source of fuel wood was directly related to the area owned and the percentage change in its increase was highest among large farmers (79 percentage points). The landless category, however, witnessed a decrease of five percentage points. This shows that availability of fuel wood would become more problematic for the landless in the absence of community initiatives to develop tree cover on common lands. The finding is also in the same line as that in VBS 2006. Use of firewood from private land is much more common in Hisar circle, where tree species planted are more useful as fuel. The dominance of eucalyptus and poplar in Ambala circle has limited the outtake of fuel from plantations.

Fuelwood from Community Land

While use of fuelwood from common land has increased across all economic categories, the landless have benefited to the maximum from firewood available from community land, marking an increase of 67 percentage points from the baseline. The corresponding increase for large farmers has been only 4 percentage points and for medium and small farmers around 20 percentage points each. The increase for marginal farmers has been 38 percentage points. The trend is in conformity with the findings of VBS 2006, which also had demonstrated remarkable increase in availability of firewood from common land for the landless in the form of dead wood, loppings, prunings etc. The increased access to fuelwood from common land has occurred across all divisions.

Purchased Fuelwood

The dependence on purchased fuel wood has decreased for all economic groups except the landless, for whom there has been an increase and for the marginal farmers whose dependence continues to be the baseline level. 12% of the landless households now depend on purchased firewood, compared to 5% at baseline. This shows that the increased availability of fuelwood from common land has not fully removed the gap in need for firewood for the economically poorer sections and points to the need for further public investments in community afforestation activities. It is also obviously so that the still young HCFP woodlot plantations have so far provided only limited quantities of firewood.

Liquefied Petroleum Gas (LPG)

The proportion of households using LPG has tripled compared to baseline. While indicating increased access to this clean medium of cooking, it also incurs additional expenditure for the weaker sections. If this is matched by increased purchasing power this is good progress. As the proportion of households using gas is directly correlated with size of land owned, and the highest increase in use of gas has occurred in the relatively more wealthy Ambala division, it seems that gas is preferred when it becomes affordable to the household.

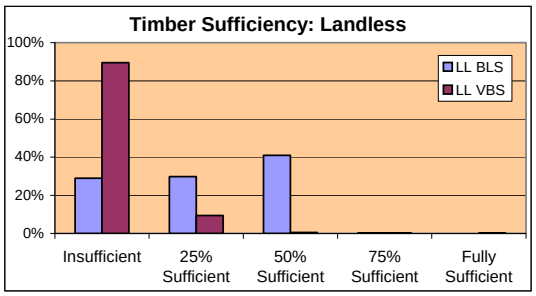
SUFFICIENCY IN TREE RESOURCES

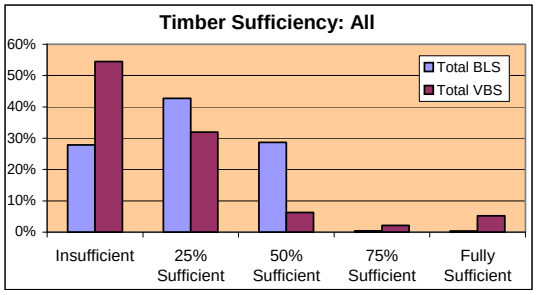
Timber

At the overall level 5.2% of the households are fully sufficient currently with respect to timber, compared to only 0.4% at baseline. The increase has mainly occurred in Bhiwani, Hisar and Kurukshetra. At the same time the proportion indicating full insufficiency has doubled from 28% to nearly 55%, with the largest increase in Ambala and Kurukshetra. Correspondingly the proportion of 25-50% sufficiency has declined. All except large and medium farmers have experienced decline and this is in consonance with findings of VBS 2006. There is a rising demand for timber due to demographic pressure and increased standard of living. Of course the species mix under different models of HCFP has a lower share for timber species, and the timber trees have not yet reached their rotation age. So the project has not much influence on timber availability at present.

Table 9: Percentage distribution of households in economic categories by extent of Timber Sufficiency

Timber Sufficiency	LL		MF		SF		MEF		LF		Total	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
Insufficient	29%	89.5%	24.8%	52.8%	25.3%	43.1%	30.8%	37.6%	28.9%	17.8%	27.8%	54.5%
25% Sufficient	29.9%	9.5%	50%	40.2%	49.9%	42.9%	48.4%	35.5%	55.2%	50.6%	42.7%	31.9%
50% Sufficient	41.0%	0.6%	24.1%	5%	24.1%	6.2%	19.8%	10.9%	12.3%	15.4%	28.7%	6.3%
75% Sufficient	0.2%	0.1%	0.6%	0.5%	0.6%	2.1%	0.3%	5.8%	1%	2.4%	0.4%	2.2%
Fully Sufficient	0%	0.2%	0.5%	1.5%	0.2%	5.8%	0.8%	10.3%	2.6%	13.8%	0.4%	5.2%





Fuelwood

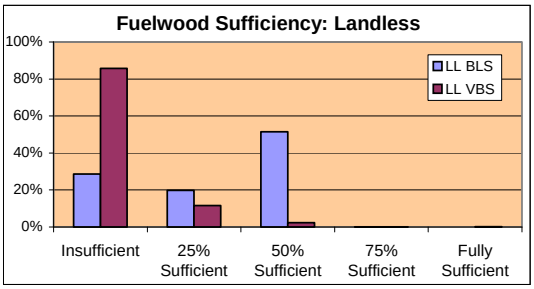
With respect to fuelwood, the percent of households with full sufficiency increased from 0.5% at baseline to 13.5% currently. The proportion with 75 percent sufficiency also increased from 3% to 10%. At the same time, the proportion with full insufficiency increased from 25% to 42.5%. Among the landless, full insufficiency increased by 57 percentage points, followed by marginal farmers with an increase of 22 percentage points. The degree of fuelwood sufficiency is directly related to the size of land area owned; while the large and medium farmers now have much improved sufficiency compared to baseline, also small farmers have recorded improvements to a lesser extent.

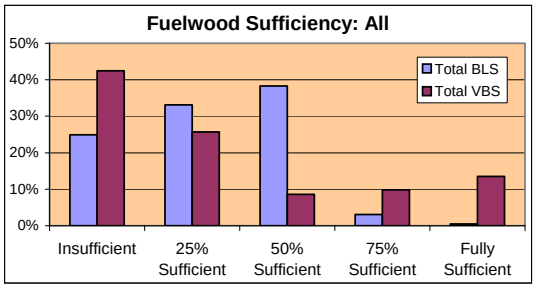
While Bhiwani and Hisar have experienced a huge improvement in full fuelwood sufficiency – from a level of around 1% at baseline to over 20% of households now – the percentage of households with full insufficiency has increased dramatically in Ambala and Kurukshetra, from levels close to zero at baseline to half the population now. Tree species planted by farmers in these two divisions are not suitable as fuel. However, farmers in Ambala and Kurukshetra have now indicated increased willingness to plant more firewood trees.

FUELWOOD FINDINGS FROM 2007 VILLAGE BENEFIT STUDY

Table 10: Percentage distribution of households in economic categories by extent of Fuelwood Sufficiency

Sufficiency in Fuelwood	LL		MF		SF		MEF		LF		Total	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
Insufficient	28.6%	85.7%	13.6%	35.4%	23.2%	27.6%	31.3%	20.1%	33.4%	15.4%	24.9%	42.5%
25% Sufficient	19.8%	11.6%	40.5%	35.9%	40.8%	36.4%	39.2%	29%	41.6%	13.8%	33.1%	25.7%
50% Sufficient	51.5%	2.3%	36.5%	8.9%	30.3%	14.2%	27.7%	11.7%	22.7%	6.5%	38.3%	8.6%
75% Sufficient	0.1%	0.1%	7.7%	12.5%	5.5%	15.8%	1.5%	12%	1.3%	15.0%	3.1%	9.8%
Fully Sufficient	0%	0.2%	1.6%	7.4%	0.2%	6%	0.4%	27.3%	1%	49.4%	0.5%	13.5%





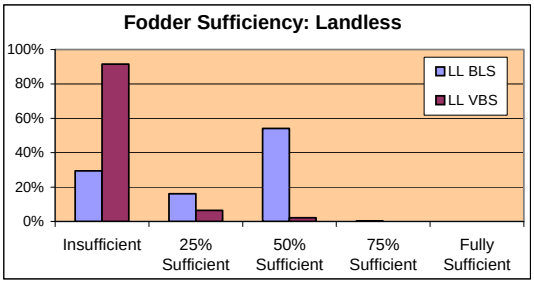
Fodder

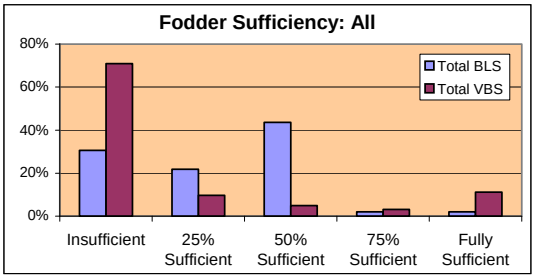
Fodder sufficiency of 75 percent or more increased from the level of 4% at baseline to 14% currently in the sample as a whole. Among the large farmers, the change was from 1.6% at baseline to 45% currently. All the economic groups except the landless experienced increased sufficiency on these levels. At the same time households with complete insufficiency also increased substantially among all economic groups, especially the landless and marginal farmers. This shows that in spite of the efforts put in by the community through the project there is greater need for increasing area under fodder trees. Most of the fodder now available comes from fodder grass growing in between trees, and that is clearly not sufficient.

Full fodder sufficiency has improved dramatically in Bhiwani, up from 1% to 26%, and in Jatusana, from 6% to 17%, while at the same time full insufficiency has tripled in these two divisions. However, the worst insufficiency scenario has emerged in Ambala and Kurukshetra, with almost no household fully insufficient at baseline and almost all now. This deficiency is not even matched by any increased willingness to plant fodder trees.

Table 11: Percentage distribution of households in economic categories by extent of Fodder Sufficiency

Sufficiency in Fodder	LL		MF		SF		MEF		LF		Total	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
Insufficient	29.4%	91.5%	20%	72.1%	34.3%	63.3%	39.8%	61.4%	40.3%	45.7%	30.6%	71%
25% Sufficient	16.1%	6.4%	30.4%	12%	23.1%	13.5%	20.6%	9.6%	23.7%	6.9%	21.8%	9.7%
50% Sufficient	54.2%	2.1%	39.6%	5.5%	36.5%	7%	37.6%	7.1%	34.4%	2.4%	43.6%	5%
75% Sufficient	0.3%	0%	6.5%	3.1%	1.4%	4.6%	0.4%	3%	1%	10.5%	2%	3.1%
Fully Sufficient	0%	0%	3.6%	7.4%	4.7%	11.6%	1.6%	18.9%	0.6%	34.4%	2%	11.2%



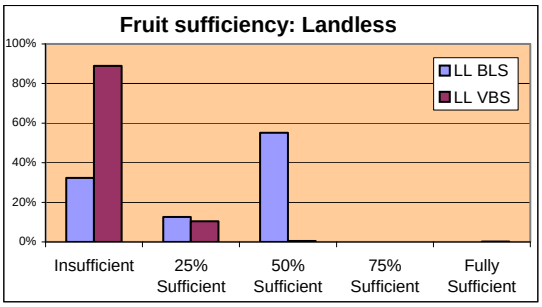


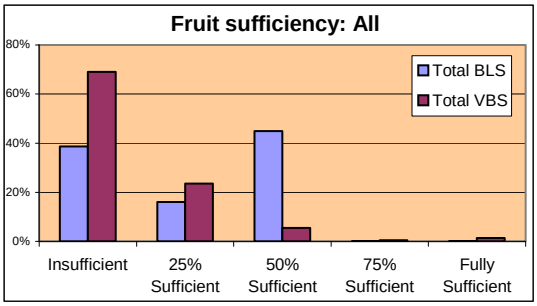
Fruits

Insufficiency with respect to availability of fruits increased substantially across all economic groups, especially for landless and marginal farmers, and also across all divisions.

Table 12: Percentage distribution of households in economic categories by Sufficiency in Fruits

Sufficiency in Fruits	LL		MF		SF		MEF		LF		Total	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
Insufficient	32.3%	88.9%	38%	66.7%	42.8%	64.3%	45.5%	54.8%	44.8%	61.5%	38.7%	69.1%
25% Sufficient	12.6%	10.5%	24.2%	25.6%	15.5%	29%	13.7%	31.2%	10.4%	26.7%	16.1%	23.5%
50% Sufficient	55.1%	0.5%	36.9%	6.5%	41.7%	4.9%	40.5%	9.6%	43.8%	8.9%	45%	5.5%
75% Sufficient	0%	0%	0.4%	0.3%	0%	0.4%	0.1%	1.3%	0%	0.8%	0.1%	0.5%
Fully Sufficient	0%	0.1%	0.5%	0.9%	0%	1.4%	0.1%	3.1%	1%	2%	0.2%	1.4%





WILLINGNESS TO PLANT TREES

There are interesting trends in the willingness of people to plant trees on their own land. Excepting a slight increase of 2.4 percent in the willingness to plant fruit trees, there is a downward trend in preference for all other kinds of trees. At the baseline level 58 percent of the households were willing to plant timber trees. This proportion has now dropped by 9 percentage points. Similar is the case with fuel trees. In the case of fodder trees, the drop in interest has been to the extent of 12 percentage points. The changed preference pattern cuts across all economic groupings, excepting a marginal increase in small farmers' interest in planting fuelwood trees; and there is a drop in interest in fruit trees for marginal farmers and the landless, who have presumably used up most land available.

However, nearly three fourths of households are willing to plant trees in future also (at least one response for willingness), **which represents an increase of 5 percentage points over baseline.** What has happened is that farmers willing to plant trees at the baseline scenario opted for an average of three types of trees, whereas they have now typically narrowed down their preference to two types of trees. The increase in willingness cuts across all economic categories, except the landless (who have only the homestead to plant on), with a particularly marked increase for small, medium and large farmers.

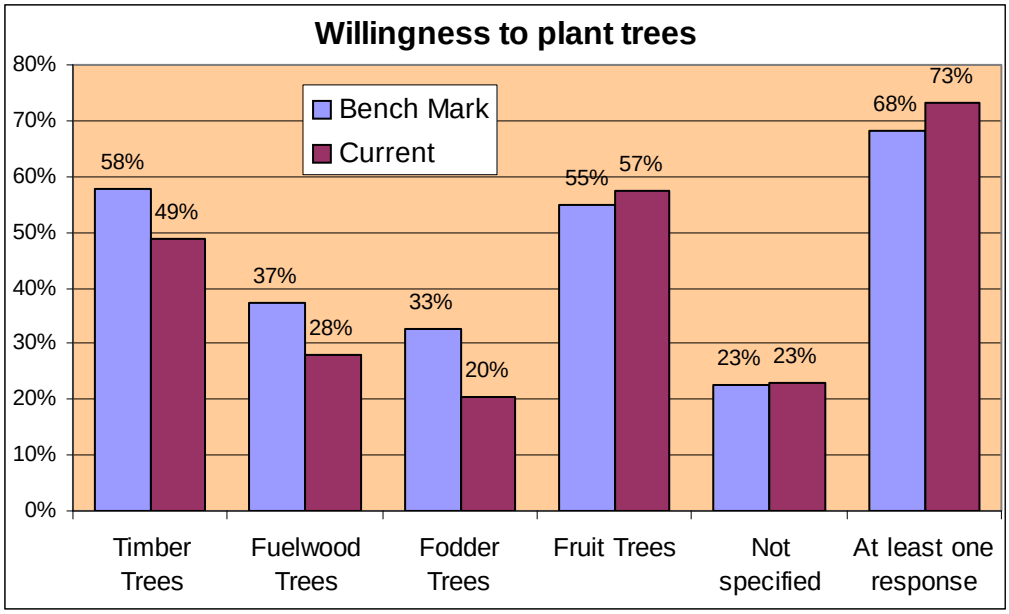
The Forest Department and the VRMCs should use this willingness to further enable farmers to integrate tree planting into their cropping systems. For this there is need to design more innovative cropping system approaches with an important place for trees.

It may be pointed out that at the start of the project people had an express liking for fruit trees, which was not necessarily supported by the project on the grounds of technical and agro-climatic feasibility. The interest in fruit trees continues, probably due to their perceived higher economic and nutritional value.

To pursue their ambitions for fruit tree farming, farmers could be provided information of the ongoing horticulture programmes of the line department and special schemes of the National Horticulture Mission, which is providing very attractive initiatives to farmers to take up horticulture programmes including high subsidies for micro-irrigation in new horticulture farms. In the absence of proper tie-up with community based institutions these projects have not made much headway in Haryana. These open up a new area which VRMCs can work on to help farmers take up horticulture, particularly in view of the perceived gaps in fruit tree products. The division community forestry staff needs to provide the needed information to the VRMCs in this task and also establish linkage of VRMCs with the Horticulture Department. The major features of the various horticulture options available are provided in **Annexure 3**.

Table 13: Economic group wise percentage of households willing to plant trees

Economic Group	Timber Trees		Fuelwood Trees		Fodder Trees		Fruit Trees		Not specified		At least one response for willingness	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
LL	44.2%	18.2%	30.7%	13.2%	20.6%	7.8%	50.1%	40.3%	15.9%	11.3%	56.1%	44%
MF	66%	54.7%	45.6%	38.3%	48.9%	21.4%	62.3%	60%	34.6%	21.5%	77.5%	79.1%
SF	64.4%	65.9%	39.6%	44.3%	37.2%	34.1%	55.2%	66.3%	24.9%	23.7%	73.1%	85.8%
MEF	64.3%	59.9%	36.7%	28.1%	30.7%	21.2%	54%	66.4%	19.9%	29.2%	72.1%	86.7%
LF	68.2%	62.8%	36%	12.6%	26.9%	25.9%	58.1%	60.3%	15.6%	44.5%	74%	88.3%
Total	**57.8%**	**48.7%**	**37.2%**	**27.8%**	**32.5%**	**20.4%**	**54.9%**	**57.3%**	**22.8%**	**22.9%**	**68%**	**73.3%**



There are division-wise variations in the preference for tree types. In Ambala, there is an increase in the preference for timber species – to counter the increased timber insufficiency level recorded there – but there is a high decline in Bhiwani and Jatusana. Jatusana actually has a marked decline in preference for all tree categories. There is a marked increase in

preference for fruit trees in Ambala, Bhiwani and especially Hisar. Preference for fuelwood trees has increased in Ambala and Kurukshetra, to be viewed against the very high increase in firewood insufficiency recorded for these two divisions. Fodder tree preference has declined in all divisions. Looking at willingness to plant at least one type of tree, there is a huge increase in Hisar and also in Ambala, while the willingness has come down in Kurukshetra and Jatusana.

Table 14: Division wise percentage of households willing to plant trees

Division	Timber Trees		Fuelwood Trees		Fodder Trees		Fruit Trees		Not specified		At least one response for willingness	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
Ambala	34.6%	47.9%	21.6%	31.4%	16.2%	15.5%	44.3%	51%	14.2%	4.1%	57.5%	74%
Kurukshetra	44%	34.5%	15.9%	26.3%	17.7%	7.6%	42.8%	30.3%	10.9%	5.8%	60.1%	47.4%
Bhiwani	71.7%	53.3%	28.4%	10.9%	41.1%	20%	60%	71.8%	20.3%	35.8%	83.9%	86.2%
Hisar	43.7%	41.5%	24.4%	0.8%	7.3%	5.2%	33.2%	61.1%	7%	38.4%	47.8%	78.6%
Jatusana	77.9%	63.2%	74.7%	67.8%	68.6%	49.1%	86.3%	67.1%	52.3%	24.6%	87.2%	78.8%
Total	**57.8%**	**48.7%**	**37.2%**	**27.8%**	**32.5%**	**20.4%**	**54.9%**	**57.3%**	**22.8%**	**22.9%**	**68%**	**73.3%**

LIVESTOCK

The percentage of households owning livestock has increased from 16% at baseline to 20% currently, a change of about 4 percentage points. This is true for all types of livestock, but the increase has been remarkable for cows (+14.5 percentage points), followed by buffaloes (+8.4%). Cow and buffalo and goat ownership has increased in all economic groups. 26 percent of the landless households own cows now compared to 12 percent at baseline.

Table 15: Percentage of households owning livestock at benchmark and current levels

Livestock	Type of survey	Economic Group					Total
		LL	MF	SF	MEF	LF	
Buffalo	BLS	48.7%	73.1%	86%	91.4%	94.8%	71.4%
	VBS	54.1%	82.6%	89.1%	94.4%	95.1%	79.8%
Cow	BLS	12.4%	16.2%	17.5%	20.6%	24%	16.3%
	VBS	26%	26.5%	28.3%	36.3%	46.6%	30.8%
Sheep	BLS	1.9%	0.6%	0.3%	0.7%	0.6%	1%
	VBS	4.8%	0.7%	1.1%	0.3%	0%	1.7%
Goat	BLS	8.3%	3.6%	2.2%	1.1%	0.3%	4.3%
	VBS	15.5%	6.3%	4.7%	2.1%	1.6%	7.2%
Bull	BLS	3%	5.7%	12.7%	14.9%	13.3%	8.2%
	VBS	1.7%	10.4%	13.9%	18.9%	21.1%	11.6%
Others	BLS	10.1%	13.2%	19.6%	25%	28.9%	16.2%
	VBS	19.1%	19.3%	18.1%	25.8%	11.3%	19.9%

Average per household herd size has increased in the matter of cows, sheep, goats and others like donkeys, camel, pony etc. The herd size for sheep has increased from 16 to 36 and for goats from 5 to 11, while number of cows has increased from 1 to 2. Improved fodder availability could be a reason for the increase, besides increase in purchasing power. However, increased livestock ownership has put a strain on fodder availability, with number of cattle growing faster than fodder supply.

Table 16: Average number of livestock owned, economic group wise

	LL		MF		SF		MEF		LF		Total	
	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS	BLS	VBS
Buffalo	2	2	2	2	3	3	3	3	4	4	3	3
Cow	1	1	1	1	2	2	2	2	1	2	1	2
Sheep	14	38	16	37	15	30	15	28	3	0	16	36
Goat	5	13	4	8	4	5	7	5	2	15	5	11
Bull	2	2	2	2	2	2	2	2	2	2	2	2
Others	1	1	1	2	1	2	1	3	2	2	1	2

CHAPTER - III

STAKEHOLDER ANALYSIS

In addition to the comparison between the baseline survey and the survey of the current situation, analysis of different sections of the primary stakeholders was also done through separate questionnaires. The variables included type of benefits received from project implementation, assessment of the role played by VRMCs in tackling the interests of the stakeholder group, assessment of the beneficial tree planting packages, opinions about the tree plantation packages preferred for the future etc. The stakeholder groups were:

- A random sample of members of the village community (the same set of people who responded to Part I of the questionnaire)
- All members of the VRMC in the sample village
- Members of SHGs operating in the sample villages
- In those villages where SHGs were not functioning, a group of women who agreed to participate in a meeting
- A sample of the Common Land Users (CLU) who agreed to participate in a meeting.

The sample of different stakeholder groups is given in the table below. A total of 4291 persons were contacted. These included 2906 villagers, 417 VRMC members (average of 10 per village), 192 SHG members (average of 16 per village in 12 SHG villages), 263 women who are not members of SHGs (average of 9 per village in non-SHG villages), 513 common land users (average of 13 per village).

Table 17: Sample size for Village Benefit Study

Stakeholder Group	Ambala	Kurukshetra	Bhiwani	Hisar	Jatusana	Total
Households Survey II	483	539	644	591	649	2906
VRMC Member	102	107	70	71	67	417
SHG Member	52	50	32	22	36	192
Non-SHG Women	54	41	60	70	38	263
Common Land Users	96	111	111	123	72	513
Total	**787**	**848**	**917**	**877**	**862**	**4291**

MEETINGS

The different Community Based Organisations formed under HCFP have prescheduled meetings, which every member is expected to attend regularly. Attendance at meetings not only demonstrates the interest of the members in their organisation, but also elucidates the organisational sustainability of the CBO. The data shows that 55 percent of VRMC members, 84 percent of SHG members and 32 percent of community members reported to be regular in attending village level meetings. There are huge variations in between divisions, with Ambala and Kurukshetra recording the highest attendance figures. Attendance percentage is poor in respect of VRMCs in Jatusana and Hisar, with respect to SHGs in Hisar and with respect to community members in Bhiwani and Hisar. Poor attendance percentage of SHGs in Hisar and in respect of VRMCs in Hisar and Jatusana is a matter of concern. Similarly, poor attendance level of community members in the meetings called by the VRMC or Village Panchayat shows that these CBOs have not been able to arouse sufficient interest in the village community.

Table 18: Percent of positive response on village level meetings

Division	VRMC Members	SHG Members	Community Members
Ambala	67.6	100	62.3
Kurukshetra	73.8	100	53.2
Bhiwani	55.7	75	7.3
Hisar	32.4	13.6	1.7
Jatusana	28.4	88.9	42.2
All Divisions	**54.9**	**83.9**	**31.6**

INTERACTION WITH OTHER GROUPS

45 percent of VRMC members, 55 percent of SHG members and 33 percent of non-SHG women confirmed that they had interactions with other groups or community institutions in their villages. Interaction of non-SHG women has been recorded only in Hisar and Bhiwani, and these divisions also have the highest VRMC interaction. While SHG members in Kurukshetra are very regular in attending their own meetings, they do not have much interaction with others.

Table 19: Percent of positive response regarding interaction with other groups

Division	VRMC Members	SHG Members	Non-SHG Women
Ambala	38.2	88.5	0
Kurukshetra	10.3	24	0
Bhiwani	84.3	81.2	30
Hisar	88.7	22.7	98.6
Jatusana	22.4	47.2	0
All Divisions	**44.8**	**55.2**	**33.1**

VRMC SOLVING PROBLEMS

41 percent of the VRMC members stated that the VRMC has been instrumental in solving some of the village problems. This percentage was highest at about 67 percent in Ambala and lowest at 10 percent in Hisar.

Table 20: Percentage of sample stating that the VRMC has solved problems

By Division	VRMC Members	SHG Members	Community Members	Non-SHG Women	Common Land Users
Ambala	66.7	41	86.1	74.1	86.5
Kurukshetra	49.5	0	44.7	61	79.3
Bhiwani	18.6	100	87.6	86.7	55
Hisar	9.9	100	89.8	30	17.9
Jatusana	46.3	30.6	42.7	28.9	52.8
All Divisions	**41.2**	**44.8**	**69.7**	**56.7**	**56.9**
By Gender					
Male	38.5	NA	69.6	NA	57.4
Female	47	44.8	72.6	56.7	51.4

45 percent of the SHG members stated that the VRMC was able to solve some of the village problems. All SHG members in Bhiwani and Hisar confirmed this, but surprisingly none in Kurukshetra had a positive response in this regard – maybe due to their lack of interaction with the VRMC. Positive responses were relatively higher among community members (70%), non-SHG women and common land users (57% each). The village community at large appears to be more positive in their opinion regarding the problem solving function of VRMCs than the VRMC members themselves. Common land users in Hisar, however, seem to have little faith in the VRMC.

VRMC Creating Problems

Surprisingly, more than a third of the VRMC members themselves also felt that they have created problems in the village, the proportion being very high in Bhiwani and Hisar. This may be a result of factionalism. In Hisar all **women, VRMC members themselves and a large majority of common land users** felt that VRMCs had created problems. On the other hand, the community members did not consider this to be the case. The proportion of negative perceptions about VRMCs in Hisar and Bhiwani appears to be more than the acceptable levels, **indicating the need for a review of the working of the VRMCs in these divisions.** However, for more nuances of the picture, also read the case studies in Chapter V.

Table 21: Percentage of sample stating that the VRMC has created problems

By Division	VRMC Members	SHG Members	Community Members	Non-SHG Women	Common Land Users
Ambala	2	0	5.6	0	0
Kurukshetra	15	0	14.5	0	40.8
Bhiwani	94.3	28.1	4.7	30	54.1
Hisar	98.6	100	1	98.6	84.6
Jatusana	3	0	4.9	0	0
All Divisions	**37.3**	**16.1**	**6**	**33.1**	**34.3**
By Gender					
Male	39.2	NA	5.9	NA	36.8
Female	33.1	16.3	6.8	33.1	2.7

Support from VRMC to Stakeholder Groups

31 percent of SHG members, 46 percent of non-SHG women and 62 percent of common land users reported that they received some kind of support from the VRMC. The proportion of positive responses on this score was highest in Bhiwani division, despite the perception that the VRMC had created problems.

The finding that non-SHG women perceive a higher degree of VRMC support than SHG women is totally different from findings of the 2006 VBS, where 47% of SHG women indicated such support as against only 28% of non-SHG women. Perhaps the SHGs, which have meanwhile undergone a tremendous development towards autonomy, have raised the stake in what they are willing to define as outside support – divisions with the best SHGs have reported the lowest support. At the same time it is also obvious that non-organised women are receiving VRMC support to an extent they did not get before.

Table 22: Percentage of sample stating that the VRMC has supported the group

By Division	SHG Members	Non-SHG Women	Common Land Users
Ambala	21.2	38.9	95.8
Kurukshetra	32	24.4	84.7
Bhiwani	75	71.7	55
Hisar	18.2	60	24.4
Jatusana	11.1	13.2	55.6
All Divisions	**30.7**	**46**	**61.8**

Participation in Activities on the Commons

Participation rate in activities on the commons was to the extent of 33 percent among SHGs, 48 percent for non-SHG women and 31 percent for common land users. Lowest participation rate for all stakeholder groups was in Ambala. Jatusana had the highest participation rate, followed by Bhiwani. Participation could have been by way of contributing labour in lieu of wages or otherwise or taking part in other activities organised through the VRMCs.

Table 23: Percentage of sample reporting participation in activities on commons

By Division	SHG Member	Non-SHG Women	Common Land Users
Ambala	0%	7.4%	0%
Kurukshetra	18%	73.2%	24.3%
Bhiwani	68.8%	65%	48.6%
Hisar	4.5%	32.9%	8.9%
Jatusana	86.1%	81.6%	94.4%
All Divisions	**32.8%**	**48.3%**	**31.2%**

Labour Participation

This question was asked from two groups – common residents of the villages and common land users. While less than a third of the community members worked for wages in forestry activities in the village, nearly three fourths of common land users benefited from project related wage work. Participation by community members was lowest in Hisar, followed by Ambala. Among common land users also, Ambala stood lowest. The mainly landless common land users are the ones that have benefited most from wage labour, in line with ambitions of the VRMCs to provide employment opportunities to disadvantaged groups.

Table 24: Percentage of sample benefiting from labour for project activities

By Division	Community Members	Common Land Users
Ambala	26.1%	38.9%
Kurukshetra	38.4%	77.5%
Bhiwani	36%	78.4%
Hisar	16.1%	83.7%
Jatusana	39.2%	81.9%
All Divisions	**31.5%**	**72.7%**

Quantum of Wages for CLU

While 39 percent of the CLU did not receive any wages, 29 percent earned more than Rs 10,000 during the project period through project related wage work.

Table 25: Quantum of wages received by common land users

Income Range	Percent
No Income	39%
Less than Rs. 2000	9%
Rs. 2000-4999	9%
Rs. 5000-7999	9.6%
Rs. 8000-9999	4.1%
Rs. 10000 and above	29.4%

Other Impacts

Common land users were asked to report other impacts of the project. Though about 70% of the respondents indicated reduction in grazing land, this was to some extent compensated for by increase in fodder grass availability for stall-feeding of cattle. Grazing land reduction was more prevalent in Ambala and Kurukshetra, the Northern divisions. However, there is still non-planted common land available for grazing in these two divisions. Non-availability of common land for cultivation on lease is reported mostly from Hisar and to some extent in Jatusana and Bhiwani. Common land is still available for cultivation in the Northern divisions.

Table 26: Common land users with reduced access to grazing land

Division	Grazing land Reduced (% of respondents)
Ambala	89.6
Kurukshetra	85.6
Bhiwani	54.1
Hisar	53.7
Jatusana	69.4
All Divisions	**69.6**

Sale of tree products

The community members were asked whether they were able to sell any timber or other tree products during the project period. About 41 percent of the respondents were able to sell the products, the highest proportion being from Ambala, which is traditionally better off in the matter of tree cover on farms. Further distress sale of poplar also is reported to have taken place in Ambala division due to fluctuating prices of poplar in the recent past. When farm forestry plantations reach their rotation age, the farmers are likely to get further benefits from

sale of trees in the future, which will surely improve their economic condition, besides improved land productivity and environmental benefits.

Table 27: Percent of Community having income from sale of trees

Division	Percent
Ambala	59.2%
Kurukshetra	36.4%
Bhiwani	34.6%
Hisar	46.2%
Jatusana	34.4%
Total	**41.3%**

An attempt was made to make a rough calculation of the monetary value of benefits accruing from village woodlots. The benefits pertained mainly to outtake of grass, pruning and lopping, dead wood, natural plant growth in the woodlots, etc. The data were extracted from the plantation logbooks maintained by VRMCs. During the year 2006-07, the average value accrued was Rs. 43,312 per village and the cumulative benefit during the entire life of the project was Rs. 105,475 per village. There were considerable village wise variations, depending on plantation area, survival of trees, region, agro-climatic conditions, quality of record maintenance etc. Due to these, the data is only indicative and the value of all benefits, including the intangible ones are likely to be much more than what is reported and recorded. (For details please see **Appendix 2**.)

Preference for Farm Forestry Practices

Farm Forestry constitutes the preferred tree planting package for the present in the opinion of community members, poplar occupying position of second importance. For the future, on the other hand, poplar takes the first position and farm forestry second position.

Table 28: Preference for Farm Forestry Packages (Community members)

Farm Forestry Packages	Current	Future
Farm Forestry	43%	49.2%
Sand Dune Fixation	7.5%	7.1%
Poplar	38.9%	53.2%
Kitchen Garden	15%	18.3%

Problems Solved

Community members were requested to pinpoint the problems that were to some extent solved through HCFP's activities through VRMCs. Solving of fodder problem received the maximum positive responses (55%). In Ambala and Bhiwani the proportion went up to 86% and 78% respectively. The next in importance was solving of "land problem", presumably the tackling of encroachments on community land. In Ambala and Bhiwani, this got a high rating. Water problem was reported to have been tackled by 30% of respondents (as high as 58% in Hisar, where rehabilitation of Johads was undertaken) and grazing problem by 33% (82% in Ambala). Solving of village disputes was reported by 21% of the sample (55% in Bhiwani).

Table 29: Percent of VBS households stating that VRMC has solved problems

Division	Grazing Problem	Fodder Problem	Land Problem	Water problem	Village Disputes
Ambala	82%	86%	95%	18%	0%
Kurukshetra	21%	25%	0%	25%	6%
Bhiwani	21%	78%	67%	41%	55%
Hisar	13%	43%	29%	58%	22%
Jatusana	37%	45%	10%	6%	13%
Total	**33%**	**55%**	**39%**	**30%**	**21%**

Being benefited from activities on common land

The percent of different stakeholder groups reporting being benefited from activities on common land varied from 31 to 48% for the present and 35 to 48% for the future. Practically all women and common land users in Jatusana perceive present and future benefits, while Ambala division had lowest positive response from all stakeholder groups. However, no CLUs in Ambala reporting any benefit at all from common land activities is clearly at odds with 79% of them naming the village woodlot as the most beneficial VRMC activity in Table 31. It seems that these questions have not been fully understood by respondents. It is also possible that the respondent household may not have had any direct benefit, but they perceive the village benefiting from the activities generally. In Hisar also, people were generally doubtful about present or future accrual of benefits. The perception of benefits amongst CLU clearly disregards wage labour as a tangible benefit (see Table 24) while looking at the plantation benefit at large.

Table 30: Percent stating being benefited from activities on commons

Division	Non-SHG Women		SHG Members		CLU	
	Currently	Future	Currently	In Future	Currently	In Future
Ambala	7.4%	7.4%	0%	15.4%	0%	0%
Kurukshetra	73.2%	78%	18%	42%	24.3%	47.7%
Bhiwani	65%	80%	68.8%	65.6%	48.6%	48.6%
Hisar	32.9%	5.7%	4.5%	0%	8.9%	0%
Jatusana	81.6%	100%	86.1%	100%	94.4%	100%
Total	**48.3%**	**47.9%**	**32.8%**	**44.8%**	**31.2%**	**34.9%**

Beneficial activities for Common Land Users

Common Land Users were asked to name the most beneficial VRMC activity. Half of them opted for the village woodlot, with scattered responses for a number of other activities.

Table 31: Most beneficial VRMC activities as assessed by CLU

Division	Most beneficial activities									
	Chetna Kendra	Dam	Entry Point Activity	Fodder	Fuel	Johad Rehabili-tation	Plantation	Village Woodlot	Wage Labour	No Response
Ambala	8.3%	5.2%	7.3%	0%	0%	0%	0%	79.2%	0%	0%
Kurukshetra	14.4%	8.1%	9%	1.8%	11.7%	0%	0%	45.9%	8.1%	0.9%
Bhiwani	1.8%	0%	9.9%	0%	0%	0%	26.1%	41.4%	16.2%	4.5%
Hisar	4.1%	0%	17.1%	0%	0%	13%	0%	64.2%	0%	1.6%
Jatusana	9.7%	0%	1.4%	12.5%	5.6%	0%	8.3%	11.1%	48.6%	2.8%
All Divisions	**7.4%**	**2.7%**	**9.7%**	**2.1%**	**3.3%**	**3.1%**	**6.8%**	**50.7%**	**12.1%**	**1.9%**

Smokeless Chulhas

The project has provided energy-efficient smokeless cooking stoves (chulhas) in 153 project villages. On an average, 50 chulhas were installed in each village, which has not necessarily met with the full demand for them. 16 of the villages sampled for the study had been covered at the time of field survey, with another four villages subsequently added. However, as smokeless chulhas are available also through other schemes, all villages were surveyed on their chulha use. The information given in the table below shows that almost half of stakeholder women in project villages use an improved chulha. As proper use of these cooking stoves reduces fuel consumption by 50% – a chulha in regular use saves 1 tonne of fuel per year – they are quite important in coping with an evermore growing fuel shortage. The health benefits of a smokeless chulha have also been well documented. WHO estimates that indoor air pollution from traditional chulhas claims 500,000 lives in India every year, most of them women and children.

Table 32: Percentage of respondents using smokeless chulha

By Division	SHG Members	Non-SHG Women	Community Members
Ambala	59.6	38.9	36.9
Kurukshetra	26	24.4	12.2
Bhiwani	46.9	71.7	14.3
Hisar	45.5	60	6.8
Jatusana	58.3	13.2	22.2
Total	**46.9**	**46**	**17.9**

CHAPTER IV

CONCLUSIONS

4.1 Caste and landlessness

Both the baseline and current surveys bring out a significant relationship between asset ownership (mainly land) on the one hand and poverty and social origins (caste) on the other. Three fourths of the scheduled castes and close to 30% of the backward castes are landless.

4.2 Tree ownership index increased

A major finding of the study is that tree ownership index has increased more than five times during the life cycle of the project. The average tree ownership index went up from the benchmark level of 23 trees per household to 128 trees currently. The highest rate of increase was in Hisar and all the divisions reported outstanding increase. Adoption rate increased across all economic categories, even the landless planting trees at whatever space available around their house plots. Among social categories, the increase in tree ownership was most dramatic among scheduled castes, 13 times. This trend is in conformity with the findings of the two previous village benefit studies.

4.3 Project interventions meet energy requirements to some extent

The energy need of Haryana households has gone up substantially, and they now draw on all types of fuel more than before. Dependence on fuelwood, whether from private or common land, has increased substantially. Side by side there is an increase in the use of cow dung, agricultural waste and LPG. There is an interesting difference in the use of fuelwood across economic groupings. While all categories have benefited by increase in availability of firewood from common land, the landless and marginal farmers have benefited the most. On the other hand, access to firewood from private land by the landless has decreased, while all other groups show increased availability of their own firewood, in proportion to land holding size. Dependence on purchased firewood has increased for the landless, while it has decreased for all other groupings.

4.4 Community forestry helps the poor

The differential energy dependence patterns have important lessons for community forestry. While all economic categories benefit from plantations on common land, the landless stand to benefit most if enabling conditions for access are in place. Farm forestry obviously benefits the land owning categories the most. The benefits increase in proportion to the size of holdings. On the other hand, the increased dependence on purchased fuelwood indicates that output from common land has not been large enough, as yet, to fully meet the energy needs. In the absence of planting on community land the position of the landless would have been even more precarious.

4.5 Tree resources insufficiency continues

Though there is a marginal increase in the proportion of households that assess themselves to be fully sufficient in timber, rural communities in Haryana continue to be insufficient in timber to various degrees. All except large and medium farmers have experienced decline and this is in consonance with findings of VBS 2006. There is a rising demand for timber due to demographic pressure and increased standard of living. Of course the species mix under different models of HCFP has a lower share for timber species, and the timber trees have not yet reached their rotation age. So the project has not much influence on timber availability at present. There has been some positive improvement in sufficiency of fuelwood and fodder, which can be directly attributed to the increased off-take from HCFP plantations on community or private lands. Chronic insufficiency in fruit trees continues to be a problem. However, the proportion of households which are fully insufficient in firewood and fodder has also increased, this being more so in case of the landless poor. The worst insufficiency in the matter of fodder has emerged in Ambala and Kurukshetra, with almost no household fully

insufficient at baseline and almost all now. This deficiency is not even matched by any increased willingness to plant fodder trees.

4.6 Willingness to plant trees

There is decline in willingness to plant trees of timber, fodder or fuelwood varieties on private land. However, nearly three fourths of the rural households in project villages are willing to plant at least one type of trees in the future. This is despite the fact that much private land has already been brought under tree planting. This willingness to plant trees may be used as a resource for the Forest Department's promotional activities in the future also. The preference pattern is not matched by the felt insufficiency for different categories of trees – timber, fuel, fodder or fruits – but is presumably governed by the economic outcome from tree planting, with fruit trees occupying the place of prominence due to their perceivably higher economic and nutritional value.

4.7 Livestock

There is some increase in livestock ownership, with average herd size per household increasing for cows, sheep and goats. The improved fodder availability and enhanced price for animal products could be the reasons for the increase. Livestock ownership has increased in all economic groups, especially for the landless. However, increased herd size puts pressure on fodder availability. It would be advisable to work with the Animal Husbandry Department to develop village pastures for the benefit of the community, including the landless.

4.8 Perceptions about VRMC

A few indicators were used to measure the vibrancy of village level institutions. Regularity in attendance in meetings was good in respect of VRMCs in Ambala and Kurukshetra and for SHGs in all divisions except Hisar. Community interest in participation in village meetings was conspicuous by its absence in Bhiwani and Hisar. SHGs generally fared better in the matter of interaction with other stakeholder groups than did the VRMCs. VRMC members had little belief in their problem solving function, whereas the community members, common land users and women were more positive about the problem solving function of VRMCs. The perception that the VRMC had created problems was also prevalent to some extent among all stakeholder groups, especially in Hisar. This is an indicator of factionalism. The perception that VRMC has supported their interests is more prevalent among common land users than in other stakeholder groups. Overall the impression is that VRMCs still have some way to go to improve their viability and usefulness to the community.

4.9 Participation in project related activities

Women and common land users participated in activities on the commons to the extent of one third (SHGs and common land users) to nearly half (non-SHG women). One third of community members got the benefit of wages from commons activities, whereas nearly three fourths of the common land users, most of them landless, contributed labour for wages.

4.10 Other impacts

The village community felt that main contributions of the project and the VRMCs have been reducing fodder problem (55%), tackling the issue of encroachment on common land (39%), solving grazing problems (33%), tackling water problems (30%) and solving of village disputes (21%). A substantial proportion of people from all stakeholder groups confided that they have benefited in the past and will benefit in the future from forestry activities on the commons.

CHAPTER V

CASE STUDIES

Bhiwani and especially Hisar were singled out in Chapter III as divisions where VRMCs need to improve their relationship with stakeholder groups. However, statistical figures alone do not show the full picture. In-depth village case stories capture dimensions beyond the story of averages and, in case of at least Hisar, reveal a situation that is not at all hopeless. All the following case studies are from Hisar division (though some of the villages presented here are not from the study sample).

5.1 VRMC of Gigorani: Wisdom of the elderly, energy of youth

In the Gigorani VRMC there is a unique combination of wisdom of the elderly and energy of youth. The success of this VRMC lies in its ability to elicit complete participation of the village community and its forward-looking vision for natural resource management. The VRMC frequently arranges several awareness campaigns. Every six months it places before the Gram Sabha details of its activities and its plans for the next six months. The VRMC is attentive to all developmental issues of the village. In this VRMC the microplan is not a one-time exercise, but it has been suitably revised from time to time.

The VRMC organised sanitation programmes twice. It arranged cleaning up of the overhead water tanks. It was instrumental in providing electricity connection to households that were earlier tapping electricity illegally. When no doctors turned up in the village during the viral epidemic in 2006, the VRMC organised a protest demonstration in the Block health centre and forced the doctors to visit the village. The VRMC collected donation for the final rites of 5 poor persons from the SC community who had died. The VRMC also organised a seminar in the village on horticulture. The village Panchayat has entered into an agreement with the VRMC that in lieu of looking after the old plantation on community land, the VRMC will get 40% share of the output from the plantation. In the last two years all village households are paying annual membership fee of the VRMC.

In all the activities the VRMC is getting wholehearted support of the village Panchayat and the Jagruti Yuva Mandal.

5.2 VRMC of Matersham: Model for dispute settlement

This VRMC has drawn praise not only within the village, but also from nearby villages. The brother-in-law of the female link worker of the village cut down five kikar trees from the village woodlot. The committee called a meeting of the VRMC. The members asked the link worker herself to decide on the punishment. The link worker stated that rules are for everyone and her brother-in-law will have to pay a penalty of Rs. 2000. But VRMC decided to reduce the penalty to Rs. 1100. The offended not only agreed to pay the penalty but also resolved to plant 7 neem trees in place of the trees that were destroyed. To this day he is taking care of the plants.

There was a very big dispute in the nearby Neoli Kalan village. The Panchayat of this village wanted the VRMC of Matersham to settle the dispute. The disputing parties agreed with the decision of the Matersham VRMC and praised it for its wisdom.

The VRMC also monitors and supervises the quality of food supplied at schools, attendance of teachers, old age and widow pension and the social welfare activities.

5.3 Shekhupur Dharauli: A woman leads the VRMC

Smt Krishna Devi Ram Devji, a member of SHG, is the current president of this VRMC. The two earlier male presidents worked for personal benefits, whereas the current president in the opinion of villagers is doing an excellent job. Now there is close relationship between the VRMC and the Panchayat and the two SHGs. These organisations together are managing the mid-day school meal programme very well. The tent material acquired through EPA funds is being utilized by the community, the rent charge going to the VRMC account. A local villager has been engaged to maintain and manage the EPA assets. He is allowed to retain 20 percent of the earnings. The outgoing Pradhan has not yet handed over the PA and microplan report to the new committee.

The SHGs of the village have organised a tailoring training centre to teach the useful skill to the local girls.

5.4 Rawalwas Kalan: Excellent work but strained relationship with Panchayat

This superbly active VRMC has been awarded the "Best Society" prize by the Chief Minister on the occasion of Van Mahotsav on 15th July 2006. The villagers hold the chairman of the VRMC, Mr. Randhir Singh, very close to their hearts. The VRMC paid the tuition fee and cost of uniform of the children from very poor families. The VRMC has been very strict with those attempting to damage tree resources. The VRMC lends all support to the SHGs formed by HCFP. These SHGs fully cooperate with the VRMC in protecting the village woodlot. The VRMC contributed Rs. 1100 to complete johad rehabilitation, while Unnati SHG contributed Rs. 1000 and Lakshmi SHG contributed Rs. 700. The VRMC and SHGs organise special functions on natural resources management on 15th August every year.

However, the chairman of the Panchayat and that of the VRMC are not on talking terms. This situation arose when a farmer cut down 30 trees of the village woodlot. The lady Sarpanch was called to the VRMC meeting convened to decide on this issue. The lady refused to attend the meeting and stated that the farmer did not do any wrong. The VRMC decided that the culprit should be asked to plant 50 trees and protect them for three years. The farmer agreed and planted 50 trees. The Sarpanch considered this as an affront to her.

5.5 *Neoli Kalan: An inactive VRMC*

The VRMC of this village is very inactive. The chairman and secretary rarely attend its meetings. One of the lady members demanded that she should be paid wages for attending the meetings. Meetings never take place, though minutes are recorded. The VRMC has not made any efforts even to protect the village woodlot plantations. None of the members are aware of the village microplan activities that have already been completed or the tripartite agreement. Even the farm forestry plantation bonus of 2004-05 was distributed only recently. Logbooks contain the signature of only the link workers, whereas the entries should have been authenticated by the Chairman and Secretary of the VRMC.

5.6 Dhingsara: Social initiatives

The VRMC at Dhingsara has taken up the following social initiatives for the benefit of the village community:

- Constructed a feeding platform for birds;
- With the help of the Panchayat, distributed shoes worth Rs. 1500 to poor school children, VRMC's own contribution being Rs. 500;
- Constructed drinking water tanks at an expenditure of Rs. 11,900 from VRMC funds;
- Excellent maintenance of the rehabilitated johad;

- VRMC members are monitoring the accurate preparation of BPL list;
- Regular watch over the quality of food at the mid-day school meal programme;
- Awareness creation about the value of education among children and their guardians;
- The Panchayat is extending full support to the VRMC to protect tree resources.

5.7 Chirod: A very new but influential VRMC

This young VRMC has a good image in the village and good rapport with the village Panchayat. It is remarkable that the Panchayat chairman regularly attends the monthly meetings of the VRMC. The link workers of this village go from door to door, creating awareness about the importance of tree planting. All the old and new trees have been numbered. The link workers were so impressive that they were able to persuade the project authorities to take up the work of rehabilitation of the village pond. The common people of the village assured that even after project exit they will make wholehearted efforts to maintain and strengthen this priceless asset.

Appendix 1

VILLAGES SAMPLED FOR 2006-2007 VILLAGE BENEFIT STUDY

District	Block	Village	Batch	SHG	Chulha	Plantation			
						VWL (ha)	SDF (ha)	FF (ha)	Poplar (ha)
Panchkula	Barwala	Naggal	4		✓	58		16.41	4
		Bunga	5		✓	86.5		2.4	19.9
	Raipur Rani	Haripur	1	✓	✓	10.75		52.53	19.5
Ambala	Barara	Zafarpur	3	✓	✓	36.25		120.34	106.61
	Shahzadpur	Ghani Khera	2			98.75		4.14	7
	Naraingarh	Laha	5			41		2.98	10
	Saha	Nurhad	3	✓		35		79.15	133.2
		Tamnauli	4			18.5		74.23	12.4
Yamunanagar	Chhachhrauli	Darpur	2	✓		57		48.9	53.85
	Bilaspur	Gadwali	2			36.5		38.4	162.55
	Sadhoura	Thaska	4		✓	26		90.86	16.1
		Jhanda	5		✓	38.5		74.04	19.2
Kurukshetra	Shahbad	Deeg	3			11.5		77.2	83.97
	Ladwa	Lohara	3			12		73.67	114.52
	Babain	Bhagwanpur	5		✓	17.5		9.37	23.18
	Thanesar	Ghiradsi	5			14		18.48	11
Hisar	Hisar II	Rawalwas Kalan	1	✓		18.3	33	88.01	
		Matersham	4			14	20.5	34.31	
	Adampur	Sadalpur	5			36.5	7	6.14	
Fatehabad	Bhattu Kalan	Pili Mandori	4			19	10	33.57	
	Fatehabad	Kara Kheri	3			13	45.8	26.29	
Sirsa	Ellenabad	Umedpura	3			13.7	15	82.08	
	Nathusari Chopta	Tarkanwali	1	✓	✓	8.3	16.5	58.07	
		Gigorani	4			10.5	6	62.6	
Bhiwani	Bhiwani	Rajgarh	3			19	105	8	
	Loharu	Kharkheri	1	✓	✓	64	33	42.28	
		Gokalpur	3		✓	84.5	81	29.89	
		Serla	5			42.5	32	7.2	
	Siwani	Dhani Silanwali	2	✓		22	133	5.5	
		Isarwal	5			51.5	5.1	5	
	Badhra	Nandha	4	✓	✓	38	31	7.7	
	Tosham	Salewala	4		✓	45	19	1	
Rewari	Jatusana	Gothra Tappa Dhina	2	✓	✓	15.5	4	25.56	
	Nahar	Bishoa	3	✓	✓	10	6	23.71	
Mahendragarh	Kanina	Dhanunda	2			30.5	7	38	
		Kotia	3	✓	✓	11	12	35	
	Mahendragarh	Jerpur	4			81	11	12	
		Nangal Mala	4			64	34	47.6	
		Pali	5			45	0	6	
Jhajjar	Matanhail	Ruriawas	5		✓	45.5	0	7.7	

Total:	1400.05	667	1476.31	796.98

Batch 1: 4 villages
Batch 2: 6 villages
Batch 3: 10 villages
Batch 4: 10 villages
Batch 5: 10 villages

Appendix 2

WOODLOT BENEFITS, 2006-2007 VILLAGE BENEFIT STUDY

District	Block	Village	2006-07 Benefits from Woodlots, Rs.	Cumulative Benefits from Woodlots, Rs.
Panchkula	Barwala	Naggal	118,800	136,800
		Bunga	114,250	179,250
	Raipur Rani	Haripur	31,400	120,100
Ambala	Barara	Zafarpur	9,000	374,200
	Shahzadpur	Ghani Khera	139,600	496,800
	Naraingarh	Laha	459,000	763,200
	Saha	Nurhad	7,500	152,600
		Tamnauli	12,740	36,420
Yamunanagar	Chhachhrauli	Darpur	39,480	74,770
	Bilaspur	Gadwali	139,200	244,385
	Sadhoura	Thaska	101,700	110,035
		Jhanda	111,690	118,980
Kurukshetra	Shahbad	Deeg	0	20,190
	Ladwa	Lohara	24,000	42,000
	Babain	Bhagwanpur	9,000	37,500
	Thanesar	Ghiradsi	29,100	32,000
Hisar	Hisar II	Rawalwas Kalan	12,700	39,485
		Matersham	25,350	143,800
	Adampur	Sadalpur	3,500	25,225
Fatehabad	Bhattu Kalan	Pili Mandori	7,400	28,550
	Fatehabad	Kara Kheri	1,250	9,625
Sirsa	Ellenabad	Umedpura	3,950	12,295
	Nathusari Chopta	Tarkanwali	3,260	31,880
		Gigorani	4,105	15,205
Bhiwani	Bhiwani	Rajgarh	1,350	1,590
	Loharu	Kharkheri	38,250	82,600
		Gokalpur	25,730	117,524
		Serla	24,150	52,935
	Siwani	Dhani Silanwali	6,225	7,585
		Isarwal	80,480	89,340
	Badhra	Nandha	79,750	94,150
	Tosham	Salewala	5,150	8,290
Rewari	Jatusana	Gothra Tappa Dhina	6,030	110,230
	Nahar	Bishoa	23,810	77,955
Mahendragarh	Kanina	Dhanunda	10,245	69,810
		Kotia	5,880	63,436
	Mahendragarh	Jerpur	3,240	18,600
		Nangal Mala	810	155,986
		Pali	13,400	23,675
Jhajjar	Matanhail	Ruriawas	0	0
GRAND TOTAL			**1,732,475**	**4,219,001**
AVERAGE			**43,312**	**105,475**

Appendix 3

HORTICULTURE IN HARYANA

Department of Horticulture
Haryana, Panchkula
Phone : 0172-582322, 582590, 582595

There is a tremendous scope of Horticulture Development in Haryana due to close proximity to National Capital and better infrastructure facilities existing in the State. The State and central Governments have adopted Horticulture as thrust area for development and considering the potential & scope, the State Govt. has created a separate Department of Horticulture. The main objectives of the Department are as under:

Diversification from Agriculture to Horticulture.
Improve productivity of land and economic status.
Nutritional security.
Dissemination of latest technology at farmer's field.
Employment generation.
Enhancing export and earning foreign exchange.
Reducing environmental pollution.

The area and production of Horticulture crops are as under:

Crop	Area (in Ha)		Prod. (in Tonnes)		Growth Rate
	1990-91	2002-03	1990-91	2002-03	
Fruits	12640	31856	99800	236400	152%
Vegetables	55360	163000	802240	2050000	194%
Flowers	50	3600	-	-	7100%
Mushrooms	252150 Trays	1000000	850	4950	482%

MAIN ACTIVITIES OF DEPARTMENT:

FRUIT PRODUCTION

The area under fruits has gone up from 12640 hectares during 1990-91 to 31856 hectares during 2002-03 whereas the production has increased from 99800 tonnes to 236400 tonnes. The important fruits grown in the State are Mango, Gauva, Citrus, Pear, Peach, Sapota, Ber and Grapes.
The production of Nursery fruit plants has increased from 1.50 lakh during 1990-91 to 7.00 lakhs during 2002-03.

VEGETABLE PRODUCTION

The area and production under vegetables, which was 55360 hectares and 802240 tonnes in 1990-91 have risen to 163000 hectares with a production of 20.50 lakhs tonnes respectively during 2002-03.

FLORICULTURE

At the time of creation of the Department, the area under floriculture was merely 50 hectares which has grown upto 3600 hectares during 2002-03.

MUSHROOM DEVELOPMENT

The production of mushrooms in Haryana during 1990-91 was 850 tonnes whereas it has increased to 4950 tonnes during 2002-03. Haryana has become the leading State in the country in mushroom production.

DRIP IRRIGATION

Drip irrigation has been popularised in Haryana and 3112 hectares have been covered under drip irrigation system to improve productivity, quality and maximize scare irrigation water use.

POLYGREEN HOUSES

There was not even a single polygreen house during 1990-91. The number of polygreen houses have gone upto 191 during 2002-03. This technology helps the farmer to grow disease free, off-season, high value crops.

CREDIT ASSISTANCE

The initial investment for growing Horticultural crops is higher in comparison to other crops and gestation period is longer. Therefore, the Department assists the farmers in getting credit from financial institutions.

INCENTIVE TO THE GROWERS

Fruit	Assistance of Rs. 7000/- to 70000/- per hectare for planting material and other inputs. 25% assistance on plant protection equipments. On Farm Handling of Fruits; 25% assistance maximum of Rs. 5000/- per unit on construction of small storage zero energy chambers. Assistance @ Rs. 2500/- per hect. to promote the balanced use of micronutrients in fruit crops.
Floriculture	Demonstration plots of 0.2 hect. with an assistance of Rs. 15,000/- per plot for planting material
Aromatic and Medicinal Plants	Rs. 1500/- per plot of 0.05 hect. on inputs.
Spices	i) 25% assistance on the cost of seed with a maximum limit of Rs. 4000/- and Rs. 1250/- per hectare for turmeric and hybrid chillies respectively ii) 25% assistance on cost of inputs with a maximum limit of Rs. 375/- to Rs. 1875/- for coriander, fenugreek, garlic, chillies, turmeric and ginger demonstration plots of 0.05 hect. iii) 25% assistance on pest & diseases management with a maximum limit of Rs. 250/- to Rs. 1250/- per hect. For chillies, turmeric, ginger and other spice crops.
Drip Irrigation	25% subsidy upto Rs. 13000/- per hect.
Poly-green House	25% subsidy on actual cost or Rs. 50/- per square meter upto the maximum limit of Rs. 25000/- for 500 sq. mt. area.
Low Tunnel	25% incentive @ Rs. 7/- per sq. mt. upto Rs. 10000/- per hectare.
Shading Nets	25% incentive or Rs. 3,500/- for 500 sq. mt. whichever is less.
Supply of Plastic crates	Subsidy @ 25% or Rs. 35/- per crates whichever is less.
Training	Training courses for farmers will be organized at H.T.I. Uchani (Karnal) Rs. 1500/- per farmer will be spent on each trainee.

Potential area for Foreign Investment

Haryana is an ideal State for Horticulture Development and E.O.U. Projects.

1. Hybrid Vegetable Seed Production.
2. Cut flowers cultivation.
3. Rose and Chilli oil distillation.
4. Fruit and vegetable processing.
5. Fresh and canned mushroom for exports.
6. Liquid fertilizers.
7. Bio-fertilizers.
8. Grading, Packing, precooling and storage infrastructure.
9. Medicinal and Aromatic plants.
10. Growing of chemical free organically produced horticultural crops for domestic and exports.
11. Green house technologies.
12. Tissue culture.

DEVELOPMENT OF COMMERCIAL HORTICULTURE THROUGH PRODUCTION AND POST-HARVEST MANAGEMENT

1. Objectives

- To develop high quality horticultural farms in identified belts and make such areas vibrant with horticultural activity which in turn will act as hubs for developing commercial horticulture by adopting high-tech horticulture techniques;
- To develop post-harvest management infrastructure;
- To improve linkages between horticulture producers and marketers;
- To create integrated network for marketing of horticulture produce;
- To increase producer's share in consumer price;
- To encourage networking of schemes for resource mobilisation with all other related agencies/organizations; both of Govt. of India and the respective States/UT's Govts., Financial Institutions and private agencies engaged in the field of horticulture promotion in the country (also refer Scheme 3 Technology Development and Transfer items 5&6)

2. Eligible Projects

Projects with any of the following broad criteria pertaining to high quality commercial production of horticulture produce, shall be eligible for financial assistance from NHB as back-ended capital investment subsidy :-

- High density plantations, which include adoption of appropriate plant density/canopy management, quality planting material, support and management system with appropriate inputs;
- Hi-tech cultivation under controlled climatic conditions i.e. in Poly houses, Green houses, net-houses, etc.;
- Rainfed Production through efficient water management techniques, mulching for soil moisture conservation, use of barriers in soil to reduce percolation, irrigation by drip, sprinklers, fertigation, and water harvesting structures etc.
- Nursery management for quality seed/plant production of vegetables, flowers, ornamentals, fruit etc.;
- Hybrid Seed production;
- Organic farming;
- Hydroponics for year-round quality production;
- Use of plastics in horticulture;
- Bio-technology;
- Genetically Modified Organisms (GMOs)

Projects based on further scientific advancements in various related fields will also be eligible for finance.

In addition, projects falling under the following other broad categories shall also be eligible to avail the capital investment subsidy of NHB :-

- Development of infrastructure for production, post-harvest handling, processing and marketing;
- Development of markets and introduction of new primary processing of products.
- Development of horticulture ancillary industry for improved packaging, equipments, plastics, corrugated boxes, horticulture machinery/ tools, etc.

3. Components

A) Production related

- High quality commercial horticulture crops
- Indigenous crops/ produce, herbs
- Aromatic plants
- Seed & Nursery
- Bio-technology, Tissue culture
- Bio-pesticides
- Organic Foods
- Establishment of Horti. Health clinics/laboratory
- Consultancy services
- Beekeeping

B) PHM/Primary Processing related

- Grading/packing/washing/waxing/sorting/drying centres
- Pre-cooling unit/Cool Stores
- Reefer Van/Containers (with multi-chamber, multi-product facility)
- Specialised Transport Vehicle
- Retail outlets
- Auction platform
- Ripening/curing chamber
- Market yards/rope ways
- Radiation unit/Dehydration Unit/Vapour Heat Treatment Unit
- Primary processing of products fermentation, extraction, distillation, juice vending pulping, dressing, cutting, chopping etc.
- Horticulture ancillary industry e.g. tools, equipment's, plastics, packaging, etc.

- Plastic Crates, Cartons, Baskets, Aseptic Packaging & Nets (50% Subsidy). The subsidy @ 50% as per prescribed norms shall be available for crates and nets (shade and anti-hail only) as a part of integrated commercial projects only. However, assistance in case of CFB Cartons and Aseptic Packaging shall be available on merit for launching a new product during its first year and for introduction of such products in a given horticulture area, as a one time assistance.

4. Priority Areas

- Export Oriented Units/Projects
- Project from cooperative sector
- Projects in North Eastern Region, Hilly and Tribal areas
- Introduction of new processes, products or markets including new technology/ equipment
- Project involving women entrepreneurs and ex-serviceman

(Projects in areas other than the above priority areas, shall also be considered on merit).

5. Pattern of Assistance

- Back-ended capital investment subsidy @ not exceeding 20% of the total project cost with a maximum limit of Rs 25 lakh per project shall be provided under the scheme to these projects which are found technically and financially viable. However, for the North-Eastern/Tribal/Hilly Areas, maximum limit of subsidy would be Rs 30.00 lakh per project.
- Subsidy would be sanctioned and released under the scheme somewhat on the pattern of cold storage scheme which is as under:
  - Through participating banks/FIs
  - Through NCDC in the case of cooperative sector
- The Financial Institutions/Bank shall include NABARD, IDBI, SIDBI, ICICI, State Financial corporations, State Industrial SC-ST/Minorities/Backward-Classes Financial and Development Corporation, other designated loaning institutions of the States/Uts, Commercial/Cooperative Banks, etc.
- Cost of Land will not exceed of the project cost
- Concerned banks/State Financial Institutions/NCDC may adhere to their own appraisal norms while sanctioning projects under the scheme. The appraisal note submitted to NHB for sanction/claim of subsidy should invariably be the same which formed the basis for sanction of term loan.

Micro-irrigation Scheme of Government of India

(through National Committee on Plasticulture Applications in Horticulture (NCPAH)

To bring more area under irrigation, it has become necessary to introduce new irrigation techniques viz. Micro & Sprinkler Irrigation for economizing the use of water and increase productivity per unit of water. This technology also arrests water logging and secondary salinization problems of the canal command areas and check the receding water table and deteriorating water quality in the well command areas. The estimated potential of Micro/ Sprinkler Irrigation Technology in the country is 27 & 42.5 Million hectares respectively. It is proposed to implement a Centrally Sponsored Scheme, on Micro Irrigation during the Tenth Five Year Plan covering an area of 1.5 million hectares under drip irrigation and 0.5 million hectares under sprinkler irrigation.

The objective of the scheme is to increase the coverage of area under micro irrigation in the country for improving crop productivity with efficient use of water resources. Micro irrigation is to be viewed as a total plant support system starting with planting material to post harvest management and marketing. Therefore, micro irrigation need be promoted in a holistic manner involving appropriate cultivars, good agronomic practices, post harvest handling, processing and marketing leading to an end-to-end approach. Water source development and recharge of wells through Watershed Management would also form a part of the package.

The scheme will be available to all the farming community in the country and the focus will be for efficient utilization of various inputs as water, fertilizer etc & increase in productivity & quality of produce.

Keeping in view the available potential and urgent need to promote efficient use of water resources, it is proposed to cover 2 Million hectare under micro/sprinkler irrigation during the Tenth Plan (1.5 Million hectare area under drip irrigation and 0.5 Million hectare area under sprinkler irrigation). Initially, the focus will be on horticultural crops; with emphasis on potential belts/regions in the States suiting to the agro-climatic conditions. Various extension activities viz. Training and awareness programmes for state officials, farmers, NGOs, entrepreneurs, scientists, service providers; direct mail campaigns, trouble shooting for operational problems in various agro-climatic zones would be carried out in all states/UTs through the National Committee on Plasticulture Applications in Horticulture (NCPAH).

It is proposed to provide financial assistance @ 50% of the unit cost for various spaced crops. The financial assistance of 50% would be jointly shared between the centre and state governments in the ratio of 80:20. In other words, 80% share (40% of unit cost) will be met by the centre, and the balance 20% (10% of unit cost) will be met by the respective states. The beneficiaries may contribute the balance 50% of the unit cost, either through his/her own resources, or through soft loan(s) from any financial institutions.

The outlay proposed for covering 2 Million hectare under micro/ sprinkler irrigation during the Tenth Plan Period will be Rs. 7600 crores (which includes 50% farmer's contribution and Rs.100 crore for HRD, promotion and other administrative costs). This outlay also includes Rs 984 crore for the current fiscal. The central and state government's contribution of the total outlay would be Rs 3100 and Rs 750 crores respectively.