THE IMACT OF MACRO MANAGEMENT OF AGRICULTURE SCHEME IN HIMACHAL PRADESH

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Executive Summary

Centrally sponsored scheme Macro Management of Agriculture has been launched by the government of India during 2000-01 on 90:10 percent Central and State share basis. This is a package of 11 different schemes implemented in 10 districts of the State except Kinnaur and Lahaul- Spiti.

The present study has been undertaken with the following specific objectives:

1. To study physical and financial targets and achievements of various schemes under Macromangement of Agriculture 2004-05.
2. To analyse the impact of these schemes on production, productivity and income of beneficiaries in the State.
3. To examine the problems faced by the beneficiaries of the schemes and suggestion to overcome these problems.

Summary of the Schemes

(Rs in Lakhs)

S. No.	Name of the Scheme	Target	Achievement
1	Crop Improvement Programme for Cereals	227.88	19073408 (83.7)
2	Scheme for Mechanisation	45.50	4705878 (103.4)
3	Scheme for Promotion of Quality Seed Production	88.20	7571237 (85.8)
4	Scheme for Integrated Nutrients Management for Balanced Fertilizer Use	102.37	10541343 (115.0)
5	Scheme for Transfer of Technology	76.54	7325943 (85.0)
6	Scheme for Development of Pulses	41.25	2699982 (65.4)
7	Implementation of National Watershed Development Programme for Rainfed Areas (NWDPRA)	300.00	27439700 (91.5)
8	On farm water management and water harvesting	77.70	12510056 (161.0)
9	Scheme for Promoting Diversified Farming System (Crop Diversification)	31.54	3362699 (106.6)
10	Scheme for Organic Farming	36.22	1950672 (53.9)
11	Scheme for Farm Women Empowerment	28.35	2659807 (93.8)
	Total	**1055.55**	**99840725 (94.6)**

**Figures in parenthesis are percentages*

Sampling Design

The concurrent evaluation of the Centrally sponsored scheme Macromangement of Agriculture in Himachal Pradesh is done by drawing district level secondary data regarding physical and financial targets as well as achievements of all the eleven schemes. The data is analysed and on the basis of the difference between targets and achievements of schemes, developed and developing districts have been recognized for each scheme. Developed districts are those where the respective scheme is performing well and developing districts are those where the respective scheme is presently not performing well. Further, on the basis of block- wise secondary data obtained from Deputy Director, Agriculture from all the 10 districts, the developed and developing blocks have been identified in the respective district. In the third stage, a random-cum- purposive sample of 30 beneficiary and 10 non- beneficiary farmers in each developed and developing block has been selected for detailed investigation. Thus the present study is based on both developing & underdeveloped and with & without approach. The data from sampled farmers was collected on well-designed pre-tested schedule (separate schedule for each scheme) through personal interview method. Simple tabular analysis including averages and percentages is used to draw meaningful results. Reference period of the study is 2004-05

Sampling design for Concurrent Evaluation of the Schemes

S. No	Scheme	Developing			Developed		
		District	Block	Sample	District	Block	Sample
1	Crop Improvement Programme	Chamba	Mehla	40 (30+10)	Hamirpur	Bijari	40 (30+10)
2	Scheme for Mechanization	Una	Amb	40 (30+10)	Hamirpur	Bijari	40 (30+10)
3	Scheme for promotion of quality seed production	Kullu	Naggar	40 (30+10)	Kangra	Nagrota	40 (30+10)
4	Scheme for INM for balanced fertilizer use	Mandi	Balh	40 (30+10)	Una	Bangana	40 (30+10)
5	Scheme for ToT and Information Technology	-	-	-	All 10 Districts	-	-
6	Scheme for development of Pulses	Shimla	Theog	40 (30+10)	Bilaspur	Jhandutta	40 (30+10)
7	Implementation of NWDPRA	Chamba	Bhalai*	40 (30+10)	Solan	Badog- Dhillon*	40 (30+10)
8	On farm water management and water harvesting	Chamba	SDSCO, Chamba	40 (30+10)	Sirmour	SDSCO, Paonta	40 (30+10)
9	Scheme for promoting diversified farming system	Sirmour	Nahan	40 (30+10)	Una	Una	40 (30+10)
10	Scheme for Organic farming	Una	Una	40 (30+10)	Shimla	Rampur	40 (30+10)
11	Scheme for farm women empowerment	Shimla	Narkanda	40 (30+10)	Kangra	Nagrota Bagwan	40 (30+10)

Notes: **These are names of the respective watersheds*
(30+10) Includes 30 Beneficiary and 10 Non-beneficiary farmers of the scheme

Results and discussion

I Crop Improvement Programme for Cereals

Main Findings

a) Out of the total sanctioned amount, 83.7 percent was utilized during 2004-05.

b) The scheme largely benefited the less privileged classes of the society as 73.3 percent beneficiaries of the scheme belonged to SC & OBC.

c) Cropping intensity has increased from 191 to 193 percent after the intervention of the scheme.

d) Productivity of maize and wheat has also increased.

e) The income of the farmers has increased in the range of 15.87 to 30.11 percent among the beneficiary farmers as compared to – 0.80 to – 0.20 percent among non- beneficiary farmers.

Problems

a) Timely availability of seed.

b) Different provisions under the scheme are not adequate especially IPM demonstration, assistance on improved seed and demonstration & training on cereal production technology.

Suggestions

a) Seed should be provided to the farmers well before the sowing season. To make necessary arrangements seed coupons can also be given to the farmers.

b) Assistance under the all components of the scheme must be given due weightage.

II Scheme for Mechanization

Main findings

a) Out of the total sanctioned amount, 103.4 percent was utilized during 2004-05.

b) The scheme largely benefited the less privileged classes of the society as around 52 percent beneficiaries of the scheme belonged to SC & OBC category.

c) Cropping intensity has increased from 167 to 179 percent after the intervention.

d) The income of the farmers has increased in the range of 1.21 to 6.61 percent among beneficiaries as compared to –1.97 to 1.80 among non- beneficiary farmers.

e) The reason for the increase in the net return of farmers is due to increase in the input use efficiency due to the adoption of improved farm implements.

Problems

a) Achievement in case of scientific seed storage (seed bins), animal drawn and manually operated implements is not satisfactory.

b) Farmers are not getting desired farm implements and have to procure them from HPAIC.

c) Delivery was not in time.

d) Some farmers reported that assistance provided under the various sub- components of the scheme is inadequate.

e) Major constraint in not achieving the desired targets under the various sub- components of the scheme is generally due to subsidy pattern under the National Horticulture Mission scheme. Under this scheme subsidy for the same farm implements is 50 percent, which is higher than the subsidy provided under the MMA scheme.

Suggestions

a) Assistance on animal drawn and manually operated implements should be given priority since most of the farmers in the State belonged to marginal category and depend on these types of farm implements. This is also compatible with the topography of the State.

b) Some arrangements must be made so that farmers can purchase farm implements as per their requirements and specifications.

c) Time lag in the delivery of farm implements should be reduced to curtail financial losses to the farmers.

d) Assistance on every component of the scheme should be given due weightage to fulfill the desired purpose.

e) While formulating the policy for different schemes by the Ministry of Agriculture at National level, care should be taken for the uniformity of subsidy component under various schemes of different departments.

III Scheme for Promotion of Quality seed production

Main Findings

a) Out of the total sanctioned amount, 85.8 percent was utilized during 2004-05.

b) About 97 percent of the total expenditure in the scheme was made on components like Improvement of seed production farms, Improvement of existing seed stores for scientific seed storage/ Additional storage capacity, Procurement of Mobile Seed Processing Plant and Indent cylinder (IC- 2) for seed graders which indirectly affect the farmers.

c) Out of the total seed growers, farmers who attended training programme ranges from 53.33 to 83.80 percent.

d) Only 6.67 percent farmers used sprinkler irrigation.

e) The income of the farmers has increased in the range of 4.05 to 21.03 percent among beneficiaries as compared to 0.24 to 11.56 percent among non- beneficiary farmers.

Problems

a) Farmers in some parts of the State, found training on seed production and demonstration of efficient irrigation system inadequate.

b) Same seed is being distributed in all the zones, irrespective of the agro- climatic conditions of the respective zone.

Suggestions

a) Training and demonstration on all components of the scheme should be given due time and weightage.

b) Seed compatible with the local conditions of the agro- climatic zones must be procured and distributed to the farmers.

IV Scheme for Integrated Nutrients Management For Balanced Fertilizer Use

Main Findings

a) Out of the total sanctioned amount, 115.0 percent was utilized during 2004-05.

b) Cropping intensity has increased from 174 to 178 percent after the intervention of the scheme.

c) Cropping pattern has shifted towards the cultivation of cash crops after the implementation of the scheme.

d) The income of the farmers has increased in the range of 4.60 to 20.61 percent among beneficiaries as compared to 1.78 to 5.05 percent among non- beneficiary farmers.

Problems

a) Assistance on micronutrients was inadequate.

b) Training and demonstration on INM was also found inadequate.

Suggestions

a) Assistance under the various components of the scheme must be taken care of.

b) More emphasis must be given in case of training and demonstration of INM.

V Scheme for Transfer of Technology And Information Technology

Main Findings

a) Out of the total sanctioned amount, 85.0 percent was utilized during 2004-05.

b) About 50 percent of the exiting field level staff got training on latest production techniques.

c) Refresher training programme on new emerging issues was attended by more than 90 percent of the Middle and Sr. level Officers.

d) Under the vocational training for women sub- component, trainings given to the women SHGs was found very useful by the women entrepreneurs.

Problems

a) Publicity of different programmes and schemes of the Department was less.

b) The Department did not utilize facility of available technology like Internet and e-mail at all because none of the district or block office has Internet facility.

Suggestions

a) More stress should be laid on the publicity of various schemes.

b) It is recommended that use of available technology must be popularised among the farmers as well as other staff of the Department to increase efficiency. Computer and Internet facility should also be available at block level.

VI Scheme for Development of Pulses

Main Findings

a) Out of the total sanctioned amount, 65.4 percent was utilized during 2004-05.

b) Cropping intensity has increased from 158.82 to 169.76 percent after the intervention.

c) Area under pulses has increased after the intervention in the developed district.

d) The income of the farmers has increased in the range of 3.08 to 9.94 percent among beneficiaries as compared to – 0.15 to 0.18 percent among non- beneficiary farmers.

VII Implementation of National Watershed Development Project for Rainfed Areas (NWDPRA)

Main Findings

a) Barog Dhillon watershed in district Solan and Bhalai watershed in district Chamba were purposively selected as developed and developing watershed.

b) Out of the total beneficiaries, 53.33 and 56.67 percent belonged to SC & OBC category in the developed and developing watershed respectively

c) In the developed watershed literacy rate among the beneficiaries was 84 percent as compared to 80 percent among non- beneficiaries and it was 82 to 76 percent respectively in the developing watershed.

d) In the developed watershed agriculture was the main occupation of 90 percent households and 10 percent are landless. Whereas, agriculture was the main occupation of all the sampled households in the developing watershed.

e) Land use pattern registered significant change in the developed watershed.

f) Cropping intensity has increased from 150 to 170 percent after the intervention in the developed watershed whereas, in developing watershed it was increased from 161.73 to 162.65 percent.

g) In the developed watershed the cropping pattern has shifted from traditional crops to cash crops. Horticulture was also introduced.

h) Livestock resources are also increased after the implementation of the scheme. In developed watershed, average value of livestock per beneficiary household was Rs 58180 as compared to Rs 33875 among non- beneficiary household. Whereas, in the developing watershed it was Rs 27410 among beneficiaries and Rs 20750 among non- beneficiaries.

i) Annual income per household in developed watershed registered 47.12 percent increase among beneficiaries as compared to 9.86 percent among non- beneficiaries. In developing watershed, it was 13.06 and 4.10 percent respectively.

j) Impact of watershed development activities on biomass generation, ground water repletion, arresting soil degradation, water run- off, afforestation, agriculture, horticulture, dairy farming, employment generation and livelihood to landless was moderate in the developed watershed and low in the developing watershed.

Problems

a) Soil erosion in the developing watershed.

b) Monkey menace.

c) Gully control system under the soil and moisture conservation activities was found insufficient.

d) Sustainability of live fencing on non- arable land depends upon climatic conditions.

e) Establishment of nurseries on farmers field was not sustainable due to marketing problem.

f) Per hectare ceiling is inadequate for watersheds in hilly areas of the State.

Suggestions

a) Monkey menace is not only a problem in the watersheds but this is like a calamity in all parts of the State. An effort in co-ordination with Forest department is need of the hour in this regard.

b) Sustainability of soil and moisture conservation methods must be ensured.

c) Marketing of planting material produced in nurseries must be taken by the department.

d) Livelihood support system should be extended to marginal farmers having land less than 0.5 ha.

VIII On Farm Water Management and Water Harvesting

Main Findings

a) Financial achievement was 99.86, 96.67 and 100 percent in case of individual tank, water lift devices and water harvesting structures respectively during 2004-05.

b) The scheme largely benefited the less privileged classes of the society as 60 and 56.67 percent beneficiaries belonged to SC, ST & OBC category in the developed and developing block respectively.

c) Significant change was observed in case of land use pattern.

d) Cropping pattern in the developed block has shifted towards the cultivation of cash crops. Cropping intensity has increased from 166 to 170 percent.

e) Cropping pattern in the developing block results in marginal shift towards vegetable cultivation. Cropping intensity has increased from 163.75 to 169.51 percent.

f) In the developed block, average irrigated area has increased from 55 to 71 percent, whereas the same has increased from 41 to 50 percent in the developing block.

g) Livestock population has increased in the developed block after the programme implementation.

Problems

a) Tanks constructed above ground level need physical labour for filling.

b) Budget earmarked for rainwater harvesting is less.

Suggestions

a) Tanks should be constructed in a way to take advantage of gravity flow.

b) More funding is required for rainwater harvesting.

IX Scheme for Promoting Diversified Farming System (Crop Diversification)

Main Findings

a) Out of the total sanctioned amount, 106.6 percent was utilized during 2004-05.

b) Distribution of vegetable seed kits to the farmers led to the shifting of cropping pattern.

c) Cropping pattern has shifted towards crops like cabbage, cauliflower, tomato, potato, brinjal, ladyfinger, radish, carrot etc. Cropping intensity has increased from 166 to 178 percent after the intervention.

d) The income of the farmers has increased in the range of 63.38 to 105.81 percent among beneficiaries as compared to 6.00 to 8.52 percent among non- beneficiary farmers.

Problems

a) Extent of diversification was low due to rainfed agriculture except in regions having irrigation scheme.

Suggestions

a) Efforts should be made for providing irrigation facilities to the farmers from other schemes under the MMA programme.

X Scheme for Organic Farming

Main Findings

a) Out of the total sanctioned amount, 53.9 percent was utilized during 2004-05.

b) Only awareness training programmes were organized under the scheme during 2004-05.

c) In the developed block, there was a marginal change in the area under the field crops. Whereas, in the developing block area under field crops declined from 1.06 ha/ HH to 0.96 ha/ HH.

d) Area under cash crops has increased and cropping intensity has increased from 161 to 173 percent. Whereas, in the developing block cropping intensity has declined from 158 to 123 percent.

e) The income of the farmers has increased in the range of – 12.23 to 16.16 percent among beneficiaries as compared to 0.66 to 0.72 percent among non- beneficiary farmers.

Problems

a) Income of the farmers from organic produce may be less due to low productivity and non- certification of organic produce.

b) No premium market for organic produce.

Suggestions

a) Organic extension services should be strengthened.

b) Certification of organic produce must be ensured.

c) Marketing of organic produce must be ensured.

XI Scheme for Farm women empowerment

Main Findings

a) Out of the total sanctioned amount, 93.8 percent was utilized during 2004-05.

b) Out of the total beneficiaries, 60 and 23 percent belonged to SC & OBC category in developed and developing block respectively.

c) In the developed block literacy rate among the beneficiaries was 83 percent as compared to 90 percent among non- beneficiaries and it was 87 and 90 percent respectively in the developing block.

d) Average age of sampled women entrepreneurs as 33.60 and 33.33 years in developed and developing block respectively.

e) Out of the total women entrepreneurs 10 and 6.67 percent are widow in the developed and developing block respectively.

f) Enterprise on which the training was imparted to these women was taken as their main occupation by 63 and 13 percent women in developed and developing block respectively and others taken the enterprise as their subsidiary occupation.

g) After the intervention, the status of women in the family and society, level of encouragement by family, freedom in spending money, freedom in day to day family decisions, greater freedom in own decisions, contribution towards children & family welfare and help rendered by male members has increased significantly.

h) Annual income per household of farm women entrepreneurs ranges from Rs 4364 to Rs 5080 as compared to Rs 2160 to Rs 2410 among non- beneficiaries.

Problems

a) Women SHGs are reluctant to avail credit facilities due to unnecessary institutional formalities.

Suggestions

a) There should be a single window system to provide credit to these SHGs with minimal paper work.

Executive Table of Main Findings

Scheme		Cropping Intensity (%)				Change in income (%)			
		Developed Block		Developing Block		Developed Block		Developing Block	
		Beneficiaries	Non- Beneficiaries	Beneficiaries	Non- Beneficiaries	Beneficiaries	Non- Beneficiaries	Beneficiaries	Non- Beneficiaries
I	Before	191.21	179.31	190.91	158.62	30.11	- 0.20	15.87	- 0.80
	After	193.48	179.31	190.91	158.62				
II	Before	167.04	157.89	159.34	152.13	6.61	1.80	1.21	- 1.97
	After	178.57	164.47	158.95	155.32				
III	Before	-	-	-	-	21.03	11.56	4.05	0.24
	After	-	-	-	-				
IV	Before	174.38	176.84	168.29	167.90	20.61	5.05	4.60	1.78
	After	178.05	177.08	173.17	168.29				
V	Before	-	-	-	-	-	-	-	-
	After	-	-	-	-				
VI	Before	158.82	165.88	137.18	145.00	9.94	0.18	3.08	- 0.15
	After	169.76	167.44	142.31	145.00				
VII	Before	150.00	158.93	161.73	165.62	47.12	9.86	13.06	4.10
	After	169.91	161.06	162.65	165.98				
VIII	Before	166.38	157.26	163.75	155.69	-	-	-	-
	After	170.25	158.12	169.51	156.96				
IX	Before	166.07	166.99	161.47	161.68	105.81	6.00	63.38	8.52
	After	178.07	174.04	165.14	167.59				
X	Before	161.11	165.62	158.49	162.26	16.16	0.66	- 12.23	0.72
	After	172.73	167.44	122.92	165.09				
XI	Before	-	-	-	-	-	-	-	-
	After	-	-	-	-				

Chapter I
Introduction

1.1 Introduction

Agriculture is by far the major occupation of the people of Himachal Pradesh as it provides direct employment to about three fourths of the total working population. The climatic conditions varying from sub-tropical to temperate make the State suitable for growing a wide variety of cash crops such as temperate fruits, potatoes, vegetables, ginger, etc. Since the scope for extension of cultivation to newer areas, is limited due to topography, soil conditions etc, emphasis for increasing the farm incomes and living standards of the rural people has to be laid on increased production by maximizing output per unit area available for cultivation. This can be best achieved by recognizing the fact that, commercial crops have vast potential for increasing the income and provide policy prescription accordingly. Alternatively, changing cropping pattern towards commercial crops and ensuring higher resource allocation for such crops could increase the agricultural income. The emphasis has been laid on both in all the Five Year Plans. The result was that not only the productivity of major crops, especially maize increased over a period of time, the most spectacular performance could be seen in the field of commercialization of agriculture. The strategy in this respect has been two pronged depending upon the agro-climatic suitability and availability of infrastructure. Switching over to commercial agriculture has been an effective strategy for saving the farmers from the vicious circle of low income and low investment prevalent in case of traditional agriculture. The higher income per unit of land resulted in higher capital formation on the farms and made them more food secure.

Macro Management of Agriculture through centrally sponsored schemes has been launched by the government of India during 2000-01 on 90:10 percent Central and State share. This is a package of 11 different schemes implemented in 10

districts of the State except Kinnaur and Lahaul- Spiti. The different schemes are as follows:

ii) Crop improvement programme for Cereals
iii) Scheme for mechanization
iv) Scheme for promotion of quality seeds production
v) Scheme for Integrated Nutrients Management for balanced fertilizer use
vi) Scheme for Transfer of Technology and Information Technology
vii) Scheme for development of Pulses
viii) Implementation of National Watershed Development Project for Rainfed Areas (NWDPRA)
ix) On farm water management for water harvesting
x) Scheme for promoting diversified farming system (Crop Diversification)
xi) Scheme for Organic Farming and
xii) Scheme for Farm Women Empowerment.

1.2 Objectives

The present study has been undertaken with the following specific objectives:

1. To study physical and financial targets and achievements of various schemes under Macromangement of Agriculture 2004-05.
2. To analyse the impact of these schemes on production, productivity and income of beneficiaries in the State.
3. To examine the problems faced by the beneficiaries of the schemes and suggestion to overcome these problems.

CHAPTER II

METHODOLOGY

2.1 Sampling Design

The Centrally sponsored schemes are aimed at accelerated growth of agriculture in Himachal Pradesh is a package of 11 schemes targeting improvement of the different components of farming in the State and is implemented in 10 out of the total 12 districts in the State. These districts are Bilaspur, Chamba, Hamirpur, Kangra, Kullu, Mandi, Shimla, Sirmour, Solan and Una. For the purpose of the concurrent evaluation of the Macromangement of centrally sponsored schemes in Himachal Pradesh the district level secondary data regarding physical and financial targets as well as achievements of all the eleven schemes is taken from Directorate of Agriculture, Himachal Pradesh. The data is analysed and on the basis of the difference between targets and achievements of schemes, developed and developing districts have been recognized for each scheme. Developed districts are those where the respective scheme is performing well and developing districts are those where the respective scheme is presently not performing well. Further, on the basis of block- wise secondary data obtained from Deputy Director, Agriculture from all the 10 districts, the developed and developing blocks have been identified in the respective district. This is presented in Table 2.1.

In the third stage, a random-cum- purposive sample of 30 beneficiary and 10 non- beneficiary farmers in each developed and developing block has been selected for detailed investigation. Thus the present study is based on both developing & underdeveloped and with & without approach. The data from sampled farmers was collected on well-designed pre-tested schedule (separate schedule for each scheme) through personal interview method.

2.2 Reference period

Reference period of the study is 2004-05

Table 2.1: Sampling design for Concurrent Evaluation of the Schemes

S. No	Scheme	Developing			Developed		
		District	Block	Sample	District	Block	Sample
1	Crop Improvement Programme	Chamba	Mehla	40 (30+10)	Hamirpur	Bijari	40 (30+10)
2	Scheme for Mechanization	Una	Amb	40 (30+10)	Hamirpur	Bijari	40 (30+10)
3	Scheme for promotion of quality seed production	Kullu	Naggar	40 (30+10)	Kangra	Nagrota	40 (30+10)
4	Scheme for INM for balanced fertilizer use	Mandi	Balh	40 (30+10)	Una	Bangana	40 (30+10)
5	Scheme for ToT and Information Technology	-	-	-	All 10 Districts	-	-
6	Scheme for development of Pulses	Shimla	Theog	40 (30+10)	Bilaspur	Jhandutta	40 (30+10)
7	Implementation of NWDPRA	Chamba	Bhalai*	40 (30+10)	Solan	Badog- Dhillon*	40 (30+10)
8	On farm water management and water harvesting	Chamba	SDSCO, Chamba	40 (30+10)	Sirmour	SDSCO, Paonta	40 (30+10)
9	Scheme for promoting diversified farming system	Sirmour	Nahan	40 (30+10)	Una	Una	40 (30+10)
10	Scheme for Organic farming	Una	Una	40 (30+10)	Shimla	Rampur	40 (30+10)
11	Scheme for farm women empowerment	Shimla	Narkanda	40 (30+10)	Kangra	Nagrota Bagwan	40 (30+10)

*Notes: *These are names of the respective watersheds*
(30+10) Includes 30 Beneficiary and 10 Non-beneficiary farmers of the scheme

Chapter III
Crop Improvement Programme for Cereals

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of crop improvement programme for cereals, analyse the impact of the scheme on the production, productivity and income of beneficiaries of the scheme and examine the problems faced by the beneficiaries of the scheme.

3.1 Status of Area and Production of Cereals in Himachal Pradesh

Major cereal crops grown in Himachal Pradesh are maize, wheat, paddy and barley. The status of area, production and productivity of cereal crops is presented in Table 3.1. The table reveals that during 1994-95 to 1999-2000 average area under maize, wheat and paddy cultivation has negative growth of -0.72, -0.30 and -0.32 percent per annum in the State. Whereas during 2000-01 to 2004-05, the growth in area under maize, though negative but improved to -0.05 percent and the growth of area under wheat cultivation improved to 0.20 percent per annum. In case of paddy the area further declined and resulted in annual growth rate of -0.45 percent. The growth in the production of maize and paddy declined from 0.12 to -1.93 and 1.75 to -3.92 percent per annum respectively. On the other hand wheat has recorded a growth in production from -0.95 to 19.34 percent per annum.

3.2 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 3.2.

3.3 Socio- economic profile of sampled farmers

Developed block The socio- economic profiles of sampled beneficiary and non- beneficiary farmers are presented in Table 3.3. The table reveals that of all beneficiary farmers of the scheme, 70.00 percent belonged to SC category followed by 26.67 percent general category and 3.33 percent OBC category farmers. Among

non-beneficiary farmers, 40.00 percent belonged to SC, 50.00 percent general and 10.00 percent OBC category farmers. It indicates that the scheme contributes largely to the upliftment of deprived and backward classes. The average family size among beneficiary farmers of the scheme was 4.57 persons and 4.20 persons among non- beneficiary farmers. Dependency ratio was 0.45 and 0.56 among beneficiary and non- beneficiary farmers respectively. Among beneficiary farmers agriculture was the main occupation of 60.00 percent farmers followed by service 33.33 and other 6.67 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 93.20 percent farmers followed by service 5.75 and other occupations 1.05 percent.

Developing block The table reveals that of all beneficiary farmers of the scheme, 73.33 percent belonged to ST category followed by 20.00 percent SC and 6.67 percent general category. Among non-beneficiary farmers, 80.00 percent belonged to ST and 20.00 percent belongs to SC category. The average family size among beneficiary farmers of the scheme was 4.47 persons and 4.00 persons among non- beneficiary farmers. Dependency ratio was 0.33 and 0.16 among beneficiary and non- beneficiary farmers respectively. Among beneficiary farmers agriculture was the main occupation of 60.00 percent farmers followed by service 13.33 and other 26.67 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 100.00 percent farmers.

3.4 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing block is presented in Table 3.4. The table reveals that among beneficiaries of the scheme in developed block, land under field crops has increased from 0.69 ha to 0.71 ha per household among marginal farmers after the scheme was initiated. Whereas for other categories of farmers there was no change in the land use pattern. Similar is the case of non- beneficiary farmers in the developed block.

In developing block there is no change in the land use pattern among different farm categories both in case of beneficiary and non- beneficiary farmers.

3.5 Cropping pattern of sampled farmers

3.5.1 Developed block

Cropping pattern of sampled farmers in developed block is presented in Table 3.5.1. The table reveals that beneficiary farmers of the developed block were mainly growing crops like wheat, maize, barley, onion, mustard, potato and vegetables like cabbage, tomato, peas etc. The table reveals that area under maize, wheat and vegetable crops has increased after the intervention of the scheme. Cropping intensity among different category of farmers has also increased after the intervention. Overall cropping intensity increased from 191 to 193 percent after the intervention. It is also higher among beneficiary as compared to non- beneficiary farmers.

3.5.2 Developing block

Cropping pattern of sampled farmers in developing block is presented in Table 3.5.2. The table reveals that maize, wheat, blackgram, rajmash, peas and vegetable like tomato, cabbage etc were the major crops grown by farmers in the area. Though cereal crops have major share in the total area under all crops but there is a marginal change in the area cultivated under maize after the intervention of the scheme. Cropping intensity is higher among beneficiaries as compared to non- beneficiaries of the scheme.

3.6 Production, productivity and Seed rate

3.6.1 Developed block

Production, productivity and seed rate of cereal crops on sampled farms in developed block is presented in Table 3.6.1. The Table reveals that there is a significant increase in the yield of maize and wheat after the intervention of the scheme. The productivity of maize has increased from 19.85 q/ ha to 21.33 q/ha

and the productivity of wheat has increased from 18.42 q/ha to 19.63 q/ha. The productivity of both these crops was higher as compared to non- beneficiary farmers of the scheme. On the other hand, due to training on cereal production technology, the seed rate for both these crops has decreased. Further, area under both these crops also increased marginally among beneficiary farmers after the implementation of the scheme.

3.6.2 Developing block

Production, productivity and seed rate of cereal crops on sampled farms in developing block is presented in Table 3.6.1. The Table reveals that there was a marginal increase in the yield of maize and wheat after the intervention of the scheme. The productivity of maize has increased from 19.61 q/ ha to 20.63 q/ha and the productivity of wheat has increased from 14.94 q/ha to 15.02 q/h. Seed rates also declined in both maize and wheat among beneficiary farmers after the intervention.

3.7 Change in Income of sampled farmers

Income from cereal crop cultivation on sampled farms is presented in Table 3.7. The table reveals that in developed block in case of beneficiary farms the net return from maize increased by 31.94 percent and 28.12 percent in case of wheat. Whereas it is negative in case of non- beneficiaries. This is primarily due to adoption of improved cereal production technology by the farmers. Overall net return from cereal cultivation has increased by 30.11 percent in case of beneficiary farmers as compared to - 0.20 percent in case of non- beneficiaries.

In developing block also the net return of beneficiary farmers was 23.15 and 4.23 percent in case of maize and wheat respectively. Overall net return has increased by 15.87 percent in case of beneficiaries as compared to - 0.80 percent in case of non- beneficiary farmers.

Table 3.1: Average Area, Production and Productivity of Cereal Crops in Himachal Pradesh from 1994-95 to 1999-2000)

District→		Bilaspur	Chamba	Hamirpur	Kangra	Kullu	Mandi	Shimla	Sirmour	Solan	Una	Himachal Pradesh
Maize	Area (000' ha)	26.318 (-1.05)	27.674 (-1.00)	31.860 (0.81)	57.466 (0.28)	16.498 (-0.92)	48.031 (-0.32)	18.342 (-3.37)	25.022 (0.24)	24.315 (-1.00)	30.718 (-2.92)	306.245 (-0.72)
	Prod. (000' MT)	43.165 (3.54)	74.914 (-4.88)	51.732 (2.78)	90.186 (1.91)	37.203 (3.35)	130.173 (0.30)	39.731 (-0.67)	65.336 (4.76)	52.316 (2.60)	55.838 (0.06)	640.595 (0.12)
	Yield (q/ha)	16.40 (4.64)	27.07 (-3.92)	16.24 (1.95)	15.69 (1.63)	22.55 (4.30)	27.10 (0.62)	21.66 (2.80)	26.11 (4.52)	21.52 (3.64)	18.18 (3.69)	20.92 (1.89)
Wheat	Area (000' ha)	27.709 (-1.48)	19.175 (1.97)	34.776 (0.20)	94.105 (0.45)	23.846 (-1.86)	67.821 (-0.12)	24.416 (-4.09)	28.131 (-0.65)	23.404 (0.74)	32.647 (-0.05)	376.033 (-0.30)
	Prod. (000' MT)	43.229 (4.93)	28.245 (-1.78)	46.350 (0.23)	137.126 (-2.48)	43.480 (-5.82)	103.111 (-3.27)	29.830 (-9.33)	42.057 (0.05)	32.543 (12.94)	60.751 (3.26)	566.715 (-0.95)
	Yield (q/ha)	15.60 (6.51)	14.73 (-3.68)	13.32 (0.02)	14.57 (-2.91)	18.23 (-4.04)	15.20 (-3.16)	12.22 (-5.46)	14.95 (0.71)	13.90 (12.11)	18.61 (3.31)	15.07 (-0.66)
Paddy	Area (000' ha)	2.209 (-6.33)	2.831 (0.06)	2.823 (-3.74)	36.851 (0.49)	1.981 (-4.06)	21.339 (-1.06)	3.186 (-3.60)	5.118 (1.98)	3.766 (-1.94)	2.446 (8.24)	82.550 (-0.32)
	Prod. (000' MT)	2.789 (3.26)	3.920 (2.19)	4.129 (-0.90)	49.500 (1.62)	2.587 (-6.88)	29.293 (0.59)	4.233 (-6.71)	6.935 (11.81)	6.342 (3.97)	5.193 (9.84)	114.921 (1.75)
	Yield (q/ha)	12.62 (10.24)	13.85 (2.13)	14.62 (2.95)	13.43 (1.13)	13.06 (-2.95)	13.73 (1.68)	13.29 (-3.22)	13.55 (9.64)	16.84 (6.03)	21.23 (1.48)	13.92 (2.07)
Total	Area (000' ha)	56.237 (-1.45)	49.681 (0.21)	69.459 (0.32)	188.423 (0.41)	42.325 (-1.62)	137.191 (-0.33)	45.944 (-3.74)	58.271 (-0.06)	51.486 (-0.28)	65.812 (-1.18)	764.828 (-0.47)
	Prod. (000' MT)	89.183 (4.11)	107.080 (-3.62)	102.211 (1.33)	276.812 (-0.41)	83.270 (-1.73)	262.577 (-0.89)	73.794 (-4.52)	114.322 (3.22)	91.201 (6.09)	121.782 (2.26)	1322.232 (0.33)

Note: Figures in parenthesis are Annual Compound Growth Rates (%)

Table 3.1 (Contd.): Average Area, Production and Productivity of Cereal Crops in Himachal Pradesh from 2000-01 to 2004-05)

District→		Bilaspur	Chamba	Hamirpur	Kangra	Kullu	Mandi	Shimla	Sirmour	Solan	Una	Himachal Pradesh
Maize	Area (000' ha)	26.064 (-1.08)	27.664 (3.41)	31.548 (0.82)	58.263 (0.02)	16.839 (0.21)	47.822 (-1.26)	14.725 (-3.05)	23.332 (-0.71)	23.591 (-2.12)	28.427 (2.30)	298.275 (-0.05)
	Prod. (000' MT)	54.041 (-5.43)	71.851 (3.78)	61.333 (-1.63)	94.800 (-4.71)	42.507 (-6.77)	134.923 (-0.34)	34.115 (1.23)	61.374 (-7.48)	46.534 (-6.08)	56.999 (6.94)	658.477 (-1.93)
	Yield (q/ha)	20.73 (-4.40)	25.97 (0.36)	19.44 (-2.43)	16.27 (-4.72)	25.24 (-6.96)	28.21 (0.93)	23.17 (4.41)	26.30 (-6.81)	19.72 (-4.04)	20.05 (4.53)	22.08 (-1.88)
Wheat	Area (000' ha)	27.558 (0.68)	20.548 (-0.44)	34.483 (-0.03)	93.413 (0.45)	23.416 (0.69)	65.786 (0.73)	16.117 (-1.96)	26.421 (-1.76)	23.380 (1.12)	32.331 (0.51)	363.452 (0.20)
	Prod. (000' MT)	38.646 (47.56)	25.552 (10.96)	43.922 (52.79)	129.012 (24.48)	39.805 (1.38)	94.816 (16.97)	16.689 (16.24)	37.546 (9.85)	33.118 (38.48)	53.765 (8.99)	512.870 (19.34)
	Yield (q/ha)	14.02 (46.55)	12.44 (11.45)	12.74 (52.84)	13.81 (23.92)	17.00 (0.69)	14.41 (16.12)	10.35 (18.56)	14.21 (11.82)	14.16 (36.94)	16.63 (8.44)	14.11 (19.09)
Paddy	Area (000' ha)	1.661 (-4.93)	2.733 (0.93)	2.820 (-2.18)	37.526 (-0.52)	1.509 (-2.81)	20.132 (0.02)	2.455 (-5.58)	5.604 (-2.48)	4.066 (11.19)	2.629 (-7.37)	81.136 (-0.45)
	Prod. (000' MT)	2.111 (-5.13)	4.290 (3.27)	2.956 (-6.87)	51.699 (-4.03)	2.419 (0.68)	28.392 (-5.74)	2.463 (-5.07)	8.591 (-6.71)	7.462 (9.38)	5.122 (-12.62)	115.504 (-3.92)
	Yield (q/ha)	12.71 (-0.21)	15.69 (2.32)	10.48 (-4.79)	13.78 (-3.52)	16.03 (3.59)	14.10 (-5.76)	10.03 (0.53)	15.33 (-4.34)	18.35 (-1.63)	19.48 (-5.66)	14.24 (-3.49)
Total	Area (000' ha)	55.283 (-0.32)	50.945 (1.69)	68.851 (0.28)	189.203 (0.12)	41.764 (0.36)	133.740 (-0.09)	33.297 (-2.72)	55.356 (-1.39)	51.037 (0.40)	63.387 (1.01)	742.864 (0.03)
	Prod. (000' MT)	94.798 (8.17)	101.693 (5.25)	108.211 (11.24)	275.511 (6.04)	84.731 (-2.79)	258.130 (3.92)	53.266 (4.67)	107.511 (-1.86)	87.113 (6.63)	115.886 (7.01)	1286.851 (4.80)

Note: Figures in parenthesis are Annual Compound Growth Rates (%)

Table 3.2: Targets and Achievements of Crop Improvement Programme for Cereals (2004-05)

S. No.	Component	Unit	HIMACHAL PRADESH			
			Target		Achievement	
			Phy.	Fin.	Phy.	Fin.
1	Assistance on improved seeds					
a)	Wheat @ 25 % (upto Rs 200/ Qtl)	Qtls	40000	80.00	36914	7382665 (92.3)
b)	Paddy @ 25 % (upto Rs 200/ Qtl)	Qtls	3000	6.00	3054	590884 (98.5)
c)	Maize hybrid approved by govt. @ 25 % (upto Rs 1000/ Qtl))	Qtls	7000	70.00	7132	4185894 (59.8)
2	Seed treatment of Wheat (assistance on fungicides upto to Rs 100/ qtl)	Qtls	10000	10.00	11420	1142036 (114.2)
3	Demonstration & Training on Cereal Production Technology					
a)	Field demonstration @ Rs 1000 per acre in Kharif & Rabi each	Nos.	1000	10.00	1303	1292702 (129.3)
b)	Training of Farmers on Crop Production Technology @ Rs 50/ day for 50 farmers in Kharif & Rabi each (Rs 2500/camp)	Nos.	150	3.75	165	410886 (109.6)
4	IPM demonstration @ Rs 22680/ demonstration	Nos.	70	15.88	70	1078015 (67.9)
5	Insitu germplasm conservation of traditional crops like Koda, Ragi, Kangni, Cheena etc.			2.00		200000 (100.0)
6	Low lift water lifting devices/ pumping sets @ 25 % (upto Rs 8000 each)	Nos.	180	14.40	174	1392000 (96.7)
7	Sprinkler set @ 25% of total cost (upto max. ceiling of Rs 10000 per set for SF/MF/SC/ST/Women farmers	Nos.	50	5.00	58	490136 (98.0)
8	Contingencies @ 5%			10.85		908190 (83.7)
	Total			227.88		19073408 (83.7)

**Figures in parenthesis are percentages*

Table 3.3: Socio- economic profile of Sampled Farmers (2004-05)

Particulars	Developed Block		Developing Block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	70.00	40.00	20.00	20.00
ST	-	-	73.33	80.00
OBC	3.33	10.00	-	-
General	26.67	50.00	6.67	-
Avg. family size (No.)	4.57	4.20	4.47	4.00
Literacy (%)	83.21	87.50	69.40	61.36
Dependency ratio	0.45	0.46	0.33	0.16
Occupation (%)				
Agriculture	60.00	93.20	60.00	100.00
Service	33.33	5.75	13.33	-
Other	6.67	1.05	26.67	-

Table 3.4: Land use pattern of Sampled Farmers in Developed and Developing Block (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block																
Marginal	0.69	0.71	-	-	0.04	0.04	0.73	0.75	0.70	0.70	-	-	-	-	0.70	0.70
Small	1.00	1.00	-	-	0.32	0.32	1.32	1.32	-	-	-	-	-	-	-	-
Semi Med.	1.84	1.84	-	-	0.57	0.57	2.41	2.41	2.00	2.00	-	-	0.40	0.40	2.40	2.40
Medium	-	-	-	-	-	-	-	-	3.20	3.20	-	-	1.60	1.60	4.80	4.80
Overall	**0.91**	**0.92**	**-**	**-**	**0.17**	**0.17**	**1.08**	**1.09**	**1.16**	**1.16**	**-**	**-**	**0.20**	**0.20**	**1.36**	**1.36**
Developing Block																
Marginal	0.36	0.36	-	-	0.25	0.25	0.61	0.61	0.49	0.49	-	-	0.15	0.15	0.64	0.64
Small	0.93	0.93	-	-	0.45	0.45	1.38	1.38	0.84	0.84	-	-	0.40	0.40	1.24	1.24
Semi Med.	1.20	1.20	-	-	1.36	1.36	2.56	2.56	-	-	-	-	-	-	-	-
Medium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall	**0.44**	**0.44**	**-**	**-**	**0.31**	**0.31**	**0.74**	**0.74**	**0.58**	**0.58**	**-**	**-**	**0.21**	**0.21**	**0.79**	**0.79**

Table 3.5.1: Cropping pattern of Sampled Farmers in Developed Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.42	0.57	1.22	-	0.58	0.57	-	1.07	1.43	0.60
	After	0.43	0.57	1.27	-	0.61	0.57	-	1.07	1.43	0.60
Wheat	Before	0.55	0.75	1.50	-	0.72	0.57	-	1.10	1.67	0.61
	After	0.60	0.75	1.61	-	0.89	0.57	-	1.10	1.67	0.61
Barley	Before	0.02	-	-	-	0.02	0.10	-	0.05	0.25	0.13
	After	0.02	-	-	-	0.02	0.10	-	0.05	0.25	0.13
Onion	Before	0.10	0.12	0.15	-	0.11	-	-	0.25	0.33	0.26
	After	0.10	0.12	0.15	-	0.11	-	-	0.25	0.33	0.26
Mustard	Before	0.05	0.18	0.31	-	0.09	0.05	-	0.50	0.20	0.17
	After	0.05	0.18	0.30	-	0.09	0.05	-	0.50	0.20	0.17
Potato	Before	0.07	0.04	0.20	-	0.07	-	-	0.15	0.50	0.21
	After	0.07	0.04	0.20	-	0.07	-	-	0.15	0.50	0.21
Vegetables	Before	0.07	0.31	0.15	-	0.15	0.03	-	0.21	0.65	0.10
	After	0.11	0.31	0.20	-	0.19	0.03	-	0.21	0.65	0.10
GCA	Before	1.28	1.97	3.53	-	1.74	1.32	-	3.78	5.03	2.08
	After	1.38	1.97	3.73	-	1.78	1.32	-	3.78	5.03	2.08
NSA	Before	0.69	1.00	1.84	-	0.91	0.70	-	2.00	3.20	1.16
	After	0.71	1.00	1.84	-	0.92	0.70	-	2.00	3.20	1.16
CI (%)	Before	185.51	197.00	191.85	-	191.21	188.57	-	189.00	157.19	179.31
	After	194.37	197.00	202.72	-	193.48	188.57	-	189.00	157.19	179.31

Table 3.5.2: Cropping pattern of Sampled Farmers in Developing Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.29	0.45	1.04	-	0.33	0.40	0.60	-	-	0.46
	After	0.29	0.46	1.04	-	0.33	0.40	0.60	-	-	0.46
Wheat	Before	0.30	0.56	1.12	-	0.35	0.44	0.50	-	-	0.46
	After	0.30	0.56	1.12	-	0.35	0.44	0.50	-	-	0.46
Black Gram	Before	0.06	0.08	0.08	-	0.06	-	-	-	-	-
	After	0.06	0.08	0.08	-	0.06	-	-	-	-	-
Rajmash	Before	-	0.08	0.08	-	0.01	-	-	-	-	-
	After	-	0.08	0.08	-	0.01	-	-	-	-	-
Peas	Before	0.06	0.24	0.08	-	0.07	-	-	-	-	-
	After	0.06	0.24	0.08	-	0.07	-	-	-	-	-
Vegetables	Before	-	0.21	-	-	0.02	-	-	-	-	-
	After	-	0.21	-	-	0.02	-	-	-	-	-
GCA	Before	0.71	1.62	2.40	-	0.84	0.84	1.10	-	-	0.92
	After	0.71	1.63	2.40	-	0.84	0.84	1.10	-	-	0.92
NSA	Before	0.36	0.93	1.20	-	0.44	0.49	0.84	-	-	0.58
	After	0.36	0.93	1.20	-	0.44	0.49	0.84	-	-	0.58
CI (%)	Before	197.22	174.19	200.00	-	190.91	171.43	130.95	-	-	158.62
	After	197.22	175.27	200.00	-	190.91	171.43	130.95	-	-	158.62

Table 3.6.1: Production, Productivity and Seed rate of Cereal crops on Sampled Farms in Developed Block (2004-05)

Farm category			Crops								
			Maize			Wheat			Paddy		
			Prod. (Qtls.)	Yield (Q/ha)	Seed rate (Kg/ha)	Prod. (Qtls.)	Yield (Q/ha)	Seed rate (Kg/ha)	Prod. (Qtls.)	Yield (Q/ha)	Seed rate (Kg/ha)
Marginal	B	Before	8.19	19.50	25.00	10.15	18.45	112.00	-	-	-
		After	9.03	21.00	22.00	12.00	20.00	102.00	-	-	-
	NB	Before	11.40	20.00	24.00	10.54	18.50	115.00	-	-	-
		After	11.40	20.00	24.00	10.57	18.55	115.00	-	-	-
Small	B	Before	11.40	20.00	24.00	14.10	18.80	110.00	-	-	-
		After	11.40	22.00	19.50	15.19	20.25	100.00	-	-	-
	NB	Before	-	-	-	-	-	-	-	-	-
		After	-	-	-	-	-	-	-	-	-
S. Medium	B	Before	24.46	20.05	25.00	27.00	18.00	115.00	-	-	-
		After	26.67	21.00	20.00	30.03	18.65	100.00	-	-	-
	NB	Before	21.40	20.00	25.00	20.66	18.78	120.00	-	-	-
		After	21.40	20.00	25.00	20.68	18.80	120.00	-	-	-
Medium	B	Before	-	-	-	-	-	-	-	-	-
		After	-	-	-	-	-	-	-	-	-
	NB	Before	25.74	18.00	24.00	30.06	18.00	120.00	-	-	-
		After	25.74	18.00	24.00	30.06	18.00	120.00	-	-	-
Overall	B	Before	11.51	19.85	24.67	13.26	18.42	112.33	-	-	-
		After	13.01	21.33	20.33	17.47	19.63	100.67	-	-	-
	NB	Before	11.60	19.33	24.33	11.24	18.43	118.33	-	-	-
		After	11.60	19.33	24.33	11.25	18.45	118.33	-	-	-

B: Beneficiary & NB: Non- beneficiary

Table 3.6.2: Production, Productivity and Seed rate of Cereal crops on Sampled Farms in Developing Block (2004-05)

Farm category			Crops								
			Maize			Wheat			Paddy		
			Prod. (Qtls.)	Yield (Q/ha)	Seed rate (Kg/ha)	Prod. (Qtls.)	Yield (Q/ha)	Seed rate (Kg/ha)	Prod. (Qtls.)	Yield (Q/ha)	Seed rate (Kg/ha)
Marginal	B	Before	5.29	18.25	25.00	4.48	14.95	115.00	-	-	-
		After	5.87	20.26	20.00	4.51	15.05	95.00	-	-	-
	NB	Before	7.60	19.00	25.00	6.58	14.96	115.00	-	-	-
		After	7.60	19.00	25.00	6.59	14.98	115.00	-	-	-
Small	B	Before	9.49	21.08	23.00	8.41	15.02	120.00	-	-	-
		After	10.12	22.00	20.00	8.46	15.10	100.00	-	-	-
	NB	Before	12.03	20.05	24.00	7.50	15.00	120.00	-	-	-
		After	12.00	20.00	24.00	7.51	15.01	120.00	-	-	-
S. Medium	B	Before	20.28	19.50	25.00	16.64	14.86	125.00	-	-	-
		After	20.40	19.62	20.00	16.69	14.90	100.00	-	-	-
	NB	Before	-	-	-	-	-	-	-	-	-
		After	-	-	-	-	-	-	-	-	-
Medium	B	Before	-	-	-	-	-	-	-	-	-
		After	-	-	-	-	-	-	-	-	-
	NB	Before	-	-	-	-	-	-	-	-	-
		After	-	-	-	-	-	-	-	-	-
Overall	B	Before	6.47	19.61	24.33	5.23	14.94	120.00	-	-	-
		After	6.81	20.63	20.00	5.26	15.02	98.33	-	-	-
	NB	Before	8.98	19.52	25.00	6.89	14.98	117.50	-	-	-
		After	8.97	19.50	25.00	6.90	15.00	117.50	-	-	-

B: Beneficiary & NB: Non- beneficiary

Table 3.7: Income from Cereal crops cultivation on sampled farms (2004-05)

(Rs/ha)

Particulars			Developed Block			Developing Block		
			Maize	Wheat	Total	Maize	Wheat	Total
Gross cost	B	Before	9881	10113	19994	9870	8792	18662
		After	9635	9980	19615	9691	8750	18441
	NB	Before	9780	10045	19825	9855	8800	18655
		After	9795	10060	19855	9881	8825	18706
Gross return	B	Before	13895	13815	27710	13727	11205	24932
		After	14931	14723	29654	14441	11265	25706
	NB	Before	13531	13823	27354	13664	11235	24899
		After	13531	13838	27369	13650	11250	24900
Net return	B	Before	4014	3702	7716	3857	2413	6270
		After	5296	4743	10039	4750	2515	7265
	NB	Before	3751	3778	7529	3809	2435	6244
		After	3736	3778	7514	3769	2425	6194
% Change	Beneficiaries		31.94	28.12	30.11	23.15	4.23	15.87
	Non- Beneficiaries		- 0.40	0.00	- 0.20	-1.05	-0.41	- 0.80

B: Beneficiary & NB: Non- beneficiary

3.8 Assistance provided to the Farmers

Crop improvement programme for cereals is further divided into different components. From these components, training on cereal production technology has attracted highest number of farmers in both developed and developing block. Out of the total sampled farmers 68 percent in developed and 52 percent in developing block attended the training programme on cereal production technology. Assistance on improved seeds of maize, wheat and paddy is also provided under the scheme. Under this component assistance on maize seed was given to 32 and 30 percent farmers in developed and developing blocks respectively. Whereas, assistance on improved wheat seed was given to 91 and 64 percent farmers in developed and developing block respectively. 2.15 percent farmers in developed block have also benefited from assistance for wheat seed treatment. Field demonstration on cereal production technology helps farmers to adopt proven technological skills. In case of such demonstration on maize 20 percent farmers in developed block and 22 percent in developing block visited the demonstration farm. Whereas in case of wheat 65 and 53 percent farmers respectively visited the demonstration farm. The details are presented in Table 3.8.

Table 3.8: Assistance provided to the farmers in Developed and Developing block under the scheme

(Percent)

Particulars	Developed Block			Developing Block		
	Maize	Wheat	Paddy	Maize	Wheat	Paddy
Farmers got assistance on improved seeds	32.07	91.00	-	30.50	63.75	-
Farmers got assistance for seed treatment	-	2.15	-	-	-	-
Farmers visited to see field demonstration on cereal production technology	20.00	65.50	-	22.09	52.75	-
Farmers attended training on cereal production technology	68.00	68.00	-	51.55	51.55	-
Farmers visited to see IPM demonstration	-	13.75	-	-	-	-
Farmers getting assistance for irrigation devices	-	-	-	-	-	-

In the developed block 14 percent farmers also visited to see IPM demonstration on wheat. None of the farmers in developed and developing block get assistance for irrigation equipments during 2004-05.

3.9 Attitude of Farmers about the scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 3.9. The table reveals that 10 percent farmers in the developed block reported that assistance on improved seeds of wheat was inadequate whereas in developing block 25 and 20 percent farmers respectively reported that the assistance on improved seed of wheat and maize to be inadequate. Assistance on seed treatment of wheat to be inadequate was reported by 15 percent farmers in developing block. Demonstration and training on cereal production technology in case of wheat is reported to be inadequate by 23.5 and 42.5 percent farmers in developed and developing block respectively. In case of maize 52 and 42.5 percent farmers of developed and developing block respectively reported the inadequacy of demonstration and training. IPM demonstration is found to be 100 percent inadequate in case of wheat and maize in developing block. Farmers of both developed and developing block reported that assistance on water lifting devices and pumping sets was inadequate.

Table 3.9: Attitude of Beneficiary farmers in Developed and Developing block towards various components of the scheme

(Percent)

S. No.	Particulars	Crop	Responses					
			Inadequate		Adequate		High	
			Developed Block	Developing Block	Developed Block	Developing Block	Developed Block	Developing Block
1	Assistance on Improved Seeds	Wheat	10.00	25.00	90.00	75.00	0.00	0.00
		Paddy	-	-	-	-	-	-
		Maize	-	20.00	100.00	80.00	0.00	0.00
2	Assistance on Seed Treatment	Wheat	0.00	15.00	100.00	85.00	0.00	0.00
		Paddy	-	-	-	-	-	-
		Maize	-	-	-	-	-	-
3	Demonstration & Training on Cereal production Technology	Wheat	23.50	42.50	76.25	57.50	0.00	0.00
		Paddy	-	-	-	-	-	-
		Maize	52.00	42.50	48.00	57.50	0.00	0.00
4	IPM Demonstration	Wheat	5.00	100.00	95.00	0.00	0.00	0.00
		Paddy	-	-	-	-	-	-
		Maize	5.00	100.00	95.00	0.00	0.00	0.00
5	Water lifting devices/ Pumping Set	Wheat	66.00	50.00	-	-	-	-
		Paddy	-	-	-	-	-	-
		Maize	66.00	50.00	-	-	-	-

3.9 Summing Up

The crop improvement programme for cereals was launched in 10 districts of Himachal Pradesh except Kinnaur and Lahaul- Spiti since 2000-01. The analysis of area and production trends of cereal crops reveals that after the implementation of the scheme the growth in the area and production of wheat has significantly improved but declined in case of paddy and maize. The analysis of physical and financial achievements of the scheme reveals that targets are exceeded in districts which are main producers of these crops like Hamirpur, Una etc. The results also reveal that the schemes are largely benefiting less privileged classes of the society,

which can be considered as major achievement of the scheme. Major constraint in not achieving desired targets is mainly due to shortage of staff with the implementing agency. It was observed during the field survey that the farmers generally unable to reap the benefits of the scheme due to late supply of seed. Hence it is suggested that seed should be provided to the farmers well before the sowing season. To make necessary arrangements seed coupons can also be given to the farmers. After the implementation of the scheme there is a significant increase in the net returns of the beneficiaries as compared to their counterparts. However, the farmers reported that different provisions under the scheme are not adequate especially IPM demonstration. Thus, it was also suggested that assistance under the all components of the scheme must be given due weightage.

Chapter IV
Scheme for Mechanization

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of Scheme of Mechanization. The chapter also analyses the impact of the scheme on the production and income of beneficiaries of the scheme and examines the problems faced by the beneficiaries of the scheme.

4.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 4.1.

4.2 Socio- economic profile of sampled farmers

Developed block The socio- economic profiles of sampled beneficiary and non- beneficiary farmers are presented in Table 4.2. The table reveals that of all beneficiary farmers of the scheme, 48.55 percent belonged to SC category followed by 48.11 percent general category and 3.34 percent OBC category farmers. Among non-beneficiary farmers, 43.00 percent belonged to SC, 52.50 percent general and 4.50 percent OBC category farmers. It indicates that the scheme contributes largely to the upliftment of deprived and backward classes. The average family size among beneficiary farmers of the scheme was 4.84 persons and 5.63 persons among non-beneficiary farmers. Dependency ratio was 0.43 and 0.49 among beneficiary and non- beneficiary farmers respectively. The literacy rate among beneficiary farmers was 89.00 percent as compared to 90.12 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 78.65 percent farmers followed by service 19.50 and other 1.85 percent. Similarly among non-beneficiary farmers agriculture was the main occupation of 64.00 percent farmers followed by service 34.00 and other occupations 2.00 percent.

Developing block The table reveals that of all beneficiary farmers of the scheme, 49.25 percent belonged to SC category followed by 47.50 percent general and 3.25 percent OBC category. Among non-beneficiary farmers, 57.00 percent belonged to general, 38.50 percent SC and 4.50 percent belonged to OBC category. The average family size among beneficiary farmers of the scheme was 4.45 persons and 4.92 persons among non- beneficiary farmers. Dependency ratio was 0.54 and 0.58 among beneficiary and non- beneficiary farmers respectively. The literacy rate among beneficiary farmers was 83.00 percent as compared to 83.25 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 74.00 percent farmers followed by service 24.00 and other 2.00 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 72.25 percent farmers and service 27.75 percent farmers.

4.3 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing block is presented in Table 4.3. The table reveals that among beneficiaries of the scheme in developed block, land under field crops has increased from 0.88 ha to 0.98 ha per household after the scheme was initiated. Whereas in case of non- beneficiary farmers it remains same at 0.76 ha per household in the developed block.

In developing block land under field crops has increased from 0.91 ha to 0.95 ha per household among beneficiaries and there was no change in the land use pattern among non- beneficiary farmers.

4.4 Cropping pattern of sampled farmers

4.4.1 Developed block

Cropping pattern of sampled farmers in developed block is presented in Table 4.4.1. The table reveals that beneficiary farmers of the developed block were mainly growing crops like wheat, maize, onion, mustard, potato and vegetables. The table reveals that area under maize, wheat and potato has increased after the

intervention of the scheme. Cropping intensity among different category of farmers has also increased after the intervention except small category. Overall cropping intensity has increased from 167 to 179 percent after the intervention. It is also higher among beneficiaries as compared to non- beneficiary farmers.

4.4.2 Developing block

Cropping pattern of sampled farmers in developing block is presented in Table 4.4.2. The table reveals that maize, wheat, pulses, mustard, potato and vegetables like tomato, cabbage etc were the major crops grown by farmers in the area. The table reveals that area under maize, wheat and pulses has increased after the intervention of the scheme. Cropping intensity among different category of farmers has also increased after the intervention except small category. Overall cropping intensity was declined marginally from 159.34 to 158.95 percent after the intervention. Among non- beneficiary farmers overall cropping intensity has increased from 152.13 to 155.32 percent during the same period.

4.5 Record of farm Implements

4.5.1 Developed Block

The record of farm implements among beneficiaries and non- beneficiary farmers in developed block is presented in Table 4.5.1 and 4.5.2 respectively. Table 5.5.1 reveals that out of the total farm implements owned by the sampled farm households 42.86 percent tractors, 14.29 percent power tillers, 28.57 percent power threshers, 14.29 percent power operated sprayer, 88.89 percent seed bins, 47.06 percent animal drawn plough etc are purchased under the scheme. There is a least purchase in case of manually operated implements. Table also reveals that per household farm implements are higher among beneficiary farmers as compared to non- beneficiary farmers.

4.5.2 Developing Block

The record of farm implements among beneficiaries and non- beneficiary farmers in developing block is presented in Table 4.5.3 and 4.5.4 respectively.

Table 4.5.3 reveals that out of the total farm implements owned by the sampled farm households only 20.00 percent tractors, 25.00 percent power operated sprayer and 87.50 percent seed bins are purchased under the scheme. Table also reveals that per household farm implements are higher among beneficiary farmers as compared to non- beneficiary farmers.

Table 4.1: Targets and Achievements of Scheme for Mechanization (2004-05)

S. No.	Component	Unit	HIMACHAL PRADESH			
			Target		Achievement	
			Phy.	Fin.	Phy.	Fin.
1	Assistance to farmers on small tractors upto 35 PTO HP @ 25 % limit to Rs 30,000 per Tractor	Nos.	40	12.00	59	1770000 (147.5)
2	Assistance to farmers on Power Tillers @ 25 % limited to Rs 30,000 per Power Tiller of 8 BHP and above, which ever is less	Nos.	10	3.00	18	504903 (168.3)
3	Testing/ Modification & Development of Prototypes of farm implements/ machinery and for hill agriculture			2.00		160000 (80.0)
4	Scientific Seed Storage- Providing Seed Bins on 25 % cost limited to maximum of Rs 150 each	Nos.	3000	4.50	1867	279147 (62.0)
5	Implements/ Machinery: Assistance on improved implements/ machinery					
a)	Power threshers & power operated implements/ machinery (all type) @ 25% to Rs 5000 per unit	Nos.	160	8.00	851	1183684 (148.0)
b)	Animal drawn implements @ 25% limited to Rs 2000 each	Nos.	500	10.00	6678	512277 (51.2)
c)	Manually operated implements @ 25% limited to Rs 400	Nos.	1250	5.00	4139	295867 (59.2)
d)	Power operated Zero Till Drill assistance @ 25%	Nos.	20	1.00		
	Total			45.50		4705878 (103.4)

**Figures in parenthesis are percentages*

Table 4.2: Socio- economic profile of Sampled Farmers (2004-05)

Particulars	Developed block		Developing Block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	48.55	43.00	49.25	38.50
ST	-	-	-	-
OBC	3.34	4.50	3.25	4.50
General	48.11	52.50	47.50	57.00
Avg. family size (No.)	4.84	5.63	5.45	4.92
Literacy (%)	89.00	90.12	83.01	83.25
Dependency ratio	0.43	0.49	0.54	0.58
Occupation (%)				
Agriculture	78.65	64.00	76.00	72.25
Service	19.50	34.00	23.65	27.75
Other	1.85	2.00	0.35	-

Table 4.3: Land use pattern of Sampled Farmers in Developed and Developing Block (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block																
Marginal	0.67	0.72	0.05	0.00	0.06	0.06	0.78	0.78	0.61	0.61	0.02	0.02	-	-	0.63	0.63
Small	1.01	1.13	0.17	0.05	0.02	0.02	1.20	1.20	0.81	0.81	-	-	0.23	0.23	1.04	1.04
Semi Med.	1.93	2.11	0.18	0.00	0.62	0.62	2.73	2.73	1.85	1.86	0.03	0.02	0.17	0.17	2.05	2.05
Overall	**0.88**	**0.98**	**0.05**	**0.02**	**0.09**	**0.09**	**1.02**	**1.09**	**0.76**	**0.76**	**0.01**	**0.01**	**0.21**	**0.21**	**0.98**	**0.98**
Developing Block																
Marginal	0.63	0.63	-	-	-	-	0.63	0.63	0.71	0.71	-	-	-	-	0.71	0.71
Small	1.15	1.26	0.11	0.00	-	-	1.26	1.26	1.23	1.23	-	-	0.05	0.05	1.28	1.28
Semi Med.	2.05	2.05	-	-	-	-	2.05	2.05	-	-	-	-	-	-	-	-
Overall	**0.91**	**0.95**	**0.04**	**0.00**	**-**	**-**	**0.95**	**0.95**	**0.94**	**0.94**	**-**	**-**	**0.02**	**0.02**	**0.96**	**0.96**

Table 4.4.1: Cropping pattern of Sampled Farmers in Developed Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.15	0.20	0.55	-	0.23	0.25	0.31	0.69	-	0.27
	After	0.18	0.20	0.60	-	0.27	0.25	0.33	0.72	-	0.28
Wheat	Before	0.45	0.72	1.50	-	0.59	0.37	0.47	1.08	-	0.46
	After	0.50	0.80	1.75	-	0.76	0.37	0.48	1.10	-	0.46
Mustard	Before	0.10	0.15	0.25	-	0.14	0.05	0.10	0.25	-	0.09
	After	0.10	0.15	0.25	-	0.14	0.05	0.10	0.25	-	0.09
Onion	Before	0.15	0.20	-	-	0.17	0.12	0.05	0.38	-	0.10
	After	0.15	0.20	-	-	0.17	0.12	0.05	0.40	-	0.10
Potato	Before	0.17	0.25	-	-	0.19	0.08	-	0.50	-	0.13
	After	0.20	0.25	-	-	0.22	0.10	-	0.50	-	0.15
Vegetables	Before	0.09	0.45	0.50	-	0.15	0.10	0.16	0.75	-	0.15
	After	0.12	0.60	0.75	-	0.19	0.10	0.18	0.78	-	0.17
GCA	Before	1.11	1.97	2.80	-	1.47	0.97	1.09	3.65	-	1.20
	After	1.25	2.20	3.35	-	1.75	0.99	1.14	3.75	-	1.25
NSA	Before	0.67	1.01	1.93	-	0.88	0.61	0.81	1.85	-	0.76
	After	0.72	1.13	2.11	-	0.98	0.61	0.81	1.86	-	0.76
CI (%)	Before	165.67	195.05	145.08	-	167.04	159.02	134.57	197.30	-	157.89
	After	173.61	194.69	158.76	-	178.57	162.29	140.74	201.61	-	164.47

Table 4.4.2: Cropping pattern of Sampled Farmers in Developing Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.20	0.65	0.68	-	0.43	0.26	0.70	-	-	0.49
	After	0.22	0.69	0.70	-	0.44	0.28	0.72	-	-	0.50
Wheat	Before	0.40	0.75	1.20	-	0.54	0.43	0.75	-	-	0.58
	After	0.40	0.80	1.23	-	0.57	0.43	0.75	-	-	0.58
Pulses	Before	0.10	0.25	0.50	-	0.16	0.08	0.20	-	-	0.11
	After	0.12	0.25	0.55	-	0.18	0.09	0.21	-	-	0.12
Mustard	Before	0.05	0.12	0.45	-	0.11	0.10	0.10	-	-	0.08
	After	0.05	0.12	0.47	-	0.11	0.10	0.10	-	-	0.08
Potato	Before	0.05	0.10	0.50	-	0.09	0.05	0.10	-	-	0.06
	After	0.05	0.10	0.50	-	0.09	0.05	0.10	-	-	0.06
Vegetables	Before	0.10	0.15	0.50	-	0.12	0.10	0.15	-	-	0.11
	After	0.10	0.15	0.50	-	0.12	0.10	0.17	-	-	0.12
GCA	Before	0.90	2.02	3.83	-	1.45	1.02	2.00	-	-	1.43
	After	0.94	2.11	3.95	-	1.51	1.05	2.05	-	-	1.46
NSA	Before	0.62	1.15	2.05	-	0.91	0.71	1.23	-	-	0.94
	After	0.63	1.26	2.05	-	0.95	0.71	1.23	-	-	0.94
CI (%)	Before	145.16	175.65	186.82	-	159.34	143.66	162.60	-	-	152.13
	After	149.21	167.46	192.68	-	158.95	147.89	166.67	-	-	155.32

Table 4.5.1: Record of farm Implements and machinery with Beneficiaries of the Scheme in the Developed Block

(Per Household)

Farm Implements	Number					Purchased Under the Scheme (%)				
	Marginal	Small	S. Med.	Med.	Overall	Marginal	Small	S. Med.	Med.	Overall
Tractor	0.17	0.25	0.50	-	0.23	33.33	50.00	50.00	-	42.86
Power Tiller	0.17	0.25	0.50	-	0.23	-	-	50.00	-	14.29
Power Thresher	0.17	0.25	0.50	-	0.23	33.33	50.00	-	-	28.57
Power operated zero till drill	-	-	0.25	-	0.03	-	-	-	-	-
Other Power operated implements										
Sprayer	0.06	0.37	0.75	-	0.23	-	33.33	-	-	14.29
Diesel Pump	0.11	0.50	0.75	-	0.30	-	-	-	-	-
Electric Pump	0.11	0.37	0.75	-	0.27	-	-	-	-	-
Seed Bins	0.89	1.00	0.75	-	0.90	87.50	87.50	100.00	-	88.89
Animal Drawn Implements										
Plough	0.67	0.62	0.25	-	0.57	50.00	40.00	-	-	47.06
Cultivator	0.67	0.62	0.25	-	0.57	16.67	-	-	-	11.76
Disc Harrow	0.44	0.62	0.25	-	0.47	-	20.00	-	-	7.14
Leveller	0.67	0.62	0.25	-	0.60	-	-	-	-	-
Seed Drill	0.44	0.37	-	-	0.37	12.50	-	-	-	9.09
Manually operated implements										
Plough	0.44	0.37	-	-	0.37	-	-	-	-	-
Chaff Cutter	0.22	0.37	0.50	-	0.30	25.00	-	-	-	11.11
Wheel Hoe	0.33	0.25	-	-	0.27	-	-	-	-	-
Sprayer	0.28	0.25	-	-	0.23	-	-	-	-	-
Thresher	0.33	0.25	0.50	-	0.33	16.67	-	-	-	10.00

Table 4.5.2: Record of farm Implements and machinery with Non- Beneficiaries in the Developed Block

(Per Household)

Farm Implements	Number				
	Marginal	Small	S. Med.	Med.	Overall
Tractor	0.17	0.33	1.00	-	0.30
Power Tiller	0.17	0.33	1.00	-	0.30
Power Thresher	0.17	0.33	1.00	-	0.30
Power operated zero till drill	-	-	1.00	-	0.10
Other Power operated implements					
Sprayer	0.33	0.67	1.00	-	0.50
Diesel Pump	-	-	1.00	-	0.10
Electric Pump	-	0.33	-	-	0.10
Seed Bins	0.50	-	1.00	-	0.20
Animal Drawn Implements					
Plough	0.67	0.33	-	-	0.50
Cultivator	0.67	0.33	-	-	0.50
Disc Harrow	0.67	0.33	-	-	0.50
Leveller	0.67	0.33	-	-	0.50
Seed Drill	0.33	-	-	-	0.20
Manually operated implements					
Plough	0.17	-	-	-	0.10
Chaff Cutter	0.50	0.67	1.00	-	0.60
Sprayer	0.67	0.33	-	-	0.50
Thresher	0.50	0.67	-	-	0.50

Table 4.5.3: Record of farm Implements and machinery with Beneficiaries of the Scheme in the Developing Block

(Per Household)

Farm Implements	Number					Purchased Under the Scheme (%)				
	Marginal	Small	S. Med.	Med.	Overall	Marginal	Small	S. Med.	Med.	Overall
Tractor	0.09	0.33	0.33	-	0.17	-	50.00	-	-	20.00
Power Tiller	0.09	0.33	0.33	-	0.17	-	-	-	-	-
Power Thresher	0.05	0.33	0.33	-	0.13	-	-	-	-	-
Power operated zero till drill	-		-	-	-	-	-	-	-	-
Other Power operated implements										
Sprayer	0.19	0.50	0.33	-	0.27	25.00	33.33	-	-	25.00
Diesel Pump	0.05	-	-	-	0.03	-	-	-	-	-
Electric Pump	0.05	0.33	0.33	-	0.13	-	-	-	-	-
Seed Bins	0.50	0.50	0.67	-	0.53	100.00	66.67	50.00	-	87.50
Animal Drawn Implements										
Plough	0.57	0.17	0.33	-	0.47	-	-	-	-	-
Cultivator	0.57	0.17	0.33	-	0.47	-	-	-	-	-
Disc Harrow	0.57	0.17	0.33	-	0.47	-	-	-	-	-
Leveller	0.57	0.17	0.33	-	0.47	-	-	-	-	-
Seed Drill	0.29	0.67	1.00	-	0.43	-	-	-	-	-
Manually operated implements										
Plough	0.05	-	-	-	0.03	-	-	-	-	-
Chaff Cutter	0.14	0.17	0.67	-	0.20	-	-	-	-	-
Wheel Hoe	0.05	0.17	0.67	-	0.13	-	-	-	-	-
Sprayer	0.48	0.17	0.33	-	0.40	-	-	-	-	-
Thresher	0.09	-	-	-	0.07	-	-	-	-	-

Table 4.5.4: Record of farm Implements and machinery with Non- Beneficiaries in the Developing Block

(Per Household)

Farm Implements	Number				
	Marginal	Small	S. Med.	Med.	Overall
Tractor	0.17	0.25	-	-	0.02
Power Tiller	0.17	0.25	-	-	0.20
Power Thresher	0.17	0.25	-	-	0.20
Power operated zero till drill	-	0.25	-	-	0.10
Other Power operated implements					
Sprayer	0.33	0.25	-	-	0.30
Diesel Pump	-	-	-	-	-
Electric Pump	0.33	0.50	-	-	0.40
Seed Bins	0.50	0.75	-	-	0.60
Animal Drawn Implements					
Plough	0.33	0.50	-	-	0.40
Cultivator	0.33	0.50	-	-	0.40
Disc Harrow	0.33	0.50	-	-	0.40
Leveller	0.33	0.50	-	-	0.40
Seed Drill	0.33	0.25	-	-	0.30
Manually operated implements					
Plough	0.50	0.25	-	-	0.40
Chaff Cutter	0.17	0.25	-	-	0.20
Sprayer	0.33	0.25	-	-	0.30
Thresher	-	0.25	-	-	0.10

4.6 Change in Income of Sampled farmers

Income of sampled farmers is presented in Table 4.6. The table reveals that in developed block in case of beneficiary farms the net return from all crops has increased by 6.61 percent as compared to 1.80 percent in case of non-beneficiaries. In developing block net return in case of beneficiaries is 1.21 percent as compared to -1.97 among non- beneficiaries. The change in net return is mainly due to the use of modern and improved farm implements which increases the input use efficiency and curtails cost of various farm operations.

Table 4.6: Farm Income form different crops on sampled farms (2004-05)

(Rs/ha)

Particulars		Developed Block		Developing Block	
		Before	After	Before	After
Gross cost	Beneficiaries	58557	60028	59773	62330
	Non- beneficiaries	58941	59221	59050	60218
Gross return	Beneficiaries	85002	88220	85890	86740
	Non- beneficiaries	84663	85406	83333	84022
Net return	Beneficiaries	26445	28192	24117	24410
	Non- beneficiaries	25722	26185	24283	23804
% Change	Beneficiaries	6.61		1.21	
	Non- Beneficiaries	1.80		-1.97	

4.7 Attitude of Farmers about the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 4.7. The table reveals that 10.15 percent farmers in the developed block reported that assistance on small tractors was inadequate whereas in developing block 11.40 percent farmers reported that the assistance was

inadequate. Assistance on power tillers was inadequate is reported by only 2.50 percent farmers in developing block. Assistance on seed bins was reported to be inadequate by 76.25 and 47.50 percent farmers in developed and developing block respectively. 15.04 and 37.50 percent farmers of developed and developing block respectively reported the inadequacy of assistance on power-operated implements. Whereas assistance on animal drawn implements was found to be 10.00 and 33.33 percent inadequate in developed and developing block respectively.

Table 4.7: Attitude of Beneficiary farmers in Developed and Developing block about the various components of the scheme

(Percent)

S. No.	Particulars	Responses					
		Inadequate		Adequate		High	
		Developed Block	Developing Block	Developed Block	Developing Block	Developed Block	Developing Block
1	Assistance on Small Tractors	10.15	11.40	89.85	88.60	-	-
2	Assistance on Power Tillers	-	2.50	100.00	97.50	-	-
3	Assistance on Seed Bins	76.25	47.50	23.75	52.50	-	-
4	Assistance on Power Threshers	-	-	100.00	100.00	-	-
5	Assistance on Power Operated Implements/ Machinery	15.04	37.50	84.96	62.50	-	-
6	Assistance on Animal Drawn Implements	10.00	33.33	90.00	67.50	-	-
7	Assistance on Manually Drawn Implements	32.50	45.00	67.50	55.00	-	-
8	Assistance on Power Operated Zero Till Drill	-	-	-	-	-	-

4.8 Summing Up

The scheme for Mechanization was launched in 10 districts of the State except district Kinnaur and Lahaul- Spiti in 2000-01. The major objective of the scheme is to increase the efficiency of farm operations and to reduce the cost of cultivation. The analysis of physical and financial targets and achievements of the

scheme reveals that achievement in case of scientific seed storage (seed bins), animal drawn and manually operated implements are not satisfactory. Assistance on animal drawn and manually operated implements should be given priority since most of the farmers in the State belonged to marginal category and depend on these type of farm implements. This is also compatible with the topography of the State. The results also revealed that the scheme actually benefited the under privileged section of the society which is a welcome step. After the inception of the scheme the cropping intensity has increased among the beneficiaries of the scheme and so has their farm income. Another reason for the increase in the net returns from different crops is the increase in the input efficiency due to the adoption of improved farm implements. Despite the benefits accrued from the intervention of the scheme, there are some problems faced by the farmers. One of the most important of these is that farmers are not getting desired farm implements and have to procure them from the dealer assigned by H. P. Ago- Industries Corporation (HPAIC). This is mainly in case of tractors/ tillers and other power operated implements. Another problem is that delivery is not in time. Some farmers also reported that the assistance provided under the various sub- components of the scheme is also inadequate. Another major constraint in not achieving the desired targets under the various sub- components of the scheme is generally due to subsidy pattern under the National Horticulture Mission scheme. Under this scheme subsidy for the same farm implements is 50 percent, which is higher than the subsidy provided under the MMA scheme. Thus while formulating the policy for different schemes by the Ministry of Agriculture at National level, care should be taken for the uniformity of subsidy component under various schemes of different departments. Major constraint in not achieving desired targets is mainly due to shortage of staff with the implementing agency.

Chapter V

Scheme for Promotion of Quality Seed Production

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of Scheme for promotion of quality seed production. The chapter also analyses the impact of the scheme and examines the problems faced by the beneficiaries of the scheme.

5.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 5.1.

5.2 Socio- economic profile of sampled farmers

Developed block The socio- economic profiles of sampled beneficiary and non- beneficiary farmers are presented in Table 5.2.1. The table reveals that of all beneficiary farmers of the scheme, 63.33 percent belonged to general category followed by 26.67 percent SC and 10.00 percent OBC category farmers. Among non-beneficiary farmers, 60.00 percent belonged to general, 30.00 percent SC and 10.00 percent OBC category farmers. The average family size among beneficiary farmers of the scheme was 4.90 persons and 5.00 persons among non- beneficiary farmers. Dependency ratio was 0.28 and 0.33 among beneficiary and non-beneficiary farmers respectively. The literacy rate among beneficiary farmers was 87.25 percent as compared to 90.22 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 71.34 percent farmers followed by service 28.46 and other 0.20 percent. Similarly among non-beneficiary farmers agriculture was the main occupation of 71.00 percent farmers followed by service 27.75 and other occupations 1.17 percent.

Developing block The table reveals that of all beneficiary farmers of the scheme, 43.33 percent each belonged to SC and general category followed by

13.33 percent belonged to OBC category. Among non-beneficiary farmers, 50.00 percent belonged to general, 40.00 percent SC and 10.00 percent belonged to OBC category. The average family size among beneficiary farmers of the scheme was 5.27 persons and 5.70 persons among non- beneficiary farmers. Dependency ratio was 0.46 and 0.39 among beneficiary and non- beneficiary farmers respectively. The literacy rate among beneficiary farmers was 85.44 percent as compared to 84.21 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 80.00 percent farmers followed by service 28.46 and other 0.20 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 90.00 percent farmers and service 10.00 percent farmers.

5.3 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing block is presented in Table 5.3. The table reveals that there was no significant change in the land use pattern of sampled farmers in both developed and developing blocks.

5.4 Response of farmers regarding scheme

Table 5.4 reveals the response of farmers regarding various components of the scheme. The table reveals that all the sampled farmers are growing seed. Out of these farmers 83.80 percent farmers in developed block and 53.33 percent farmers in the developing block had attended training programme. All of the farmers found training programme helpful and need based, both in developed and developing block. Farmers who visited government seed farm to see demonstration are 71.50 and 63.33 percent respectively in developed and developing block. The table also reveals that the sprinkler irrigation system was used by only by 6.67 percent farmers in developed block, whereas not even a single farmer was using the system in developing block.

Table 5.1: Targets and Achievements of Scheme for promotion of Quality seed Production (2004-05)

S. No.	Component	Unit	HIMACHAL PRADESH			
			Target		Achievement	
			Phy.	Fin.	Phy.	Fin.
1	Improvement of seed production farms limited to Rs 5 lacs each for irrigation, machinery, seed store, land development, leveling, fencing etc.	Nos.	7	35.00	9	3739200 (106.8)
2	Training to seed growers 20 training of 100 farmers for one day @ Rs 50 each	Nos.	50	2.50	51	251365 (100.5)
3	Improvement of existing seed stores for scientific seed storage/ Additional storage capacity	Nos.	5	25.00	6	1142350 (45.7)
4	Procurement of Mobile Seed Processing Plant	Nos.	2	10.00		
5	Indent cylinder (IC- 2) for seed graders		4	5.50	6	660000 (120.0)
6	Efficient irrigation through sprinkler at Government Farms @ Rs 30000/ ha	Ha.	20	6.00	46	1359700 (226.6)
7	Contingency @ 5%			4.20		418622 (99.7)
	Total			88.20		7571237 (85.8)

**Figures in parenthesis are percentages*

Table 5.2: Socio- economic profile of Sampled Farmers (2004-05)

Particulars	Developed block		Developing block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	26.67	30.00	43.33	40.00
ST	-	-	-	-
OBC	10.00	10.00	13.33	10.00
General	63.33	60.00	43.33	50.00
Avg. family size (No.)	4.90	5.00	5.27	5.70
Literacy (%)	87.25	90.22	85.44	84.21
Dependency ratio	0.28	0.33	0.46	0.39
Occupation (%)				
Agriculture	71.34	71.08	80.00	90.00
Service	28.46	27.75	16.67	10.00
Other	0.20	1.17	3.33	-

Table 5.3: Land use pattern of Sampled Farmers in Developed and Developing Block (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block																
Marginal	0.81	0.83	0.02	0.00	0.05	0.05	0.88	0.88	0.84	0.84	0.03	0.03	0.02	0.02	0.89	0.89
Small	1.15	1.15	-	-	0.22	0.22	1.37	1.37	1.07	1.07	-	-	0.13	0.13	1.20	1.20
Semi Med.	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
Medium	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
Overall	**0.93**	**0.94**	**0.01**	**0.00**	**0.11**	**0.11**	**1.05**	**1.05**	**0.89**	**0.89**	**0.01**	**0.01**	**0.07**	**0.07**	**0.97**	**0.97**
Developing Block																
Marginal	0.79	0.80	0.02	0.01	0.02	0.02	0.83	0.83	0.71	0.71	0.01	0.01	-	-	0.72	0.72
Small	0.95	0.95	0.10	0.10	0.06	0.06	1.11	1.11	0.81	0.81	-	-	0.23	0.23	1.04	1.04
Semi Med.	1.75	1.76	0.18	0.17	0.21	0.21	2.14	2.14	1.67	1.67	0.03	0.03	0.31	0.31	2.01	2.01
Medium	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
Overall	**0.97**	**0.97**	**0.07**	**0.07**	**0.06**	**0.06**	**1.10**	**1.10**	**0.77**	**0.77**	**0.01**	**0.01**	**0.21**	**0.21**	**0.98**	**0.98**

Table 5.4: Response of farmers regarding seed production scheme (2004-05)

(Percent)

Farm category	Farmers growing seed	Farmers attended training programme	Farmers finding training programme helpful	Farmers visited Govt. seed farm to see demonstration	Farmers using sprinkler irrigation system at their farm
	Developed Block				
Marginal	100.00	85.75	100.00	75.00	10.53
Small	100.00	81.82	100.00	66.67	9.09
S. Medium	-	-	-	-	-
Medium	-	-	-	-	-
Overall	**100.00**	**83.80**	**100.00**	**71.50**	**6.67**
	Developing Block				
Marginal	100.00	44.44	100.00	55.56	-
Small	100.00	62.50	100.00	75.00	-
S. Medium	100.00	75.00	100.00	75.00	-
Medium	-	-	-	-	-
Overall	**100.00**	**53.33**	**100.00**	**63.33**	**-**

5.5 Change in income of sampled farmers

Income of sampled farmers is presented in Table 5.5. The table reveals that in developed block for beneficiary farms the net return from seed production increased by 21.03 percent as compared to 4.05 percent in case of non-beneficiaries. In developing block net return in case of beneficiaries was 11.56 percent as compared to 0.24 among non- beneficiaries. The change in net return was mainly due to the training of farmers on latest seed production technology.

Table 5.5: Income from Seed production on sampled farms (2004-05)

(Rs/ha)

Particulars		Developed Block		Developing Block	
		Before	After	Before	After
Gross cost	Beneficiaries	38887	37450	32450	32400
	Non- beneficiaries	39050	39170	32500	32525
Gross return	Beneficiaries	70814	75910	63348	64550
	Non- beneficiaries	71054	74880	63400	63500
Net return	Beneficiaries	31927	38640	30898	32150
	Non- beneficiaries	32004	35710	30900	30975
% Change	Beneficiaries	21.03		4.05	
	Non- Beneficiaries	11.56		0.24	

B: Beneficiary & NB: Non- beneficiary

5.6 Attitude of Farmers about the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 5.6. The table reveals that 5.00 percent farmers in the developed block reported that training on seed production was inadequate whereas in developing block 50.00 percent farmers reported that the assistance was inadequate. Demonstration of efficient irrigation system is inadequate was reported

by 10.00 and 35.00 percent farmers respectively in developed and developing block.

Table 5.6: Attitude of Beneficiary farmers in Developed and Developing block about the various components of the scheme

(Percent)

S. No.	Particulars	Responses					
		Inadequate		Adequate		High	
		Developed Block	Developing Block	Developed Block	Developing Block	Developed Block	Developing Block
1	Training on seed production	5.00	50.00	95.00	50.00	-	-
2	Demonstration of efficient irrigation system	10.00	35.00	90.00	65.00	-	-

5.7 Summing Up

The scheme for promotion of quality seed production was launched during 2000-01 in 10 districts of the State except district Kinnaur and Lahaul- Spiti. The major objective of the scheme is to improve the existing seed multiplication farms by way of providing irrigation facility, machinery and repairs of seed stores, land leveling etc., seed processing, to upgrade quality of existing grader plants, to provide sprinkler irrigation system at government farms for demonstration and training to seed growers. Thus, in financial terms, about 97.00 percent of the total expenditure in the scheme was made on components which indirectly affect the farmers. The results revealed that after the implementation of the scheme net return of beneficiary farmers in the developed block has increased by 21.03 percent as compared to 11.56 percent in case of non- beneficiaries after the implementation of the scheme. In case of developing block training on seed production and demonstration of efficient irrigation system require immediate attention. It was also suggested that officials of the implementing agency should not be biased towards farmers under different components of the scheme. During field survey it was also observed that supply of seed under the scheme was of poor quality and results in losses to the beneficiary farmers in certain districts. It is therefore suggested that

quality seed should be provided to the farmers. Same seed is being distributed in all the zones, irrespective of the agro- climatic conditions of the respective zone. Hence, seed compatible with the local conditions of the agro- climatic zones must be procured and distributed to the farmers.

Chapter VI

Scheme for Integrated Nutrients Management For Balanced Fertilizer Use

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of Scheme for integrated nutrients management for balanced fertilizer use. The chapter also analyses the impact of the scheme on the production and income of beneficiaries of the scheme and examines the problems faced by the beneficiaries of the scheme.

6.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 6.1.

6.2 Socio- economic profile of sampled farmers

Developed block The socio- economic profiles of sampled beneficiary and non- beneficiary farmers are presented in Table 6.2. The table reveals that of all beneficiary farmers of the scheme, 50.00 percent belonged to general category followed by 36.67 percent SC and 13.33 percent OBC category farmers. Among non-beneficiary farmers, 60.00 percent belonged to general, 30.00 percent SC and 10.00 percent OBC category farmers. The average family size among beneficiary farmers of the scheme was 5.27 persons and 5.40 persons among non- beneficiary farmers. Dependency ratio was 0.37 and 0.38 among beneficiary and non-beneficiary farmers respectively. The literacy rate among beneficiary farmers was 84.81 percent as compared to 81.48 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 83.33 percent farmers followed by service 13.33 and other 3.33 percent. Similarly among non-beneficiary farmers agriculture was the main occupation of 80.00 percent farmers followed by service and other occupations accounted for 10.00 percent farmers.

Developing block The socio- economic profile of sampled beneficiary and non- beneficiary farmers of the developing block is presented in Table 7.2.2. The table reveals that of all beneficiary farmers of the scheme, 60.00 percent belonged to general category, the rest 30.00 and 10.00 percent belonged to SC and OBC category. Among non-beneficiary farmers, 50.00 percent farmers each belonged to general as well as SC category. The average family size among beneficiary farmers of the scheme was 5.47 persons and 6.40 persons among non- beneficiary farmers. Dependency ratio was 0.30 and 0.42 among beneficiary and non- beneficiary farmers respectively. The literacy rate among beneficiary farmers was 83.54 percent as compared to 78.12 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 88.89 percent farmers followed by service 11.11 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 90.00 percent farmers and others 10.00 percent farmers.

6.3 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing block has been presented in Table 6.3. The table reveals that there was no significant change in the land use pattern of sampled farmers in both developed and developing blocks. But in case of developed block there was a reduction in current fallow land among both beneficiaries as well as non- beneficiaries.

6.4 Cropping pattern of sampled farmers

6.4.1 Developed block

Cropping pattern of sampled farmers in developed block is presented in Table 6.4.1. The table reveals that beneficiary farmers of the developed block were mainly growing crops like wheat, maize, potato and vegetables like pea, tomato, ladyfinger, cauliflower etc. The table reveals that the cropping intensity among different category of farmers has also increased after the intervention. Overall cropping intensity is increased from 174 to 178 percent after the intervention.

Among non- beneficiary farmers the overall cropping intensity has increased marginally from 176.84 to 177.04 percent. On analyzing the table it was found that the area under wheat and vegetables has increased after the implementation of the scheme.

6.4.2 Developing block

Cropping pattern of sampled farmers in developing block is presented in Table 6.4.2. The table reveals that maize, wheat, paddy, soybeans, mustard, and vegetables like peas, tomato, cabbage etc were the major crops grown by farmers in the area. On analyzing the table it was found that cropping intensity among different category of farmers has also increased after the intervention. Overall cropping intensity was increased from 168.29 to 173.17 percent after the intervention. Among non- beneficiary farmers overall cropping intensity was increased marginally from 167.90 to 168.29 percent during the same period.

Table 6.1: Targets and Achievements of Scheme for INM for Balanced fertilizer use (2004-05)

S. No.	Component	Unit	HIMACHAL PRADESH			
			Target		Achievement	
			Phy.	Fin.	Phy.	Fin.
1	Demonstration and Training on Integrated Nutrient Management (12 demonstrations per district: 6 in Kharif and 6 in Rabi) @ Rs 9000/ Demonstration	Nos.	200	18.00	217	1922504 (106.8)
2	Improvement in Capacity Utilisation of Soil Testing and Quality control labs through procurement of:					
a)	Chemicals	Kgs/ Lts.	800/ 2000	10.00	800/ 2000	1012003 (101.2)
b)	Glassware	Nos.	600	2.00	750	246871 (123.4)
c)	Equipment (As per actual need)			5.00		593258 (118.6)
d)	Repair/ Maintenance/ AMC of equipments	Nos.	200	5.00	120	283174 (56.6)
3	Crop demonstration on soil test basis @ Rs 6000 / ha	Ha	200	12.00	198	1121032 (93.4)
4	Soil health cards	Nos.	50000	2.50	50000	249300 (99.7)
5	Assistance on Micro Nutrients @ 25%	MT	80	5.00	116	137127 (27.4)
		Lts.	15000			
6	Demonstration on Organic Farming @ Rs 10000/ ha	Ha	500	5.00	591	575087 (115.0)
7	Promotion of INM through Vermi Composting assistance of Rs 300 per farmer for providing earthworms	Nos.	10000	30.00	12005	3599118 (120.0)
	Strengthening of Bio-Fertilizer laboratory in the SAU			3.00		300000 (100.0)
	Contingency @ 5% (approx.)			4.87		501869 (103.0)
	Total			102.37		10541343 (103.0)

**Figures in parenthesis are percentages*

Table 6.2: Socio- economic profile of Sampled Farmers in Developed block (2004-05)

Particulars	Developed block		Developing block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	36.67	30.00	30.00	50.00
ST	-	-	-	-
OBC	13.33	10.00	10.00	-
General	50.00	60.00	60.00	50.00
Avg. family size (No.)	5.27	5.40	5.47	6.40
Literacy (%)	84.81	81.48	83.54	78.12
Dependency ratio	0.37	0.38	0.30	0.42
Occupation (%)				
Agriculture	83.33	80.00	93.33	90.00
Service	13.33	10.00	6.67	-
Other	3.33	10.00	-	10.00

Table 6.3: Land use pattern of Sampled Farmers in Developed and Developing Block (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block																
Marginal	0.76	0.78	0.02	0.00	0.02	0.02	0.80	0.80	0.72	0.72	0.02	0.02	0.01	0.01	0.75	0.75
Small	1.15	1.15	0.04	0.04	0.05	0.05	1.24	1.24	1.10	1.11	0.03	0.02	0.04	0.04	1.17	1.17
Semi Med.	1.98	2.03	0.07	0.02	0.05	0.05	2.10	2.10	1.88	1.90	0.03	0.01	0.17	0.17	2.08	2.08
Medium	3.84	3.89	0.08	0.03	0.20	0.20	4.12	4.12	-	-	-	-	-	-	-	-
Overall	**1.21**	**1.23**	**0.04**	**0.02**	**0.04**	**0.04**	**1.29**	**1.29**	**0.95**	**0.96**	**0.02**	**0.01**	**0.03**	**0.03**	**1.00**	**1.00**
Developing Block																
Marginal	0.56	0.56	-	-	0.25	0.25	0.81	0.81	0.61	0.61	-	-	0.28	0.28	0.89	0.89
Small	1.05	1.05	-	-	0.45	0.45	1.50	1.50	1.11	1.13	0.04	0.02	0.45	0.45	1.60	1.60
Semi Med.	1.50	1.50	-	-	0.78	0.78	2.28	2.28	-	-	-	-	-	-	-	-
Medium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall	**0.82**	**0.82**	**-**	**-**	**0.37**	**0.37**	**1.19**	**1.19**	**0.81**	**0.82**	**0.02**	**0.01**	**0.35**	**0.35**	**1.18**	**1.18**

Table 6.4.1: Cropping pattern of Sampled Farmers in Developed Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.50	0.61	0.75	1.20	0.60	0.43	0.55	0.85	-	0.51
	After	0.50	0.61	0.74	1.20	0.60	0.43	0.56	0.86	-	0.51
Wheat	Before	0.61	0.82	1.25	3.00	0.87	0.55	0.75	1.20	-	0.67
	After	0.63	0.83	1.30	3.00	0.90	0.55	0.75	1.22	-	0.68
Potato	Before	0.15	0.25	0.50	1.25	0.28	0.15	0.25	0.37	-	0.20
	After	0.15	0.25	0.50	1.30	0.29	0.16	0.25	0.39	-	0.21
Vegetables	Before	0.22	0.32	0.50	2.00	0.36	0.25	0.32	0.50	-	0.30
	After	0.24	0.32	0.60	2.25	0.40	0.25	0.33	0.50	-	0.30
GCA	Before	1.48	2.00	3.00	7.45	2.11	1.38	1.87	2.92	-	1.68
	After	1.52	2.01	3.14	7.75	2.19	1.40	1.89	2.97	-	1.70
NSA	Before	0.76	1.15	1.98	3.84	1.21	0.72	1.10	1.88	-	0.95
	After	0.78	1.15	2.03	3.89	1.23	0.72	1.11	1.90	-	0.96
CI (%)	Before	194.74	173.91	151.51	194.01	174.38	191.67	170.00	155.32	-	176.84
	After	194.87	174.98	154.67	199.23	178.05	194.44	170.27	156.32	-	177.08

Table 6.4.2: Cropping pattern of Sampled Farmers in Developing Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.18	0.37	0.45	-	0.27	0.15	0.40	-	-	0.25
	After	0.18	0.37	0.45	-	0.27	0.15	0.40	-	-	0.25
Wheat	Before	0.25	0.45	0.60	-	0.35	0.30	0.45	-	-	0.36
	After	0.26	0.45	0.60	-	0.36	0.30	0.45	-	-	0.36
Paddy	Before	0.12	0.15	0.25	-	0.14	0.12	0.25	-	-	0.17
	After	0.12	0.15	0.27	-	0.15	0.12	0.25	-	-	0.17
Soya bean	Before	0.08	0.10	0.20	-	0.10	0.10	0.10	-	-	0.10
	After	0.08	0.10	0.20	-	0.10	0.10	0.10	-	-	0.10
Mustard	Before	0.10	0.15	0.20	-	0.13	0.05	0.18	-	-	0.10
	After	0.10	0.15	0.20	-	0.13	0.05	0.18	-	-	0.10
Vegetables	Before	0.25	0.53	0.75	-	0.39	0.30	0.50	-	-	0.38
	After	0.27	0.56	0.76	-	0.41	0.32	0.53	-	-	0.40
GCA	Before	0.98	1.75	2.45	-	1.38	1.02	1.88	-	-	1.36
	After	1.01	1.78	2.48	-	1.42	1.04	1.91	-	-	1.38
NSA	Before	0.56	1.05	1.50	-	0.82	0.61	1.11	-	-	0.81
	After	0.56	1.05	1.50	-	0.82	0.61	1.13	-	-	0.82
CI (%)	Before	175.00	166.67	163.33	-	168.29	167.21	169.37	-	-	167.90
	After	180.36	169.52	165.33	-	173.17	170.49	169.02	-	-	168.29

6.5 Change in income of sampled farmers

Income of sampled farmers is presented in Table 6.5. The table reveals that in developed block in case of beneficiary farms the net return from crop production increased by 20.61 percent as compared to 5.05 percent in case of non-beneficiaries. In developing block net return in case of beneficiaries was 4.60 percent as compared to 1.78 among non- beneficiaries. The change in net return was mainly due to the diversification of farmers towards raising cash crops organically and by using micronutrients and other fertilizers as per the requirement of their field soil. These practices curtail the cost on chemicals and fertilizers and also improve the productivity of the farmer's field

Table 6.5: Income from crop production on sampled farms (2004-05)

(Rs/ha)

Particulars		Developed Block		Developing Block	
		Before	After	Before	After
Gross cost	Beneficiaries	38120	37557	46114	45890
	Non- beneficiaries	38240	38350	45950	46080
Gross return	Beneficiaries	53502	56110	65350	66012
	Non- beneficiaries	53614	54500	65280	65455
Net return	Beneficiaries	15382	18553	19236	20122
	Non- beneficiaries	15374	16150	19330	19675
% Change	Beneficiaries	20.61		4.60	
	Non- Beneficiaries	5.05		1.78	

B: Beneficiary & NB: Non- beneficiary

6.6 Response of farmers regarding various components of the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 6.6. The table reveals that 85.00 and 62.00 percent farmers got trained on INM in developed and developing block respectively. The farm soil of 60.00 and 48.50 percent farmers was tested for nutrient deficiency in the developed and developing block respectively and the nutrient deficiency was found in case of 75.00 and 50.00 percent farmers. 65.00 and 36.75 percent farmers in developed and developing block respectively visited the demonstration field to see crop demonstration on soil test basis and 100.00 percent farmers in both these blocks found the demonstration useful. After visiting the demonstration farm 35.50 and 25.00 percent farmers in the developed and developing block respectively replicate the same on their fields. Only 15.00 and 20.00 percent farmers in the developed and developing block prepare the soil health cards. Assistance on micronutrients was also provided under the scheme, 54.87 and 28 percent farmers took the benefit of the assistance in the developed and developing block respectively. Demonstration on organic farming was seen by 72.33 and 52.00 percent farmers and was found useful by 100.00 percent farmers in both developed and developing block respectively. Out of these farmers 25.00 and 10.75 percent farmers replicate the same in their fields. 90.00 and 68.75 percent farmers got assistance on vermi compost in developed and developing block respectively.

Table 6.6: Response of selected beneficiary farmers regarding different components of the scheme (2004-05)

(Percent)

Particulars	Developed Block	Developing Block
Farmers got trained on INM	85.00	62.00
Farm soil tested for the lack of nutrients	60.00	48.50
Farmers found nutrient deficiency in farm soil	75.00	50.00
Farmers visit demo field to see crop demonstration on soil test basis	65.00	36.75
Farmers found above demonstration useful	100.00	100.00
Farmers replicate the practice on their fields	35.50	25.00
Farmers prepared soil health cards under the scheme	15.00	20.00
Farmers got assistance on micronutrients	54.87	28.00
Farmers visit demo field to see demonstration on organic farming	72.33	52.00
Farmers found above demonstration useful	100.00	100.00
Farmers replicate the practice on their fields	25.00	10.75
Farmers getting assistance on vermi compost	90.00	68.75

6.7 Attitude of Farmers about the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 6.7. The table reveals that 15.00 percent farmers in the developed block reported that demonstration on INM was inadequate whereas in developing block 35.00 percent farmers reported that the demonstration was inadequate. Training on INM is inadequate was reported by 15.00 and 38.00 percent farmers respectively in developed and developing block. Only 10.00 percent farmers found crop demonstration on soil test basis inadequate in developing block. In case of soil health cards 85.00 and 80.00 percent farmers in the developed and developing block respectively was found inadequate. Assistance

on micronutrients, demonstration on organic farming and assistance on vermi compost was found inadequate by 45.00, 25.00 and 10.00 percent in developed block and 72.00, 48.00 and 30.00 percent in developing block respectively.

Table 6.7: Attitude of Beneficiary farmers in Developed and Developing block about the various components of the scheme

(Percent)

S. No.	Particulars	Responses					
		Inadequate		Adequate		High	
		Developed Block	Developing Block	Developed Block	Developing Block	Developed Block	Developing Block
1	Demonstration on INM	15.00	35.00	85.00	65.00	-	-
2	Training on INM	15.00	38.00	85.00	62.00	-	-
3	Crop demonstration on soil test basis	-	10.00	100.00	90.00	-	-
4	Soil Health cards	85.00	80.00	15.00	20.00	-	-
5	Assistance on micronutrients	45.00	72.00	55.00	28.00	-	-
6	Demonstration on Organic farming	25.00	48.00	75.00	52.00	-	-
7	Assistance on vermi compost	10.00	30.00	90.00	70.00	-	-

6.8 Summing Up

The scheme for integrated nutrient management for balanced fertilizer use was launched in 10 districts of the State except district Kinnaur and Lahaul- Spiti in 2000-01. The major objectives of the scheme is to train farmers through demonstration on organic farming, vermi composting etc. and to strengthen Bio fertilizer laboratory in the SAU, existing soil testing / mobile testing laboratories, to provide chemicals, glassware, equipments etc. Further, under the scheme soil health cards will be prepared and assistance on micronutrients will be provided. In financial terms, amount utilized under the various components of the scheme was 142.44 percent of the total targets. Maximum achievement was found in case of promotion of INM through vermicomposting followed by demonstration on organic farming, demonstration and training on INM and crop demonstration on soil test

basis. The findings of the evaluation of the scheme revealed that in the developed block about 50.00 percent of the beneficiary farmers belonged to unprivileged classes of the society. It was also found that with the implementation of the scheme farmers shifted their cropping pattern towards the cultivation of cash crops, thereby, increasing net return of the beneficiary farmers from crop production by 20.61 and 4.60 percent in the developed and developing block respectively.

Chapter VII

Scheme for Transfer of Technology And Information Technology

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of Scheme for transfer of technology and information technology. The performance of various sub- components of the scheme is also assessed in this chapter.

7.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 7.1.

Table 7.1: Targets and Achievements of Scheme for Transfer of technology and Information Technology (2004-05)

S. No.	Component	Unit	HIMACHAL PRADESH			
			Target		Achievement	
			Phy.	Fin.	Phy.	Fin.
1	Training of Field level Extension Officers in latest production Techniques @ Rs 30000 for 30 participants	Nos.	3	0.90	3	90000 (100.0)
2	Refresher Training Programme for Middle and Sr. Level Officers on new emerging issues at SAMETI	Nos.	4	1.00	4	100000 (100.0)
3	Exhibition at National and State/ District level	Nos.	13	3.00	16	276512 (92.2)
4	Organizing Kisan Melas	Nos.	2	2.00	2	200000 (100.0)
5	Setting up of farmer's advisory-cum-Input Centre @ Rs 6 lac. Each	Nos.	3	18.00	3	1800000 (100.0)
6	Preparation and Telecasting of Developmental documenting films through Doordarshan			5.00		139400 (27.9)
7	Advertisement/ Publicity through print media/ AIR etc.			6.00		276087 (46.0)
8	Programme review workshop (Quarterly) with Sr. Officers	Nos.	4	0.40	4	34980 (87.4)
9	Procurement of Computer Hardware, UPS, Printers and their connectivity and local networking	Nos.	5	10.00	6	849934 (85.0)
10	Installation of FAX/ Photostat machines and other IT/ Non IT equipment	Nos.	8	6.00		1065875 (177.6)
11	Workshop of Extension Officers at district Level (6 workshops in 10 districts for monitoring of important programmes @ Rs 1000/ Workshop/ District)	Nos.	60	0.60	67	59709 (99.5)
12	Vocational training for Women Groups (7 days training to 50 SHGs @ Rs 30000/ Training)	Nos.	50	15.00	70	1584610 (105.6)
13	Concurrent Evaluation of MM through SAU/ NABARD/ Any other Agency			5.00		500000 (100.0)
14	Contingencies			3.64		348836 (95.8)
	Total			76.54		7325943 (95.7)

**Figures in parenthesis are percentages*

7.2 Status of various sub- components

The status of various sub- components of the scheme is presented in Table 7.2. The table reveals that under the first component of the scheme, number of field level officers trained in latest production techniques are 28 in Bilaspur, 9 in Chamba, 22 in Hamirpur, 6 in Kullu and 32 in Una district. In district Kangra, Shimla and Solan. Under the second component of the scheme, i.e. Refresher training programme on new emerging Issues for middle and senior level officers, it was attended by 38 officers and 1 DDA (Deputy Director, Agriculture), 4 officers and 1 DDA, 4 officers and 1 DDA, 6 officers and 1 DDA, 20 officers, and 15 officers & 1 DDA in district Bilaspur, Chamba, Hamirpur, Kullu, Mandi and Una respectively. The national level exhibitions are organized by district Chamba and Kullu. In district Kullu, the exhibition on Traditional Mountain Crops was organized at Krishi Expo, New Delhi, whereas, in district Chamba, one exhibition was organized in the International Minjar Fair. The State level exhibitions were organized at district Bilaspur, Hamirpur, Kangra and Solan. The district level exhibitions were organized at district Bilaspur, Hamirpur, Kullu, Mandi, Solan and Una. In district Mandi, three such exhibitions are organized. Kisan Melas were organized at district Hamirpur and Kullu. The DDA office Shimla has developed three documentary films and these were telecasted at DD National Channel. One documentary film was also developed by DDA Solan and telecasted on DD Shimla channel. The DDA Solan has prepared an advertisement regarding on- going departmental schemes and activities and to popularize & acquaint farmers with these schemes. These are print advertisements and are given in leading newspapers like Amar Ujala, Punjab Kesari and Divya Himachal.

Number of programme review workshops organized are 12, 12, 8, 6, 7, 12 and 8 in district Bilaspur, Chamba, Hamirpur, Kullu, Mandi, Shimla and Una respectively. The DDA's reported that these workshops are generally organized every month to review the progress of different schemes and other matters. While analyzing the position of computer hardware and other equipments purchased

under the scheme during 2004-05, it was found that one computer and printer was procured only at Hamirpur DDA office, while in other district HQ's the computer and other equipments were procured under other schemes/ programmes. It was also found during field survey that in most of the block offices computer, fax and photocopier are not available. This creates some time lag in planning and execution of the programme under various schemes. Another major constraint in the adoption of available computer technology is that very few officers are computer savvy. Another major conclusion was drawn from the analysis that even where computer facility is available the officers were using ordinary mail and FAX for sending letters and other documents to district and State HQ. On one hand this creates time lag and on the other hand costs more to the department. No one is using e-mail facility for sending letters and other information. Hence it is recommended that to enhance efficiency of different offices and curtail cost, e- mail facility should be used. Local networking is also not available in any of the office of DDA.

Under the component vocational training for women, district-wise achievements are given below:

a) Three trainings of 5 days each comprising 60 individual and SHG participants has given to women for upgrading their existing skills on fruit & vegetable processing and pickle making in district Bilaspur.

b) Four trainings of 6 days each on mushroom cultivation, fruit & vegetable processing and knitting & weaving was given to 80 SGH participants in district Chamba.

c) Six trainings of 5 days each to 120 SHG participants for the up gradation of existing skills on PHT and fruit & vegetable processing was given in district Hamirpur.

d) 5 days training to 340 SHG participants on fruit & vegetable processing, dairy farming and handicraft making was given in district Kangra.

e) Six trainings of 7 days each was given to 120 SHG participants on cultivation of off- season vegetables, PHT & fruit preservation and dairy farming in district Kullu.

f) Seven trainings of 7 days each was given to 260 individual participants on vermi- composting, nursery raising of vegetable crops, fruit & vegetable processing, bee- keeping and mushroom cultivation in district Mandi.

g) Three trainings of 7, 3 and 3 days comprising 80, 70 and 60 individual as well as SHG participants respectively for the up gradation of their existing skills on mushroom cultivation, fruit & vegetable PHT and preparation of bags & stuffed toys was given in district Shimla.

h) In district Solan 5 trainings of 5 days each to 100 SHG participants has given on pickle making, hosiery, food processing and off- season vegetable cultivation.

i) In district Una 160 SHG participants took 4 days training on diversification, vegetable & cash crop cultivation, vermi- composting, raising of vegetable nursery and off- season vegetable cultivation.

Through these training sessions the women participants of these districts have improved their existing skills and also trained to earn their livelihoods. The introduction of training raised the self- confidence among the women participants and inculcating the quality of leadership in them.

Table 7.2: Status of various sub-components of the Transfer of Technology Scheme (2004-05)

Component	Bilaspur	Chamba	Hamirpur	Kangra	Kullu	Mandi	Shimla	Sirmour	Solan	Una
1. No. of field level extension officers trained in latest production techniques	28	9	22	-	6	-		-	-	32
2. No. of Middle and Sr. Level Officers attended Refresher Training Programme on new emerging issues at SAMETI	38, 1 (DDA)	4, 1 (DDA)	4, 1 (DDA)		6, 1 (DDA)	20		-		15, 1 (DDA)
3. Number of exhibitions organized								-		
a) National Level	-	1	-	-	1	-		-	-	-
b) State Level	1	-	1	1	-	-		-	1	-
c) District Level	1	-	1	-	1	3		-	1	1
4. No. of Kisan Melas Organized	-	-	2	-	1	-		-	-	-
5. No. of farmers advised at Advisory-cum- Input Centre	3125	-	-	-	-	11500	50000	-	-	10000
6. Documentary Films								-		
a) Developed							3	-	1	
b) Telecasted							3	-	1	
c) Channel on which telecasted							National DD	-	Shimla DD	
7. Advertisements								-		
a) Prepared	1	-	-	-	-	-		-	-	-
b) Theme	To popularize schemes	-	-	-	-	-		-	-	-
c) Given in Print Media or AIR or Both	Print	-	-	-	-	-		-	-	-
8. No. of programme review workshops organized	12	12	8	-	6	7	12	-	-	8
9. Equipments										
a) Computer	1*	-	1	-	1*	-	10*	-	1*	2*
b) Printer	2*	-	1	-	1*	-	10*	-	2*	2*

c) Scanner	-	-	-	-	-	-	-	-	-	-
d) FAX	1*	-	-	-	1*	-	10*	-	1*	1*
e) Photocopier	1*	-	-	-	1	-	10*	-	1*	1*
10. No. of computer literate staff members	8	-	5	-	4	7	22		2	-
11. Whether they are formally trained	Yes	-	Yes	-	Yes	Yes	Yes	-	Yes	-
12. Media for sending letters/documents to HQ or anywhere										
a) Ordinary post	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes
b) FAX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes
c) E-mail	-	-	-	-	-	-	-	-	-	-
13. Vocational Training for women										
a) No. of Trainings	3	4	6		6	7	3		5	-
b) No. of participants	60	80	120	340	120	260	80, 70 & 60		100	160
c) Duration of training	5 days	6 days	5 days	5 days	7 days	7 days	7, 3 & 3 days		5 days	4 days
d) Individual participants	Yes	-	-	-	-	Yes	Yes		-	-
e) SHG participants	Yes	Yes	Yes	Yes	Yes	-	Yes		Yes	Yes
f) Whether up gradation of existing skill	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
g) Type of entrepreneurial activity	Fruit & Vegetable processing, Pickle making	Mushroom cultivation, PHT & fruit-vegetable processing, Knitting & weaving	PHT & Fruit – vegetable processing	Fruit & Vegetable processing, Dairy farming, Handicraft makings	Off- season vegetable cultivation, PHT & Fruit preservation, Dairy farming	Vermi-composting, Nursery raising of vegetable crops, Fruit & Veg. Processing, Beekeeping, Mushroom cultivation	Mushroom cultivation, Fruit & Veg. Post harvest technology, preparation of bags & stuffed toys		Pickle making, Hosiery, Food processing, Off-season vegetable Production	Diversification, Vegetable & cash crop cultivation, Vermi-composting, Raising of vegetable nursery, Off-season vegetable cultivation

**These are not procured under the MMA Scheme 2004-05*

7.3 Summing Up

The scheme of transfer of technology and information technology was implemented with the objective of improving the technical capabilities of the officers of the Department by imparting training to them, to organize exhibitions, Kisan Melas, crop seminars etc. To highlight different activities of the Department advertisements and documentary films to be developed and telecasted through different media. Computerisation is to be done under the scheme in order to increase the efficiency of the offices at district and block level. On evaluating different the scheme on different parameters, it was found that financial achievement of the scheme was 393.23 percent during 2004-05. The evaluation of the scheme revealed that facility of available technology like Internet and e- mail was also not utilized by the department at all because none of the district or block office have internet facility. Hence, it is recommended that use of available technology must be popularized among the farmers as well as other staff of the department to increase efficiency. Further, more emphasis should be given on the publicity of various programmes and schemes of the Department so that farmers can reap the benefits of various programmes to the maximum extent.

Chapter VIII

Scheme for Development of Pulses

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of Scheme for development of pulses. The chapter also analyses the impact of the scheme on the production and income of beneficiaries of the scheme and examines the problems faced by the beneficiaries of the scheme.

8.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 8.1.

8.2 Socio- economic profile of sampled farmers

Developed block The socio- economic profiles of sampled beneficiary and non- beneficiary farmers are presented in Table 8.2.1. The table reveals that of all beneficiary farmers of the scheme, 53.33 percent belonged to general category, followed by 40.00 percent SC and 6.67 percent OBC category farmers. Among non-beneficiary farmers, 50.00 percent belonged to general, 40.00 percent SC and 10.00 percent OBC category farmers. The average family size among beneficiary farmers of the scheme was 4.77 persons and 5.20 persons among non- beneficiary farmers. Dependency ratio was 0.36 and 0.44 among beneficiary and non-beneficiary farmers respectively. The literacy rate among beneficiary farmers was 81.82 percent as compared to 75.00 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 86.66 percent farmers, followed by service 6.67 and other activities 6.67 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 90.00 percent farmers, followed by other occupations accounted for 10.00 percent farmers.

Developing block The table reveals that of all beneficiary farmers of the scheme, 40.00 percent each belonged to general and SC category and 20.00

percent belonged to OBC category. Among non-beneficiary farmers, 50.00 percent farmers belonged to general, 30.00 percent to SC and 20.00 percent to OBC category. The average family size among beneficiary farmers of the scheme was 5.20 persons and 5.80 persons among non- beneficiary farmers. Dependency ratio was 0.31 and 0.49 among beneficiary and non- beneficiary farmers respectively. The literacy rate among beneficiary farmers was 82.05 percent as compared to 70.69 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 86.67 percent farmers, followed by service 10.00 and other occupation 3.33 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 100.00 percent farmers

8.3 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing block was presented in Table 8.3. The table reveals that there was no significant change in the land use pattern of sampled farmers in both developed and developing blocks. But in case of developed block there was a marginal reduction in current fallow land of beneficiary farmers.

8.4 Cropping pattern of sampled farmers

8.4.1 Developed block

Cropping pattern of sampled farmers in developed block is presented in Table 8.4.1. The table reveals that beneficiary farmers of the developed block were mainly growing crops like wheat, maize, barley and pulses like black gram, lentil etc. The other crops grown by farmers include peas, mustard, vegetables etc. The table reveals that the cropping intensity among different category of farmers has also increased after the intervention. Overall cropping intensity is increased from 158.82 to 169.76 percent after the intervention. Among non- beneficiary farmers the overall cropping intensity has increased marginally from 165.88 to 167.44 percent. On analyzing the table it was found that the area under pulses has increased after the implementation of the scheme.

8.4.2 Developing block

Cropping pattern of sampled farmers in developing block is presented in Table 8.4.2. The table reveals that maize, wheat, barley, potato and pulses like rajmash and peas are the major crops grown by the farmers in the area. On analyzing the table it was also found that cropping intensity among different category of farmers has also increased after the intervention. Overall cropping intensity was increased from 137.18 to 142.31 percent after the intervention. Among non- beneficiary farmers overall cropping intensity remains same at 145.00 percent during the same period.

Table 8.1: Targets and Achievements of Scheme for Development of Pulses (2004-05)

S. No.	Component	Unit	HIMACHAL PRADESH			
			Target		Achievement	
			Phy.	Fin.	Phy.	Fin.
1	Production of Certified Seed. Assistance @ Rs 500 per Qtl.	Qtls.	500	2.50	668	334049 (133.6)
2	Distribution of certified seed @ 25% cost of certified seed or Rs 800 per Qtl, whichever is less	Qtls.	3000	24.00	1265	992322 (41.3)
3	Block Demonstration @ Rs 3500/ Ha	Ha.	150	5.25	206	609341 (116.1)
4	IPM Demonstration @ Rs 22680/ Demo.	No.	20	4.54	17	246169 (54.2)
5	Farmers Training @ Rs 15000 per training for a batch of 50 Farmers	No.	20	3.00	30	390207 (130.1)
6	Contingencies			1.96		127894 (65.2)
	Total			41.25		2699982 (65.4)

**Figures in parenthesis are percentages*

Table 8.2: Socio- economic profile of Sampled Farmers (2004-05)

Particulars	Developed block		Developing block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	40.00	40.00	40.00	30.00
ST	-	-	-	-
OBC	6.67	10.00	20.00	20.00
General	53.33	50.00	40.00	50.00
Avg. family size (No.)	4.77	5.20	5.20	5.80
Literacy (%)	81.82	75.00	82.05	70.69
Dependency ratio	0.36	0.44	0.31	0.49
Occupation (%)				
Agriculture	86.66	90.00	86.67	100.00
Service	6.67	-	10.00	-
Other	6.67	10.00	3.33	-

Table 8.3: Land use pattern of Sampled Farmers in Developed and Developing Block (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block																
Marginal	0.70	0.72	0.04	0.02	0.02	0.02	0.76	0.76	0.68	0.68	0.05	0.05	0.03	0.03	0.76	0.76
Small	1.01	1.01	0.04	0.04	0.16	0.16	1.21	1.21	0.96	0.96	0.07	0.07	0.15	0.15	1.18	1.18
Semi Med.	1.65	1.68	0.07	0.04	0.60	0.60	2.32	2.32	1.58	1.59	0.10	0.09	0.40	0.40	2.08	2.08
Medium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall	**0.85**	**0.86**	**0.04**	**0.03**	**0.10**	**0.10**	**0.99**	**0.99**	**0.85**	**0.86**	**0.06**	**0.06**	**0.07**	**0.07**	**0.98**	**0.98**
Developing Block																
Marginal	0.68	0.69	0.06	0.05	0.12	0.12	0.86	0.86	0.73	0.73	0.02	0.02	0.15	0.15	0.90	0.90
Small	0.95	0.95	0.09	0.09	0.20	0.20	1.24	1.24	1.00	1.00	0.08	0.08	0.20	0.20	1.28	1.28
Semi Med.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall	**0.78**	**0.78**	**0.07**	**0.07**	**0.15**	**0.15**	**1.00**	**1.00**	**0.80**	**0.80**	**0.04**	**0.04**	**0.16**	**0.16**	**1.01**	**1.01**

Table 8.4.1: Cropping pattern of Sampled Farmers in Developed Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.08	0.15	0.27	-	0.11	0.20	0.25	0.40		0.23
	After	0.08	0.15	0.25	-	0.11	0.20	0.25	0.40		0.23
Wheat	Before	0.20	0.25	0.40	-	0.23	0.23	0.30	0.45		0.27
	After	0.20	0.25	0.40	-	0.23	0.24	0.30	0.48		0.28
Barley	Before	0.05	0.08	0.10	-	0.06	0.10	0.10	0.20		0.11
	After	0.05	0.08	0.10	-	0.06	0.10	0.10	0.20		0.11
Mash	Before	0.40	0.65	0.80	-	0.49	0.25	0.58	0.65		0.39
	After	0.45	0.67	0.91	-	0.54	0.27	0.59	0.66		0.40
Peas	Before	0.20	0.25	0.50	-	0.23	0.15	0.20	0.45		0.19
	After	0.23	0.27	0.52	-	0.26	0.15	0.20	0.45		0.19
Lentil	Before	0.10	0.15	0.25	-	0.12	0.08	0.10	0.20		0.10
	After	0.10	0.15	0.25	-	0.12	0.08	0.10	0.20		0.10
Other crops	Before	0.15	0.10	0.20	-	0.11	0.12	0.10	0.20		0.12
	After	0.17	0.10	0.22	-	0.14	0.13	0.10	0.23		0.13
GCA	Before	1.18	1.63	2.52	-	1.35	1.13	1.63	2.55		1.41
	After	1.28	1.67	2.65	-	1.46	1.17	1.64	2.62		1.44
NSA	Before	0.70	1.01	1.65	-	0.85	0.68	0.96	1.58	-	0.85
	After	0.72	1.01	1.68	-	0.86	0.68	0.96	1.59	-	0.86
CI (%)	Before	168.57	161.39	152.73	-	158.82	166.17	169.79	161.39		165.88
	After	177.78	165.35	157.74	-	169.76	172.06	170.83	164.78		167.44

Table 8.4.2: Cropping pattern of Sampled Farmers in Developing Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.10	0.15	-	-	0.12	0.10	0.15	-	-	0.11
	After	0.10	0.15	-	-	0.12	0.10	0.15	-	-	0.11
Wheat	Before	0.15	0.26	-	-	0.19	0.20	0.30	-	-	0.23
	After	0.15	0.27	-	-	0.19	0.22	0.30	-	-	0.24
Barley	Before	0.05	0.08	-	-	0.06	0.05	0.10	-	-	0.06
	After	0.05	0.08	-	-	0.06	0.05	0.10	-	-	0.06
Rajmash	Before	0.25	0.30	-	-	0.27	0.30	0.33	-	-	0.31
	After	0.27	0.31	-	-	0.28	0.30	0.34	-	-	0.31
Peas	Before	0.20	0.25	-	-	0.22	0.20	0.25	-	-	0.21
	After	0.22	0.25	-	-	0.23	0.20	0.25	-	-	0.21
Potato	Before	0.10	0.15	-	-	0.12	0.10	0.20	-	-	0.13
	After	0.12	0.15	-	-	0.13	0.10	0.20	-	-	0.13
Other vegetables	Before	0.08	0.10		-	0.09	0.10	0.15	-	-	0.11
	After	0.10	0.10		-	0.10	0.10	0.17	-	-	0.11
GCA	Before	0.93	1.29	-	-	1.07	1.05	1.48	-	-	1.16
	After	1.01	1.31	-	-	1.11	1.07	1.51	-	-	1.16
NSA	Before	0.68	0.95	-	-	0.78	0.73	1.00	-	-	0.81
	After	0.69	0.95	-	-	0.78	0.73	1.00	-	-	0.81
CI (%)	Before	136.76	135.79	-	-	137.18	143.84	148.00	-	-	145.00
	After	146.38	137.89	-	-	142.31	146.57	151.00	-	-	145.00

8.5 Change in income of sampled farmers

Income of sampled farmers is presented in Table 8.5. The table reveals that in developed block in case of beneficiary farms the net return from crop production was increased by 9.94 percent as compared to 0.18 percent in case of non-beneficiaries. In developing block net return in case of beneficiaries was 3.08 percent as compared to – 0.15 among non- beneficiaries. The change in net return of beneficiary farmers was mainly due to decline in cost of cultivation as farmers adopted recommended package of practices of pulses cultivation.

Table 8.5: Income from Pulses cultivation on sampled farms (2004-05)

(Rs/ha)

Particulars			Developed Block	Developing Block
Gross cost	B	Before	25423	12212
		After	23365	12130
	NB	Before	25680	12185
		After	25750	12335
Gross return	B	Before	68960	28142
		After	71230	28550
	NB	Before	70050	28574
		After	70200	28700
Net return	B	Before	43537	15930
		After	47865	16420
	NB	Before	44370	16389
		After	44450	16365
% Change	Beneficiaries		9.94	3.08
	Non- Beneficiaries		0.18	- 0.15

B: Beneficiary & NB: Non- beneficiary

8.6 Response of farmers regarding various components of the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 8.6. The table reveals that 55.25 and 18.75 percent farmers got assistance on production of certified seed in developed and developing block respectively. 78.00 and 27.50 percent farmers took assistance for the purchase of certified seed in developed and developing block respectively. In the developed block 85.00 percent farmers visited field to see block demonstration against 47.50 percent farmers in developing block. After visiting the demonstration farm 66.67 and 30.00 percent farmers in the developed and developing block respectively replicate the same on their fields. Demonstration on IPM was attended by 65.00 and 8.50 percent farmers in developed and developing block respectively. It was also found that 55.00 and 60.00 percent farmers in developed and developing block cultivate traditional crops. Farmers attended training programme on development of pulses are 75.00 and 60.00 percent farmers in developed and developing block respectively. All sampled farmers found the training programme on development of pulses useful in both developed and developing block.

Table 8.6: Response of selected beneficiary farmers regarding different components of the scheme (2004-05)

(Percent)

Particulars	Developed Block	Developing Block
Farmers got assistance on production of certified seed	55.25	18.75
Farmers got assistance for purchase of certified seed	78.00	27.50
Farmers visit field to see Block demonstration	85.00	47.50
Farmers found above demonstration useful	100.00	100.00
Farmers replicate the practice on their fields	66.67	30.00
Farmers attended demonstration on IPM	65.00	8.50
Farmers cultivating traditional crops	55.00	60.00
Farmers attended training programme on development of pulses	75.00	60.00
Farmers found above training useful	100.00	100.00

8.7 Summing Up

The scheme for development of pulses was launched in 10 districts of Himachal Pradesh except Kinnaur and Lahaul- Spiti since 2000-01. The major objective of the scheme is to promote the cultivation of pulses in the State. The analysis of physical and financial achievements of the scheme reveals that out of 10 districts where the scheme was implemented district Mandi, Chamba, Kullu, Shimla, Bilaspur and Sirmour were performing higher than the State average. Maximum achievement was observed in case of production of certified seed, followed by farmer's training and block demonstration. After analyzing the results it was found that in the developed block area under the cultivation of pulses was increased and in case of developing block also area under pulses registered marginal increase. After the implementation of the scheme there is a significant increase in the net returns of the beneficiaries as compared to their counterparts.

Chapter IX

Implementation of National Watershed Development Project for Rainfed Areas (NWDPRA)

The present chapter attempts to evaluate the Physical and Financial achievements of Implementation of National watershed development programme for rainfed areas (NWDPRA). The chapter also analyses the impact of the scheme and examines the problems faced by the beneficiaries of the scheme.

9.1 Introduction

National Watershed Development Programme for Rainfed Areas (NWDPRA) was implemented during 1990-91 by the Department of Agriculture, Himachal Pradesh. The major objectives of NWDPRA are:

a) Conservation, development and sustainable management of natural resources including their use.

b) Enhancement of agriculture productivity and production in a sustainable manner.

c) Restoration of ecological balance in the degraded and fragile rainfed eco-system by greening these areas through appropriate mix of trees, shrubs and grasses.

d) Reduction in regional disparity between irrigated and rainfed areas.

e) Creation of sustained employment opportunities for the rural community including the landless.

9.2 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 9.1.

Table 9.1: Targets and Achievements of Implementation of NWDPRA (2004-05)

S. No	Name of the component	Unit	Target		Achievement	
			Physical	Financial	Physical	Financial
1	**Management component**					
a)	Administrative cost			26.00		2460000 (94.6)
b)	Community organization			30.00		1790000 (59.7)
c)	Training programme	Man days	26042	14.00	23480	1261700 (90.1)
2	**Development component**					
a)	Natural resource management	Ha	2417	145.00	2395	14403000 (99.3)
b)	Farm production system for land owning families	Ha	1086	65.00	953	5671000 (87.2)
c)	Livelihood support system for landless families	Nos.	1008	20.00	935	1854000 (92.7)
	Total			300.00		27439700 (91.5)

**Figures in parenthesis are percentages*

For the purpose of concurrent evaluation, two watersheds, one developed and another developing was purposively selected. Barog Dhillon watershed in district Solan was taken as developed and Bhalai watershed in district Chamba was considered as developing watershed. The achievements of these watersheds during 2004-05 are presented in Table 9.2.

Table 9.2: Achievements of selected watersheds under NWDPRA during 2004-05 in Himachal Pradesh

Component	Solan		Chamba	
	Badog Dhillon		Bhalai	
	Physical	Financial	Physical	Financial
MANAGEMENT COMPONENT				
1. Administrative cost				
a) State/ Distt HQ				3131
b) Watershed committee				
Salary	3	25200		10000
Other Expenses		5600		780
c) PIA				
Salary				
Other Expenses				
Total (1)	**3**	**30800**	**0**	**13911**
2. Community organization				
a) Entry point activity of WC				
b) Honorarium to CO	3	12600		
c) Expenses at district HQ				
d) Corpus at WDT		15000		
Total (2)	**3**	**27600**	**0**	**0**
3. Training Programme				
a) State/ district level				
b) PIA	1	9000		
Total (3)	**7**	**67400**	**0**	**0**
Total (1+2+3)			**0**	**13911**
DEVELOPMENT COMPONENT				
1. Natural resource management				
a) Arable land				
i) Soil & Moisture cons. Activity	11	38000		
ii) Agronomic cons. Practices		28000	0.06	375
iii) Others				
b) Non- arable				
i) Run off management structure	11	45000	7.5	45037
ii) Water harvesting structure	17	235000	3.33	19998
iii) Dry land horticulture	1000	5000	0.21	1290
iv) Cons. & dev. of Biomass	500	5000	0.20	1200
v) Others				
c) Drainage lines				
i) Upper reaches	64	75000	5.48	32880
ii) Middle reaches	78	105000		
iii) Lower reaches	26	40000		
Total	**1707**	**576000**	**16.78**	**100780**
2. Farm Production System				

a) Establishment of nurseries & production of seedlings				
b) Test & demonstration of new technologies	33	25000	2.55	15304
c) Diversification of prod. System	248	80000		
d) Adoption of proven tech.	1	25000		
e) Livestock management	300	50000		
f) Others				
Total	**582**	**180000**	**2.55**	**15304**
3. Livelihood support system				
a) Household production system	20	35000		
b) Bio- mass based rural industry activity				
c) Dairy, sericulture, goat breeding, bee keeping etc.	15	25000		
d) Livestock management	100	15000		
e) Others				
Total	**135**	**75000**	**0**	**0**
Grand Total	**2431**	**898400**	**19.33**	**129995**

9.3 Socio- economic profile of sampled farmers

Developed watershed The socio- economic profiles of sampled beneficiaries and non- beneficiaries are presented in Table 9.3. The table reveals that of all sampled beneficiary households of the scheme, 46.67 percent belonged to general category, followed by 30.00 percent SC and 23.33 percent OBC category. Among non-beneficiaries, 70.00 percent belonged to general, 20.00 percent SC and 10.00 percent OBC category. The average family size among beneficiary households of the scheme was 5.40 persons and 5.60 persons among non- beneficiaries. Dependency ratio was 0.26 and 0.40 among beneficiaries and non- beneficiaries respectively. The literacy rate among beneficiaries was 83.95 percent as compared to 80.36 percent among non- beneficiaries. Among beneficiaries agriculture was the main occupation of 90.00 percent, followed other occupation 10.00 percent. Beneficiaries of the scheme in the other occupation category are landless. Similarly among non- beneficiaries agriculture was the main occupation of 60.00 percent, followed by service 40.00 percent.

Developing watershed The table reveals that of all beneficiaries of the scheme, 43.33 percent belonged to general, followed by 30.00 percent OBC and

26.67 percent SC category. Among non-beneficiaries, 50.00 percent belonged to general, 40.00 percent to OBC and 10.00 percent to OBC category. The average family size among beneficiaries of the scheme was 5.37 persons and 5.90 persons among non- beneficiaries. Dependency ratio was 0.28 and 0.40 among beneficiaries and non- beneficiaries respectively. The literacy rate among beneficiaries was 81.99 percent as compared to 76.27 percent among non-beneficiaries. Among beneficiaries agriculture was the main occupation of 100.00 percent sampled households. Similarly among non- beneficiaries agriculture was the main occupation of 90.00 percent and other occupations 10.0 percent of sampled households.

9.4 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing watershed was presented in Table 9.4. The table reveals that there was a significant change in the land use pattern of sampled farmers in developed watershed. The current fallow land was declined and area under field crops was increased. Whereas, in case of developing watershed there is a marginal change in the land use pattern of sampled farmers.

9.5 Cropping pattern of sampled farmers

9.5.1 Developed watershed

Cropping pattern of sampled farmers in developed watershed is presented in Table 9.5.1. The table reveals that the cropping pattern of beneficiary farmers of the developed watershed was shifted from the traditional crops like maize, wheat etc. to cash crops such as tomato, capsicum, peas, french bean, reddish, turnip etc. Fruit trees like plum, peach, pomegranate etc were also planted by the farmers but they are in non- bearing stage. The table also reveals that the cropping intensity among different category of farmers has also increased after the scheme. Overall cropping intensity has increased from 150.00 to 169.91 percent after the scheme. The change in the cropping pattern and cropping intensity was mainly due to assured irrigation at middle and lower reaches of the watershed. Among non- beneficiary

farmers the overall cropping intensity has increased marginally from 158.93 to 161.06 percent during the same period.

9.5.2 Developing watershed

Cropping pattern of sampled farmers in developing watershed is presented in Table 9.5.2. The table reveals that maize, wheat, black gram, horse gram, mustard, onion and vegetables like pea, reddish etc. are the major crops grown by the farmers in the area. On analyzing the table it was also found that cropping intensity among different category of farmers has marginally increased after the implementation of the scheme. Overall cropping intensity has increased from 161.73 to 162.65 percent after the intervention. Among non- beneficiary farmers overall cropping intensity remains same at 166.00 percent during the same period.

Table 9.3: Socio- economic profile of Sampled Farmers (2004-05)

Particulars	Developed watershed		Developing watershed	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	30.00	20.00	26.67	10.00
ST	-	-	-	-
OBC	23.33	10.00	30.00	40.00
General	46.67	70.00	43.33	50.00
Avg. family size (No.)	5.40	5.60	5.37	5.90
Literacy (%)	83.95	80.36	81.99	76.27
Dependency ratio	0.26	0.40	0.28	0.40
Occupation (%)				
Agriculture	90.00	60.00	100.00	90.00
Service	-	40.00	-	-
Other	10.00	-	-	10.00

Table 9.4: Land use pattern of Sampled Farmers in Developed and Developing Watershed (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Watershed																
Marginal	0.74	0.79	0.07	0.02	0.10	0.10	0.91	0.91	0.74	0.76	0.05	0.03	0.11	0.11	0.90	0.90
Small	1.25	1.31	0.10	0.04	0.25	0.25	1.60	1.60	1.21	1.22	0.06	0.05	0.28	0.28	1.55	1.55
Semi Med.	1.73	1.76	0.07	0.04	0.50	0.50	2.30	2.30	1.69	1.69	0.05	0.05	0.55	0.55	2.29	2.29
Overall	**1.08**	**1.13**	**0.08**	**0.03**	**0.22**	**0.22**	**1.38**	**1.38**	**1.12**	**1.13**	**0.05**	**0.04**	**0.27**	**0.27**	**1.44**	**1.44**
Developing Watershed																
Marginal	0.63	0.65	0.12	0.10	0.15	0.15	0.90	0.90	0.65	0.67	0.10	0.08	0.11	0.11	0.86	0.86
Small	1.02	1.05	0.10	0.07	0.20	0.20	1.32	1.32	1.05	1.05	0.08	0.08	0.25	0.25	1.38	1.38
Semi Med.	1.66	1.66	0.13	0.13	0.40	0.40	2.19	2.19	1.60	1.61	0.10	0.09	0.37	0.37	2.07	2.07
Overall	**0.81**	**0.83**	**0.12**	**0.10**	**0.18**	**0.18**	**1.11**	**1.11**	**0.96**	**0.97**	**0.09**	**0.08**	**0.20**	**0.20**	**1.25**	**1.25**

Table 9.5.1: Cropping pattern of Sampled Farmers in Developed Watershed (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.30	0.55	0.90	-	0.48	0.35	0.58	0.85	-	0.54
	After	0.10	0.15	0.20	-	0.13	0.35	0.55	0.85	-	0.53
Wheat	Before	0.50	0.85	1.15	-	0.73	0.48	0.90	1.20	-	0.79
	After	0.15	0.25	0.25	-	0.20	0.45	0.90	1.20	-	0.78
Tomato	Before	0.08	0.10	0.15	-	0.10	0.10	0.15	0.20	-	0.14
	After	0.25	0.45	0.75	-	0.40	0.15	0.20	0.25	-	0.19
Capsicum	Before	0.05	0.10	0.10	-	0.08	0.05	0.08	0.12	-	0.08
	After	0.20	0.40	0.50	-	0.32	0.07	0.10	0.12	-	0.09
Pea	Before	0.08	0.10	0.10	-	0.09	0.05	0.05	0.08	-	0.06
	After	0.25	0.30	0.62	-	0.32	0.07	0.05	0.08	-	0.06
French Bean	Before	0.02	0.05	0.10	-	0.04	0.05	0.05	0.10	-	0.06
	After	0.20	0.30	0.50	-	0.28	0.05	0.05	0.10	-	0.06
Other vegetables	Before	0.05	0.10	0.10	-	0.08	0.07	0.10	0.05	-	0.08
	After	0.15	0.20	0.25	-	0.18	0.07	0.10	0.05	-	0.08
Fruit trees	Before	0.02	0.04	-	-	0.02	0.03	0.05	-	-	0.03
	After	0.10	0.10	0.05	-	0.09	0.03	0.05	-	-	0.03
GCA	Before	1.10	1.89	2.60	-	1.62	1.18	1.96	2.60		1.78
	After	1.40	2.15	3.12	-	1.92	1.24	2.00	2.65		1.82
NSA	Before	0.74	1.25	1.73	-	1.08	0.74	1.21	1.69	-	1.12
	After	0.79	1.31	1.76	-	1.13	0.76	1.22	1.69	-	1.13
CI (%)	Before	148.65	151.20	150.29	-	150.00	159.46	161.98	153.84	-	158.93
	After	177.21	164.12	177.27	-	169.91	163.16	163.93	156.80	-	161.06

Table 9.5.2: Cropping pattern of Sampled Farmers in Developing Watershed (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.30	0.40	0.75	-	0.37	0.25	0.50	0.70	-	0.42
	After	0.20	0.30	0.60	-	0.26	0.25	0.50	0.70	-	0.42
Wheat	Before	0.30	0.77	1.00	-	0.46	0.40	0.65	1.25	-	0.65
	After	0.30	0.63	0.90	-	0.43	0.40	0.65	1.25	-	0.65
Black Gram (*Mash*)	Before	0.10	0.12	0.20	-	0.11	0.10	0.20	0.25	-	0.16
	After	0.12	0.20	0.25	-	0.15	0.10	0.20	0.25	-	0.16
Horse Gram (*Kulth*)	Before	0.10	0.10	0.20	-	0.11	0.10	0.20	0.20	-	0.15
	After	0.10	0.12	0.25	-	0.12	0.10	0.20	0.20	-	0.15
Mustard	Before	0.10	0.15	0.12	-	0.11	0.10	0.10	0.10	-	0.10
	After	0.15	0.20	0.15	-	0.16	0.10	0.10	0.10	-	0.10
Onion	Before	0.05	0.05	0.10	-	0.06	0.05	0.05	0.08	-	0.06
	After	0.10	0.12	0.20	-	0.11	0.08	0.05	0.08	-	0.07
Vegetables	Before	0.08	0.10	0.10	-	0.09	0.05	0.05	0.05	-	0.05
	After	0.10	0.15	0.20	-	0.12	0.07	0.05	0.08	-	0.06
GCA	Before	1.03	1.69	2.47	-	1.31	1.05	1.75	2.63	-	1.59
	After	1.07	1.72	2.55	-	1.35	1.10	1.75	2.66	-	1.61
NSA	Before	0.63	1.02	1.66	-	0.81	0.65	1.05	1.60	-	0.96
	After	0.65	1.05	1.66	-	0.83	0.67	1.05	1.61	-	0.97
CI (%)	Before	163.49	165.69	148.69	-	161.73	161.54	166.67	164.37	-	165.62
	After	164.61	163.81	153.61	-	162.65	164.18	166.67	165.22	-	165.98

9.6 Livestock resources of households in Watersheds

Development of livestock enterprise is one of the important activities under watershed development programme. It has got special importance in the context of generating supplementary income in the watershed development area. The average size and composition of livestock reared by sampled households in watersheds are presented in Table 9.6. The table reveals that in developed watershed crossbred cow, buffalo, bullock and goat are reared by the sampled households. Among beneficiary households in the developed watershed the average value of livestock maintained by a household is Rs 58180. Out of this buffaloes constitute 55.83 percent, followed by crossbred cow 31.63, bullock 7.73 and goat 4.81 percent. Whereas among non- beneficiary households, the average value of livestock is Rs 33875 per household. Here buffaloes constitute about 71.73 percent of the total value, followed by crossbred cow 18.30, bullock 5.02 and goat 4.94 percent.

In developing watershed, the average value of livestock maintained by the beneficiary household is Rs 27410 as compared to Rs 20750 per household among non- beneficiaries. Among beneficiary households crossbred cow constitutes 55.02 percent, followed by sheep & goat 16.78, local cow 15.25 and bullock 12.95 percent of the total value of all variables. Whereas, in case of non- beneficiaries, crossbred cow constitutes 43.37 percent, followed by local cow 26.26, sheep & goat 23.13 and bullock 7.23 percent of the total value of livestock.

Table 9.6: Average- size and Composition of Bovine maintained by sampled households in Watersheds (2004-05)

(No/ Household)

Livestock	Developed watershed		Developing watershed	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Local cow	-	-	1.50	2.25
In Milk	-	-	1.00	1.50
Dry	-	-	0.75	1.00
Value (Rs)	-	-	4180.00 (15.25)	5450.00 (26.26)
Crossbred cow	1.50	0.50	1.00	0.75
In Milk	1.75	0.75	1.00	0.60
Dry	1.00	0.50	0.25	0.50
Value (Rs)	18400.00 (31.63)	6200.00 (18.30)	15080.0 (55.02)	9000.00 (43.37)
Buffalo	2.50	1.50	-	-
In Milk	2.75	1.00	-	-
Dry	0.50	0.50	-	-
Value (Rs)	32480.00 (55.83)	24300.00 (71.73)	-	-
Bullock	1.50	1.00	2.00	1.00
Value (Rs)	4500.00 (7.73)	1700.00 (5.02)	3550.00 (12.95)	1500.00 (7.23)
Goat & Sheep	1.75	1.00	2.50	3.25
Value (Rs)	2800.00 (4.81)	1675.00 (4.94)	4600.00 (16.78)	4800.00 (23.13)
Total Value (Rs)	**58180.00 (100.00)**	**33875.00 (100.00)**	**27410.00 (100.00)**	**20750.00 (100.00)**

Figures in parenthesis are percentages of the total

9.7 Impact of NWDPRA on income of beneficiaries

The impact of watershed development programme on the income of beneficiaries is presented in Table 9.7. The table reveals that in the developed watershed, percent change in the income of beneficiaries after the implementation of the watershed development programme was 47.12 percent as compared to 9.86 percent in case of non- beneficiaries of the scheme during the same period. In the developing watershed, the change in income after the scheme was 13.06 percent

among the beneficiaries as compared to 4.10 percent among the non- beneficiaries. The total farm income only includes income from agriculture, horticulture, dairy farming and other activities under the scheme. It excludes income from service and business.

Table 9.7: Impact of NWDPRA on Income of beneficiaries (2004-05)

Particulars			Income (Rs/HH/Annum)
Developed Watershed	Beneficiaries	Before	65980
		After	97072
	Non- Beneficiaries	Before	63300
		After	69540
Developing Watershed	Beneficiaries	Before	42550
		After	48109
	Non- Beneficiaries	Before	41090
		After	42775
% Change (Developed Watershed)	Beneficiaries		**47.12**
	Non- Beneficiaries		**9.86**
% Change (Developing Watershed)	Beneficiaries		**13.06**
	Non- Beneficiaries		**4.10**

The income excludes income from service & business

9.8 Impact of watershed development activities

Impact of watershed development activities on biomass generation, ground water repletion, arresting soil degradation, water run-off, afforestation, agriculture, horticultures, dairy farming, employment generation and providing livelihood to landless families was assessed with the help of field investigation, group discussions, observation etc. The results are presented in Table 9.8. The impact of watershed development programme on these variables was assessed on high, moderate and low scale. The results revealed that in the developed watershed, all variables are moderate in their performance, except livelihood to landless families

which is high in its performance. According to 57.14 percent of the respondents, the performance of agriculture was relatively better. Water-run off especially on higher reaches of the watershed and afforestation requires attention.

In the developing watershed, most of these variables are performing on low scale as more than 50.00 percent of the respondents reported the same, except in case of biomass generation, agriculture, dairy farming and employment generation. None of the respondents had reported that livelihood is provided to the landless families.

Table 9.8: Impact of watershed development activities

(Percent)

Parameters	Developed watershed			Developing watershed		
	High	Moderate	Low	High	Moderate	Low
Biomass generation	13.33	86.67	-	-	73.33	26.67
Ground water repletion	6.67	83.33	10.00	-	50.00	50.00
Arresting soil degradation	6.67	93.33	-	-	43.33	56.67
Water run- off	33.33	56.67	10.00	6.67	40.00	53.33
Afforestation	-	86.67	13.33	-	40.00	60.00
Agriculture	57.14	42.86	-	10.00	60.00	30.00
Horticulture	-	100.00	-	-	-	100.00
Dairy farming	14.29	85.71	-	20.00	80.00	-
Employment Generation	16.67	83.33	-	-	60.00	40.00
Providing livelihood to Landless Families	100.00	-	-	-	-	-

9.9 Beneficiaries perception regarding the impact of watershed development activities

The perception of beneficiaries was recorded on the basis that whether the watershed activity is relevant for the area, if it is relevant, whether it is adequate and if it is adequate, whether it is sustainable. The same is recorded for different activities to be performed under the watershed development programme.

9.9.1 Developed watershed

Beneficiaries perception regarding the impact of watershed development activities in the developed watershed is presented in Table 9.9.1. Under the natural resource management component, sustainability of gully control system under soil and moisture conservation activities was not found sustainable, because, according to respondents, its sustainability depends upon management efforts of all beneficiaries. Similarly, the sustainability of live fencing on non- arable land depends upon the climatic conditions in the future, because, it is not permanent. Under the dry land horticulture component, only fodder crops and grasses are planted on wastelands. In the second component, farm production system for land owning families, establishment of nurseries on farmer's fields was not sustainable due to marketing problem. Under the same component, in case of testing and demonstration of new technologies, sustainability of organic farming depends upon the production. Seed village programme was also in its initial stages, hence nothing can be said on it at this stage. Under the component, livelihood support system for landless families, except providing tool kits to landless no other enterprise was initiated. Though poultry farming was initiated through two SHG's but people quit of this due to more beneficial employment avenues in other enterprises.

Table 9.9.1: Beneficiaries perception regarding the Impact of watershed development activities in the developed watershed

(Percent)

S. No.	Particulars	Whether watershed activity is		
		Relevant	Adequate	Sustainable
I	**NATURAL RESOURCE MANAGEMENT**			
Arable Land				
I	**Soil & Moisture Conservation Activities**			
A	Contour vegetative hedges	100.00	100.00	100.00
B	Gully control system	100.00	100.00	67.67
C	Diversion drains	-	-	-
D	Contour Bunds with waste weirs	-	-	-
E	Compromised contour bunds	100.00	100.00	100.00
F	Check dams	100.00	100.00	100.00
2	**Agronomic Conservation practices**			
A	Vegetative barriers	100.00	100.00	100.00
B	Alley cropping	-	-	-
C	Ley cropping	-	-	-

D	Strip cropping	100.00	100.00	100.00
Non Arable Land				
3	**Run Off Management Structure**			
A	Vegetative Filter Strips	100.00	100.00	100.00
B	Check dams with loose boulders	100.00	100.00	100.00
C	Live Fencing	100.00	100.00	20.00
D	Vegetative contour hedges	100.00	100.00	100.00
E	Over seedling of grasses	100.00	100.00	100.00
F	Legumes planting of shrubs	100.00	100.00	100.00
G	Planting of trees on drainage lines	100.00	100.00	100.00
4	**Water Harvesting Structure**			
A	Construction of water harvesting structures	100.00	100.00	100.00
B	Repair & Maintenance of existing indigenous water harvesting structures	100.00	100.00	100.00
C	Percolation structures	100.00	100.00	100.00
D	Specific water harvesting structures for livestock	100.00	100.00	100.00
5	**Dry land Horticulture**			
A	Planting of horticultural crops on dry lands	100.00	100.00	100.00
B	Planting of horticultural crops on grass lands	100.00	100.00	100.00
C	Planting of horticultural crops on wastelands	-	-	-
6	**Conservation & Development of Biomass**			
A	Planting of trees with more biomass	100.00	100.00	100.00
DRAINAGE LINES				
7	**Upper Reaches**			
A	Check dams	100.00	100.00	100.00
B	Loose boulders check dams	100.00	100.00	100.00
C	Live check dams	100.00	100.00	100.00
D	Bush wood dams	100.00	100.00	100.00
E	Small dug well ponds	100.00	100.00	100.00
F	Shunken Ponds	100.00	100.00	100.00
8	**Middle Reaches**			
A	Earthen structure with vegetative support piching with local material	100.00	100.00	100.00
B	Loose boulder structure with vegetative support	100.00	100.00	100.00
C	Run off management dug out ponds with vegetative inlet and outlet	100.00	100.00	100.00
D	Check dams	100.00	100.00	100.00
9	**Lower Reaches**			
A	Dug out shunken ponds with vegetative inlet and outlet	100.00	100.00	100.00
B	Check dams	100.00	100.00	100.00
II	**FARM PRODUCTION SYSTEM FOR LAND OWNING FAMILIES**			
10	**Establishment of Nurseries & Production of Seedlings**			
A	Nurseries of forest plants on farmers fields	100.00	100.00	-
B	Nurseries of Agricultural plants on farmers fields	100.00	100.00	100.00

C	Nurseries of Horticultural plants on farmers fields	-	-	-
11	**Testing & Demonstration of New Technologies**			
A	Integrated Pest Management	100.00	100.00	100.00
B	Integrated Nutrient Management	100.00	100.00	100.00
C	On – farm water Management	100.00	100.00	100.00
D	Drought resistant short duration verities	100.00	100.00	100.00
E	Diversification of Farming system	100.00	100.00	100.00
F	Value addition	100.00	100.00	100.00
G	Marketing of produce through farmer groups	100.00	100.00	100.00
H	Organic Farming	100.00	100.00	-
I	Use of Bio-fertilizers	100.00	100.00	100.00
J	Multiple Cropping	100.00	100.00	100.00
K	Improved Inter-cropping	100.00	100.00	100.00
12	**Diversification of Production System**			
A	Inter Cropping	100.00	100.00	100.00
B	Mixed Cropping	100.00	100.00	100.00
C	Diversification towards Fruit & Vegetable crops	100.00	100.00	100.00
13	**Adoption of Proven Technologies**			
A	Dissemination among farmers	100.00	100.00	100.00
B	Adoption by the farmers	100.00	100.00	100.00
14	**Livestock Management**			
A	Castration of Local Bulls	100.00	100.00	100.00
B	Insemination of High Milching breeds of Cattle	100.00	100.00	100.00
C	Planting of fodder Crops & Grasses	100.00	100.00	100.00
D	Animal Health Care	100.00	100.00	100.00
E	Training of Farmers	100.00	100.00	100.00
III	**LIVELIHOOD SUPPORT SYSTEM FOR LAND LESS FAMILIES**			
15	**Household Production System**			
A	Small livestock system	-	-	-
B	Poultry	-	-	-
C	Piggrey	-	-	-
D	Rabbit Rearing	-	-	-
E	Goat Rearing	-	-	-
F	Providing Tool Kits to Landless	100.00	100.00	100.00
G	Formation of Co-operative Societies	-	-	-
16	**Biomass Based Rural Industry Activity**			
A	Rope & Basket Making, Mat weaving, Broom Binding, Leaf Plate Making	-	-	-
B	Agro-processing Activities	100.00	100.00	33.33
C	Wood Furniture Making	-	-	-
17	**Dairy, Sericulture, Goat Breeding, Bee Keeping, Mushroom Cultivation**			
A	Dairy	-	-	-
B	Sericulture	-	-	-
C	Goat-breeding	-	-	-
D	Bee-keeping	-	-	-
E	Mushroom Cultivation	-	-	-
18	**Livestock Management**			

A	Castration of Local Bulls	100.00	100.00	100.00
B	Insemination of High Milching breeds of Cattle	100.00	100.00	100.00
C	Planting of fodder Crops & Grasses	100.00	100.00	100.00
D	Animal Health Care	100.00	100.00	100.00
E	Training	100.00	100.00	100.00

9.9.2 Developing watershed

Beneficiaries' perception regarding the impact of watershed development activities in the developing watershed is presented in Table 9.9.2. Under the natural resource management component, contour vegetative hedges, gully control system, check dams and vegetative barriers were reported to be inadequate by the beneficiaries. The inadequacy was also reported in case of various structures on non arable land under the sub- component, run off management structure, water harvesting structure, dry land horticulture and conservation & development of biomass. Work under the other components of the watershed development programme was also found inadequate by the beneficiaries.

Table 9.9.2: Beneficiaries perception regarding the Impact of watershed development activities in the developing watershed

(Percent)

S. No.	Particulars	Whether watershed activity is		
		Relevant	Adequate	Sustainable
I	**NATURAL RESOURCE MANAGEMENT**			
Arable Land				
I	**Soil & Moisture Conservation Activities**			
A	Contour vegetative hedges	100.00	50.00	36.33
B	Gully control system	100.00	50.00	67.67
C	Diversion drains	-	-	-
D	Contour Bunds with waste weirs	-	-	-
E	Compromised contour bunds	-	-	-
F	Check dams	100.00	66.67	20.00
G	Drop structures	-	-	-
2	**Agronomic Conservation practices**			
A	Vegetative barriers	100.00	25.00	-
B	Alley cropping	-	-	-
C	Ley cropping	-	-	-
D	Strip cropping	-	-	-
Non Arable Land				
3	**Run Off Management Structure**			
A	Vegetative Filter Strips	60.00	13.33	-

B	Check dams with loose boulders	100.00	50.00	20.00
C	Live Fencing	100.00	66.67	20.00
D	Vegetative contour hedges	100.00	50.00	50.00
E	Over seedling of grasses	100.00	25.00	25.00
F	Legumes planting of shrubs	100.00	13.33	13.33
G	Planting of trees on drainage lines	100.00	25.00	66.67
4	**Water Harvesting Structure**			
A	Construction of water harvesting structures	100.00	80.00	86.67
B	Repair & Maintenance of existing indigenous water harvesting structures	100.00	40.00	60.00
C	Percolation structures	25.00	20.00	-
D	Specific water harvesting structures for livestock	-	-	-
5	**Dry land Horticulture**			
A	Planting of horticultural crops on dry lands	100.00	15.00	80.00
B	Planting of horticultural crops on grass lands	-	-	-
C	Planting of horticultural crops on wastelands	-	-	-
6	**Conservation & Development of Biomass**			
A	Planting of trees with more biomass	100.00	36.67	50.00
DRAINAGE LINES				
7	**Upper Reaches**			
A	Check dams	100.00	66.67	50.00
B	Loose boulders check dams	100.00	30.00	10.00
C	Live check dams	100.00	25.00	25.00
D	Bush wood dams	-	-	-
E	Small dug well ponds	100.00	25.00	75.00
F	Shunken Ponds	-	-	-
8	**Middle Reaches**			
A	Earthen structure with vegetative support piching with local material	100.00	37.33	25.00
B	Loose boulder structure with vegetative support	100.00	30.00	10.00
C	Run off management dug out ponds with vegetative inlet and outlet	100.00	25.00	25.00
D	Check dams	100.00	60.00	60.00
9	**Lower Reaches**			
A	Dug out shunken ponds with vegetative inlet and outlet	-	-	-
B	Check dams	100.00	60.00	50.00
II	**FARM PRODUCTION SYSTEM FOR LAND OWNING FAMILIES**			
10	**Establishment of Nurseries & Production of Seedlings**			
A	Nurseries of forest plants on farmers fields	-	-	-
B	Nurseries of Agricultural plants on farmers fields	100.00	15.47	10.00
C	Nurseries of Horticultural plants on farmers fields	-	-	-
11	**Testing & Demonstration of New Technologies**			
A	Integrated Pest Management	100.00	50.00	75.00
B	Integrated Nutrient Management	100.00	50.00	75.00
C	On – farm water Management	100.00	87.33	100.00
D	Drought resistant short duration verities	100.00	25.00	100.00
E	Diversification of Farming system	100.00	25.00	100.00
F	Value addition	100.00	10.00	100.00

G	Marketing of produce through farmer groups	100.00	-	-
H	Organic Farming	100.00	50.00	-
I	Use of Bio-fertilizers	100.00	50.00	100.00
J	Multiple Cropping	100.00	50.00	100.00
K	Improved Inter-cropping	100.00	16.67	100.00
12	**Diversification of Production System**			
A	Inter Cropping	100.00	50.00	100.00
B	Mixed Cropping	100.00	50.00	100.00
C	Diversification towards Fruit & Vegetable crops	100.00	30.00	100.00
13	**Adoption of Proven Technologies**			
A	Dissemination among farmers	100.00	25.00	100.00
B	Adoption by the farmers	100.00	75.00	100.00
14	**Livestock Management**			
A	Castration of Local Bulls	100.00	100.00	100.00
B	Insemination of High Milching breeds of Cattle	100.00	100.00	100.00
C	Planting of fodder Crops & Grasses	100.00	100.00	100.00
D	Animal Health Care	100.00	100.00	100.00
E	Training of Farmers	100.00	100.00	100.00
III	**LIVELIHOOD SUPPORT SYSTEM FOR LAND LESS FAMILIES**			
15	**Household Production System**			
A	Small livestock system	-	-	-
B	Poultry	-	-	-
C	Piggrey	-	-	-
D	Rabbit Rearing	-	-	-
E	Goat Rearing	-	-	-
F	Providing Tool Kits to Landless	-	-	-
G	Formation of Co-operative Societies	-	-	-
16	**Biomass Based Rural Industry Activity**			
A	Rope & Basket Making, Mat weaving, Broom Binding, Leaf Plate Making	-	-	-
B	Agro-processing Activities	100.00	100.00	33.33
C	Wood Furniture Making	-	-	-
17	**Dairy, Sericulture, Goat Breeding, Bee Keeping, Mushroom Cultivation**			
A	Dairy	-	-	-
B	Sericulture	-	-	-
C	Goat-breeding	-	-	-
D	Bee-keeping	-	-	-
E	Mushroom Cultivation	-	-	-
18	**Livestock Management**			
A	Castration of Local Bulls	100.00	100.00	100.00
B	Insemination of High Milching breeds of Cattle	100.00	100.00	100.00
C	Planting of fodder Crops & Grasses	100.00	100.00	100.00
D	Animal Health Care	100.00	100.00	100.00
E	Training	100.00	100.00	100.00

9.10 Summing Up

The main objectives of NWDPRA are conservation, development and sustainable management of natural resources including their use, enhancement of the production and productivity of rainfed areas in a sustainable manner and restoration of ecological balance in the vast tracks of rainfed areas. On the basis of results obtained after the concurrent evaluation of two watersheds, one developed and other developing it is concluded that in case of developed watershed, cropping pattern of the farmers has changed resulting in diversification of the farming system. More area was covered under the cash crops after the implementation of the scheme. Livestock resources of the beneficiaries have also more as compared to their counterparts. Income of the beneficiaries has also enhanced. The landless families in the watershed started their own enterprises. In case of natural resource management, overall picture of the watershed has changed after the implementation of the scheme. Now the major task is the sustainability of all these works after the withdrawal of the scheme. During field survey it was observed that beneficiaries in the area are not very keen to pursue development works after the scheme comes to an end. This is because with the demand of land by real estate, more and more farmers were started selling their land which is near road. Monkey menace is another problem which pushed farmers to stop cultivating their land. It is not only a problem in the watersheds but this is like a calamity in all parts of the State. Further, gully control system, sustainability of live fencing on non- arable land and establishment of nurseries on farmers field are some major problems of the developed watershed. Whereas, in the developing watershed soil erosion is the major problem and needs immediate attention. Since per hectare ceiling is inadequate for watersheds in hilly areas of the State and it must be enhanced. Livelihood support system should be extended to marginal farmers having land less than 0.5 ha. But, despite these factors NWDPRA programme changed the fate of people in the area. In the developing watershed, due to rugged and difficult topography, natural resource management was not so effective. But, more efforts in this direction can fetch positive results. On analyzing the results it was found that, income of the beneficiaries has increased as compared to their counterparts.

Chapter X

On Farm Water Management and Water Harvesting

The present chapter attempts to evaluate the Physical and Financial achievements of on farm water management and water harvesting. The chapter also analyses the impact of the scheme and examines the problems faced by the beneficiaries of the scheme.

10.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 10.1 (A) and component wise achievements are presented in Table 10.1(B).

Table 10.1(A): Budget and achievements in On farm Water Management & Water harvesting Scheme (2004-05)

S. No	Name of the component	Unit	Target		Achievement	
			Physical	Financial	Physical	Financial
1	Water harvesting through tanks/ ponds/ dug wells/ shallow wells. Assistance @ 25 %	Nos.	675	54.00	925	7399056 (137.0)
2	Community based run off water harvesting structures/ check dams/ tanks @ Rs 40000 per ha.	Ha.	50	20.00	120	4741000 (237.0)
3	Contingencies @ 5 %			3.70		370000 (100.0)
	Total			77.70		12510056 (161.0)

**Figures in parenthesis are percentages*

.

Table 10.1 (B): Budget and achievements in On farm Water Management & Water harvesting Scheme (2004-05)

S. No	SDSCO	Individual tank			Water Lift Devices			Water Harvesting Structure		
		Budget	Achievement	Percent	Budget	Achievement	Percent	Budget	Achievement	Percent
1	Banikhet	2.40	2.40	100.00	0.32	0.32	100.00	-	-	-
2	Chamba	2.40	2.40	100.00	-	-	-	-	-	-
3	Dehra	3.44	3.64	105.81	0.72	0.48	66.67	-	-	-
4	Fatehpur	3.68	3.44	93.48	0.72	0.72	100.00	14.49	14.49	100.00
5	Hamirpur	2.80	2.80	100.00	1.60	1.60	100.00	10.00	10.00	100.00
6	Nurpur	4.96	4.96	100.00	1.68	1.68	100.00	-	-	-
7	Palampur	4.72	4.72	100.00	1.20	1.20	100.00	3.42	3.42	100.00
8	Una	3.84	3.84	100.00	0.80	0.80	100.00	-	-	-
9	Ghumarwin	4.24	4.21	99.29	1.28	1.28	100.00	-	-	-
10	Kullu	3.04	3.04	100.00	0.56	0.56	100.00	-	-	-
11	Mandi	5.60	5.60	100.00	1.68	1.68	100.00	3.34	3.34	100.00
12	Sarkaghat	4.64	4.64	100.00	0.72	0.72	100.00	-	-	-
13	Arki	4.72	4.72	100.00	0.40	0.40	100.00	0.37	0.37	100.00
14	Nalagarh	4.08	4.08	100.00	1.36	1.36	100.00	-	-	-
15	Paonta	4.08	4.06	99.51	0.64	0.64	100.00	5.97	5.97	100.00
16	Rajgarh	3.84	3.84	100.00	0.72	0.48	66.67	6.85	6.85	100.00
17	Rampur	3.76	3.76	100.00	-	-	-	-	-	-
18	Rohru	4.08	4.08	100.00	-	-	-	-	-	-
19	Shimla	3.68	3.67	99.73	-	-	-	2.97	2.97	100.00
Total		**74.00**	**73.90**	**99.86**	**14.40**	**13.92**	**96.67**	**47.41**	**47.41**	**100.00**

10.2 Socio- economic profile of sampled farmers

Developed block The socio- economic profiles of sampled beneficiary and non- beneficiary farmers are presented in Table 10.2.1. The table reveals that of all beneficiary farmers of the scheme, 40.00 percent each belonged to general and OBC category, followed by 20.00 percent SC category farmers. Among non-beneficiary farmers, 50.00 percent belonged to OBC, 30.00 percent general and 20.00 percent SC category farmers. The average family size among beneficiary farmers of the scheme was 5.13 persons and 5.60 persons among non- beneficiary farmers. Dependency ratio was 0.39 and 0.47 among beneficiary and non-beneficiary farmers respectively. The literacy rate among beneficiary farmers was 75.97 percent as compared to 76.79 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 86.67 percent farmers, followed by service 13.33 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 80.00 percent farmers and other occupations 20.00 percent farmers.

Developing block The table reveals that of all beneficiary farmers of the scheme, 43.33 percent belonged to general category, followed by 26.67 percent ST category, 20.00 percent belonged to OBC and 10.00 percent SC category. Among non-beneficiary farmers, 50.00 percent farmers belonged to general category 30.00 percent ST, and 10.00 percent each SC and OBC category. On the whole average family size among beneficiary farmers of the scheme was 5.27 persons and 5.50 persons among non- beneficiary farmers. Dependency ratio was 0.37 and 0.49 among beneficiary and non- beneficiary farmers respectively. The literacy rate among beneficiary farmers was 68.35 percent as compared to 67.27 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 95.24 percent farmers, followed by other occupations 4.76 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 90.00 percent farmers and other occupations like labour, dairy etc, 10.00 percent farmers.

10.3 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing block is presented in Table 10.3. The table reveals that there was a significant change in the area under field crops of beneficiary farmers in both developed and developing blocks. On the other hand, land use pattern of non-beneficiary farmers remains unchanged in both developed and developing block.

10.4 Cropping pattern of sampled farmers

10.4.1 Developed block

Cropping pattern of sampled farmers in developed block is presented in Table 10.4.1. The table reveals that the cropping pattern of beneficiary farmers in the developed block was shifted towards the cultivation of cash crops like paddy, potato, onion, garlic and other vegetable crops instead of maize and wheat. In case of maize and wheat the area was declined after the implementation of the scheme. The table reveals that the cropping intensity among different category of farmers has also increased after the intervention due to assured irrigation. Overall cropping intensity is increased from 166.38 to 170.25 percent after the intervention. Among non- beneficiary farmers the overall cropping intensity has increased marginally from 157.26 to 158.12 percent.

10.4.2 Developing block

Cropping pattern of sampled farmers in developing block is presented in Table 10.4.2. The table reveals that there was a marginal shift of cropping pattern towards potato and vegetables. On analyzing the table it was found that cropping intensity among different category of farmers has increased after the intervention. Overall cropping intensity was increased from 163.75 to 169.51 percent after the intervention. Among non- beneficiary farmers overall cropping intensity increased from 155.69 to 156.96 percent during the same period.

Table 10.2: Socio- economic profile of Sampled Farmers (2004-05)

Particulars	Developed block		Developing block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	20.00	20.00	10.00	10.00
ST	-	-	26.67	30.00
OBC	40.00	50.00	20.00	10.00
General	40.00	30.00	43.33	50.00
Avg. family size (No.)	5.13	5.60	5.27	5.50
Literacy (%)	75.97	76.79	68.35	67.27
Dependency ratio	0.39	0.47	0.37	0.49
Occupation (%)				
Agriculture	86.67	80.00	90.00	90.00
Service	-	-	-	-
Other	13.33	20.00	10.00	10.00

Table 10.3: Land use pattern of Sampled Farmers in Developed and Developing Block (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block																
Marginal	0.66	0.70	0.06	0.02	0.25	0.25	0.97	0.97	0.59	0.60	0.04	0.03	0.18	0.18	0.81	0.81
Small	1.05	1.10	0.12	0.07	0.32	0.32	1.49	1.49	1.07	1.07	0.02	0.02	0.30	0.30	1.39	1.39
Semi Med.	2.10	2.17	0.15	0.08	0.75	0.75	3.00	3.00	2.03	2.02	0.10	0.11	0.67	0.67	2.80	2.80
Medium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall	**1.16**	**1.21**	**0.10**	**0.05**	**0.40**	**0.40**	**1.66**	**1.66**	**1.17**	**1.17**	**0.05**	**0.05**	**0.37**	**0.37**	**1.59**	**1.59**
Developing Block																
Marginal	0.71	0.73	0.05	0.03	0.17	0.17	0.93	0.93	0.72	0.72	0.02	0.02	0.18	0.18	0.92	0.92
Small	1.00	1.04	0.08	0.04	0.25	0.25	1.33	1.33	0.97	0.97	0.07	0.07	0.22	0.22	1.26	1.26
Semi Med.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall	**0.80**	**0.82**	**0.06**	**0.04**	**0.19**	**0.19**	**1.05**	**1.05**	**0.79**	**0.79**	**0.03**	**0.03**	**0.19**	**0.19**	**1.01**	**1.01**

Table 10.4.1: Cropping pattern of Sampled Farmers in Developed Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.21	0.35	0.60	-	0.36	0.15	0.40	0.60	-	0.36
	After	0.18	0.31	0.58	-	0.33	0.15	0.40	0.60	-	0.36
Wheat	Before	0.30	0.40	0.85	-	0.48	0.26	0.55	1.04	-	0.58
	After	0.28	0.38	0.82	-	0.45	0.27	0.55	1.05	-	0.59
Paddy	Before	0.10	0.15	0.50	-	0.22	0.05	0.10	0.15	-	0.09
	After	0.15	0.20	0.60	-	0.28	0.05	0.10	0.15	-	0.09
Potato	Before	0.10	0.15	0.25	-	0.15	0.10	0.10	0.18	-	0.12
	After	0.12	0.20	0.30	-	0.19	0.10	0.10	0.18	-	0.12
Onion	Before	0.08	0.15	0.25	-	0.15	0.07	0.15	0.20	-	0.15
	After	0.10	0.18	0.30	-	0.18	0.08	0.17	0.21	-	0.15
Garlic	Before	0.20	0.40	0.50	-	0.34	0.20	0.45	0.50	-	0.36
	After	0.22	0.43	0.55	-	0.37	0.20	0.45	0.50	-	0.36
Other crops	Before	0.15	0.25	0.35	-	0.23	0.12	0.15	0.30	-	0.18
	After	0.16	0.27	0.40	-	0.26	0.12	0.15	0.28	-	0.18
GCA	Before	1.14	1.85	3.30	-	1.93	0.95	1.90	2.97	-	1.84
	After	1.21	1.97	3.55	-	2.06	0.97	1.92	2.97	-	1.85
NSA	Before	0.66	1.05	2.10	-	1.16	0.59	1.07	2.03	-	1.17
	After	0.70	1.10	2.17	-	1.21	0.60	1.07	2.02	-	1.17
CI (%)	Before	172.73	176.19	157.14	-	166.38	161.08	177.57	146.30	-	157.26
	After	172.86	179.09	163.59	-	170.25	161.67	179.44	147.03	-	158.12

Table 10.4.2: Cropping pattern of Sampled Farmers in Developing Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.29	0.37	-	-	0.31	0.32	0.36	-	-	0.33
	After	0.29	0.38	-	-	0.32	0.32	0.36	-	-	0.33
Wheat	Before	0.37	0.65	-	-	0.45	0.45	0.68	-	-	0.52
	After	0.37	0.66	-	-	0.46	0.46	0.69	-	-	0.53
Barley	Before	0.04	0.07	-	-	0.05	0.02	0.10	-	-	0.04
	After	0.03	0.07	-	-	0.04	0.02	0.08	-	-	0.03
Mustard	Before	0.15	0.18	-	-	0.16	0.12	0.12	-	-	0.12
	After	0.15	0.22	-	-	0.17	0.12	0.12	-	-	0.12
Potato	Before	0.10	0.10	-	-	0.10	0.08	0.10	-	-	0.09
	After	0.14	0.12	-	-	0.13	0.09	0.10	-	-	0.09
Vegetables	Before	0.20	0.32	-	-	0.24	0.10	0.17	-	-	0.13
	After	0.23	0.35	-	-	0.27	0.12	0.18	-	-	0.14
GCA	Before	1.15	1.69	-	-	1.31	1.09	1.53	-	-	1.23
	After	1.21	1.80	-	-	1.39	1.13	1.53	-	-	1.24
NSA	Before	0.71	1.00	-	-	0.80	0.72	0.97	-	-	0.79
	After	0.73	1.04	-	-	0.82	0.72	0.97	-	-	0.79
CI (%)	Before	161.97	169.00	-	-	163.75	151.39	157.73	-	-	155.69
	After	165.75	173.08	-	-	169.51	156.94	157.73	-	-	156.96

10.5 Source of Irrigation of sampled farmers

Source of irrigation of sampled farmers is presented in Table 10.5. The table reveals that among beneficiary farmers in developed block 60.00 percent farmers were irrigating their fields from pond as compared to 16.67 percent farmers before the implementation of the scheme. The tanks constructed under the scheme cater the irrigation needs of 40.00 percent farmers. The average irrigated area per household has also increased from 55.17 percent to 71.07 percent after the implementation of the scheme. Whereas, among non- beneficiary farmers of the same block, 10.00 percent were getting water for irrigation through pond and 40.00 percent through *kuhl*. Average irrigated area per household among non- beneficiary farmers remains unchanged at 51.28 percent of the total area under field crops during the same period. In the developing block, among beneficiary farmers 50.00 percent through 50.00 percent, 30.00 percent get irrigation through pond and 20.00 percent through dug well. *Kuhl* irrigation was available to 30.00 percent of the sampled households. Among non- beneficiary farmers 10.00 percent were using pond water for irrigation and 40.00 percent were using *Kuhls*. The average irrigated area per household was increased from 41.25 to 50.00 percent in case of beneficiary households as compared to non- beneficiaries, where only 37.97 percent area was irrigated and remains same during the same period.

Table 10.5: Source of Irrigation of Sampled Farmers (2004-05)

Farm category		Source of Irrigation (%)										Avg. Irrigated Area/ HH (%)	
		Pond		Tank		Dug Well		Shallow well		Kuhl			
		Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block													
Marginal	Beneficiary	15.38	76.92	-	23.08	-	-	-	-	23.08	23.08	46.97	74.29
	Non- beneficiary	25.00	25.00	-	-	-	-	-	-	25.00	25.00	47.46	46.67
Small	Beneficiary	22.22	55.56	-	44.44	-	-	-	-	33.33	33.33	61.90	72.73
	Non- beneficiary	-	-	-	-	-	-	-	-	33.33	33.33	58.88	58.88
Semi-medium	Beneficiary	12.50	37.50	-	62.50	-	-	-	-	37.50	37.50	54.76	69.12
	Non- beneficiary	-	-	-	-	-	-	-	-	66.67	66.67	49.26	49.50
Overall	Beneficiary	16.67	60.00	-	40.00	-	-	-	-	30.00	30.00	55.17	71.07
	Non- beneficiary	10.00	10.00	-	-	-	-	-	-	40.00	40.00	51.28	51.28
Developing Block													
Marginal	Beneficiary	9.52	28.57	-	52.38	-	19.05	-	-	23.81	23.81	35.21	43.84
	Non- beneficiary	14.29	14.29	-	-	-	-	-	-	42.86	42.86	33.33	33.33
Small	Beneficiary	11.11	33.33	-	44.44	-	22.22	-	-	44.44	44.44	51.00	58.65
	Non- beneficiary	-	-	-	-	-	-	-	-	33.33	33.33	46.39	46.39
Overall	Beneficiary	10.00	30.00	-	50.00	-	20.00	-	-	30.00	30.00	41.25	50.00
	Non- beneficiary	10.00	10.00	-	-	-	-	-	-	40.00	40.00	37.97	37.97

10.6 Response of farmers regarding various components of the Scheme

The response of beneficiary farmers regarding various components of the scheme is presented in Table 10.6. The table reveals that 75.00 and 66.67 percent farmers got assistance for the construction of water harvesting structures in developed and developing block respectively. It was also revealed from the table that 25.00 and 33.33 percent farmers were benefited from assistance on community-based run- off water harvesting structures in developed and developing block respectively.

Table 10.6: Response of selected beneficiary farmers regarding different components of the scheme (2004-05)

(Percent)

Particulars	Developed Block	Developing Block
Farmers got assistance on water harvesting structures	75.00	66.67
Farmers benefited from assistance provided on community based run- off water harvesting structures	25.00	33.33

10.7 Attitude of farmers about various components of the scheme

Table 10.7 reveals the attitude of farmers towards the various components of the scheme. In the developed block 20.15, 6.00 and 10.00 percent farmers reported that assistance was inadequate for the construction of tanks, ponds and dug wells respectively while 35.00, 0.00 and 5.00 percent farmers reported the same in case of developing block. In the developed and developing block 25.00 and 15.00 percent farmers respectively reported the inadequacy of assistance for the construction of community based harvesting structures.

Table 10.7: Attitude of Beneficiary farmers in Developed and Developing block about the various components of the scheme

(Percent)

S. No.	Particulars	Responses					
		Inadequate		Adequate		High	
		Developed Block	Developing Block	Developed Block	Developing Block	Developed Block	Developing Block
1	Assistance on water harvesting structures						
a)	Tanks	20.15	35.00	79.85	65.00	-	-
b)	Ponds	6.00	-	94.00	-	-	-
c)	Dug wells	10.00	5.00	90.00	95.00	-	-
d)	Shallow wells	-	-	-	-	-	-
2.	Assistance on community based harvesting structures	25.00	15.00	75.00	85.00	-	-

10.8 Summing Up

On farm water management and water harvesting scheme was launched in the areas which are not covered under the NWDPRA scheme. It was implemented through 19 SDSCO's in all the districts except Kinnaur and Lahaul- Spiti in Himachal Pradesh. The major objective of this scheme is to provide subsidy to the farmers for the construction of water harvesting structures like tanks, ponds, dug wells etc. and also for the construction of community based run off water harvesting structures. It was found during field survey that in the developed block where community ponds were constructed or rejuvenated, farmers are largely benefited from the scheme. This not only provided them assured irrigation facility during summer season, but also saves their time. There is also a significant increase in the number of livestock in the area. On the other hand, tanks constructed in the developed block are above ground level and needs physical labour to fill them. The change in the cropping pattern in the area is largely due to irrigation scheme of NABARD. Whereas in the developing block scheme has shown good results. The tanks and dug wells constructed under the scheme not only shifted the cropping pattern but also cater the need of drinking water for livestock. More funding is

required for rain water harvesting. Thus it may be concluded form analyzing the results that proper and need based implementation of the scheme can change the fate of the beneficiaries and proved to be an example to be followed by others.

Chapter XI

Scheme for Promoting Diversified Farming System (Crop Diversification)

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of Scheme for promoting diversified farming system (crop diversification). The chapter also analyses the impact of the scheme on the cropping pattern and income of beneficiaries of the scheme and examines the problems faced by the beneficiaries of the scheme.

11.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 11.1.

Table 11.1: Targets and Achievements of Scheme for Crop Diversification (2004-05)

S. No.	Component	Unit	HIMACHAL PRADESH			
			Target		Achievement	
			Phy.	Fin.	Phy.	Fin.
1	Crop diversification through project approach (150 Projects of 10 ha each)					
a)	Block Demonstration of one hectare each in Kharif and Rabi season in 150 Project Areas @ Rs 5000/ Demonstration	Demo	300	15.00	333	1636560 (109.1)
b)	Interactive workshops with farmers and input agencies to prepare cropping plans and to tie up inputs (Kharif and Rabi) @ Rs 1000 (2 in a Year)	Nos.	300	3.00	295	292468 (97.5)
2	Training capsule for self employment through crop diversification					
	Training programmes of 15 days at SAU/ KVK comprising 30 entrepreneurs each @ Rs 50000 for each training (150 entrepreneurs)	Nos.	5	2.50		
3	IPM demonstrations @ Rs 22680/ Demo	Nos.	20	4.54	46	773817 (170.4)
	Consultancies/ Studies			5.00		500000 (100.0)
	Contingencies @ 5%			1.50		159854 (106.6)
	Total			31.54		3362699 (106.6)

**Figures in parenthesis are percentages*

11.2 Socio- economic profile of sampled farmers

Developed block The socio- economic profiles of sampled beneficiary and non- beneficiary farmers are presented in Table 11.2. The table reveals that of all beneficiary farmers of the scheme, 60.00 percent belonged to general category, followed by 30.00 percent OBC and 10.00 percent SC category farmers. Among non-beneficiary farmers, 50.00 percent belonged to general, 30.00 percent OBC and 20.00 percent SC category farmers. The average family size among beneficiary farmers of the scheme was 5.37 persons and 6.00 persons among non- beneficiary farmers. Dependency ratio was 0.34 and 0.50 among beneficiary and non-beneficiary farmers respectively. The literacy rate among beneficiary farmers was 79.50 percent as compared to 75.00 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 93.94 percent farmers, followed by service and other occupations 3.33 percent each. Similarly among non- beneficiary farmers agriculture was the main occupation of all sampled farmers.

Developing block The table reveals that of all beneficiary farmers of the scheme, 53.33 percent belonged to general category, followed by 30.00 percent OBC category and 16.67 percent belonged to SC category. Among non-beneficiary farmers, 50.00 percent farmers belonged to general category, 30.00 percent OBC and 20.00 percent SC category. The average family size among beneficiary farmers of the scheme was 5.10 persons and 5.20 persons among non- beneficiary farmers. Dependency ratio was 0.35 and 0.44 among beneficiary and non- beneficiary farmers respectively. The literacy rate among beneficiary farmers was 78.43 percent as compared to 73.08 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 86.67 percent farmers, followed by service 10.00 percent and other occupations 3.33 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of all sampled farmers.

11.3 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing block was presented in Table 11.3. The table reveals that there was a marginal change in the area under field crops of beneficiary farmers in developed block. On the other hand, land use pattern of non-beneficiary farmers also recorded marginal change in both developed and developing block.

11.4 Cropping pattern of sampled farmers

11.4.1 Developed block

Cropping pattern of sampled farmers in developed block is presented in Table 11.4.1. The table reveals that the beneficiary farmers in the developed block have shifted land towards the cultivation of high value crops like cabbage, cauliflower, tomato, potato, onion and other vegetables like brinjal, lady finger, radish, carrot, turnip, spinach etc. It is clearly seen from the table that the area under traditional crops like maize and wheat was declined after the implementation of the scheme. The table reveals that the cropping intensity among different category of farmers has also increased. Overall cropping intensity has increased from 166.07 to 178.07 percent after the intervention. Among non- beneficiary farmers the overall cropping intensity has increased from 166.99 to 174.04 percent during the same period.

11.4.2 Developing block

Cropping pattern of sampled farmers in developing block is presented in Table 11.4.2. The table reveals that there was a marginal shift in the cropping pattern towards cash crop and this is mainly due to the irrigation scheme of NABARD in the village. The scheme of crop diversification adds little to the farmers basket. On analyzing the table it was found that cropping intensity among different category of farmers has increased after the intervention. Overall cropping intensity was increased from 161.47 to 165.14 percent. Among non- beneficiary farmers overall cropping intensity increased from 161.68 to 167.59 percent during the same period.

Table 11.2: Socio- economic profile of Sampled Farmers in Developed block (2004-05)

Particulars	Developed Block		Developing Block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	10.00	20.00	16.67	20.00
ST	-	-	-	-
OBC	30.00	30.00	30.00	30.00
General	60.00	50.00	53.33	50.00
Avg. family size (No.)	5.37	6.00	5.10	5.20
Literacy (%)	79.50	75.00	78.43	73.08
Dependency ratio	0.34	0.50	0.35	0.44
Occupation (%)				
Agriculture	93.34	90.00	86.67	100.00
Service	3.33	10.00	10.00	-
Other	3.33	-	3.33	-

Table 11.3: Land use pattern of Sampled Farmers in Developed and Developing Block (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block																
Marginal	0.80	0.81	0.04	0.03	0.08	0.08	0.92	0.92	0.78	0.78	0.02	0.02	0.10	0.10	0.90	0.90
Small	0.95	0.97	0.07	0.05	0.15	0.15	1.17	1.17	0.91	0.93	0.04	0.02	0.22	0.22	1.17	1.17
Semi Med.	1.68	1.70	0.08	0.06	0.25	0.25	2.01	2.01	1.75	1.76	0.05	0.04	0.25	0.25	2.05	2.05
Medium	3.53	3.56	0.13	0.10	0.50	0.50	4.16	4.16	-	-	-	-	-	-	-	-
Overall	**1.12**	**1.14**	**0.06**	**0.04**	**0.15**	**0.15**	**1.33**	**1.33**	**1.03**	**1.04**	**0.03**	**0.02**	**0.18**	**0.18**	**1.24**	**1.24**
Developing Block																
Marginal	0.78	0.78	0.02	0.02	0.15	0.15	0.95	0.95	0.74	0.76	0.08	0.06	0.10	0.10	0.92	0.92
Small	1.10	1.11	0.11	0.10	0.20	0.20	1.41	1.41	1.05	1.05	0.02	0.02	0.25	0.25	1.32	1.32
Semi Med.	2.15	2.15	0.10	0.10	0.35	0.35	2.60	2.60	2.10	2.10	0.05	0.05	0.30	0.30	2.45	2.45
Medium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall	**1.09**	**1.09**	**0.06**	**0.06**	**0.20**	**0.20**	**1.35**	**1.35**	**1.07**	**1.08**	**0.06**	**0.05**	**0.17**	**0.17**	**1.30**	**1.30**

Table 11.4.1: Cropping pattern of Sampled Farmers in Developed Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.34	0.40	0.80	2.00	0.51	0.35	0.35	0.85	-	0.45
	After	0.15	0.20	0.45	0.98	0.26	0.35	0.35	0.82	-	0.44
Wheat	Before	0.45	0.55	1.15	2.50	0.69	0.42	0.50	1.20	-	0.61
	After	0.27	0.35	0.75	1.60	0.44	0.44	0.50	1.25	-	0.63
Cabbage	Before	0.08	0.10	0.15	0.20	0.10	0.10	0.12	0.15	-	0.12
	After	0.15	0.18	0.30	0.60	0.21	0.10	0.14	0.17	-	0.13
Cauliflower	Before	0.08	0.10	0.10	0.20	0.09	0.08	0.12	0.15	-	0.11
	After	0.15	0.18	0.22	0.60	0.19	0.08	0.14	0.15	-	0.12
Tomato	Before	0.10	0.10	0.10	0.15	0.10	0.08	0.10	0.11	-	0.09
	After	0.18	0.20	0.27	0.50	0.22	0.10	0.10	0.10	-	0.10
Potato	Before	0.10	0.15	0.20	0.25	0.14	0.10	0.10	0.25	-	0.13
	After	0.20	0.20	0.40	0.50	0.25	0.10	0.13	0.25	-	0.14
Onion	Before	0.05	0.08	0.10	0.30	0.08	0.05	0.10	0.12	-	0.08
	After	0.12	0.17	0.20	0.57	0.17	0.06	0.12	0.15	-	0.10
Other vegetables	Before	0.12	0.15	0.20	0.25	0.15	0.12	0.12	0.18	-	0.13
	After	0.23	0.28	0.40	0.60	0.29	0.12	0.15	0.20	-	0.15
GCA	Before	1.32	1.63	2.80	5.85	1.86	1.30	1.52	3.01	-	1.72
	After	1.45	1.76	2.99	5.95	2.03	1.35	1.63	3.09	-	1.81
NSA	Before	0.80	0.95	1.68	3.53	1.12	0.78	0.91	1.75	-	1.03
	After	0.81	0.97	1.70	3.56	1.14	0.78	0.93	1.76	-	1.04
CI (%)	Before	165.00	171.58	166.67	165.72	166.07	166.67	167.03	172.00	-	166.99
	After	179.01	181.44	175.88	167.13	178.07	173.08	175.27	175.57	-	174.04

Table 11.4.2: Cropping pattern of Sampled Farmers in Developing Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.27	0.35	1.00	-	0.41	0.29	0.40	1.25	-	0.50
	After	0.18	0.28	0.80	-	0.31	0.29	0.41	1.25	-	0.51
Wheat	Before	0.50	0.68	1.45	-	0.71	0.45	0.65	1.50	-	0.70
	After	0.35	0.50	1.35	-	0.54	0.45	0.65	1.50	-	0.70
Pulses	Before	0.20	0.25	0.25	-	0.22	0.08	0.10	0.15	-	0.10
	After	0.22	0.30	0.32	-	0.26	0.10	0.10	0.17	-	0.11
Paddy	Before	0.07	0.10	0.12	-	0.09	0.10	0.07	0.12	-	0.10
	After	0.12	0.20	0.20	-	0.15	0.12	0.07	0.12	-	0.11
Potato	Before	0.08	0.10	0.15	-	0.10	0.10	0.10	0.15	-	0.11
	After	0.15	0.20	0.25	-	0.18	0.11	0.10	0.15	-	0.12
Vegetables	Before	0.12	0.17	0.20	-	0.15	0.08	0.17	0.15	-	0.11
	After	0.25	0.30	0.35	-	0.28	0.12	0.20	0.20	-	0.15
Oil Seeds	Before	0.05	0.09	0.15	-	0.08	0.10	0.12	0.15	-	0.11
	After	0.05	0.09	0.15	-	0.08	0.10	0.12	0.15	-	0.11
GCA	Before	1.29	1.74	3.32	-	1.76	1.20	1.61	3.47	-	1.73
	After	1.32	1.87	3.42	-	1.80	1.29	1.65	3.54	-	1.81
NSA	Before	0.78	1.10	2.15	-	1.09	0.74	1.05	2.10	-	1.07
	After	0.78	1.11	2.15	-	1.09	0.76	1.05	2.10	-	1.08
CI (%)	Before	165.38	158.18	154.41	-	161.47	162.16	153.33	165.24	-	161.68
	After	169.23	168.47	159.07	-	165.14	169.73	157.14	168.57	-	167.59

11.5 Change in income of sampled farmers

Income of sampled farmers is presented in Table 11.5. The table reveals that in developed block in case of beneficiary farms the net return from crop production has increased by 105.81 percent as compared to 6.00 percent in case of non-beneficiaries. In developing block net return in case of beneficiaries was 63.38 percent as compared to 8.52 among non- beneficiaries. The change in net return was mainly due to the diversification of farmers towards raising cash crops and following package of practices recommended by the department of agriculture.

Table 11.5: Income from crop production on sampled farms (2004-05)

(Rs/ha)

Particulars		Developed Block		Developing Block	
		Before	After	Before	After
Gross cost	Beneficiaries	31568	34413	31509	33070
	Non- beneficiaries	24159	25015	28490	29345
Gross return	Beneficiaries	61414	95839	58911	77840
	Non- beneficiaries	47804	50080	46411	49880
Net return	Beneficiaries	29846	61426	27402	44770
	Non- beneficiaries	23645	25065	18923	20535
% Change	Beneficiaries	105.81		63.38	
	Non- Beneficiaries	6.00		8.52	

B: Beneficiary & NB: Non- beneficiary

11.6 Response of farmers regarding various components of the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 11.6. The table reveals that 84.50 and 58.00 percent farmers visited demon field to see block demonstration on crop diversification in developed and developing block respectively and 100.00 percent farmers in both these blocks found the demonstration useful. After visiting the demonstration farm 69.00 and 42.15 percent farmers in the developed and developing block respectively replicate the same on their fields. Farmers attended interactive workshop with the officials of Agriculture Department regarding crop diversification are 58.00 and 25.00 percent in the developed and developing block respectively. 75.00 and 60.00 percent farmers in the developed and developing block respectively adopted the cropping plan prepared by the department. Farmers attended training programme on crop diversification for self-employment are 45.00 and 37.50 percent in the developed and developing block respectively. The table also reveals that the demonstration on IPM was seen by 67.00 and 61.00 percent farmers and was found useful by all farmers in both developed and developing block respectively. Out of these farmers 59.00 and 37.50 percent farmers replicate the same on their fields.

Table 11.6: Response of selected beneficiary farmers regarding different components of the scheme (2004-05)

(Percent)

Particulars	Developed Block	Developing Block
Farmers visited demo field to see Block demonstration on crop diversification	84.50	58.00
Farmers found above demonstration useful	100.00	100.00
Farmers replicate the practice on their fields	69.00	42.15
Farmers attended interactive workshop with the officials of agriculture department regarding crop diversification	58.00	25.00
Farmers adopted cropping plan prepared by the department	75.00	60.00
Farmers attended training programme on crop diversification for self employment	45.00	37.50
Farmers visit demo field to see IPM demonstration	67.00	61.00
Farmers found above demonstration useful	100.00	100.00
Farmers replicate the practice on their fields	59.00	37.50

11.7 Attitude of Farmers about the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 11.7. The table reveals that 12.50 percent farmers in the developed block reported that block demonstration was inadequate whereas 50.00 percent farmers in developing block reported the same. The proportion of farmers found interactive workshops with the officials of Agriculture Department regarding crop diversification inadequate was 35.00 and 58.00 percent in developed and developing block respectively. Only 10.00 and 25.00 percent farmers found cropping plans inadequate in developed and developing block respectively. Training programme for self-employment was found inadequate by 40.00 and 60.00 percent farmers in developed and developing block respectively. IPM demonstration was found inadequate by 15.50 and 50.00 percent farmers in developed and developing block respectively.

Table 11.7: Attitude of Beneficiary farmers in Developed and Developing block about the various components of the scheme

(Percent)

S. No.	Particulars	Responses					
		Inadequate		Adequate		High	
		Developed Block	Developing Block	Developed Block	Developing Block	Developed Block	Developing Block
1	Block demonstration	12.50	50.00	87.50	50.00	-	-
2	Interactive workshops	35.00	58.00	65.00	42.00	-	-
3	Cropping plans	10.00	25.00	90.00	75.00	-	-
4	Training programme for self employment	40.00	65.00	60.00	35.00	-	-
5	IPM demonstration	15.50	50.00	84.50	50.00	-	-

11.8 Summing Up

The scheme for promoting diversified farming system (crop diversification) was launched with the objective of motivating farmers to shift from traditional crops to high value cash crops. Diversification helps in maximizing the resource use efficiency through multi-dimensional use of limited land, time and labour to increase income of the farmers. On analyzing the results it was found that among all sub-

components of the scheme maximum achievement was observed in case of IPM demonstration, followed by block demonstration and interactive workshops. In the developed block, through assured irrigation farmers had changed their cropping pattern from maize-mash-chari and wheat - pea rotation to vegetable farming. The extent of diversification was low in the developed block primarily due to rain- fed agriculture. Hence it may be concluded that the scheme would yield no dividends unless efforts are made to improve the productivity of the existing resources through better management of inputs like irrigation facilities.

Chapter XII

Scheme for Organic Farming

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of Scheme for organic farming. The chapter also analyses the impact of the scheme on the cropping pattern and income of beneficiaries of the scheme and examines the problems faced by the beneficiaries of the scheme.

12.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 12.1.

Table 12.1: Targets and Achievements of Scheme for organic farming (2004-05)

S. No.	Component	Unit	HIMACHAL PRADESH			
			Target		Achievement	
			Phy.	Fin.	Phy.	Fin.
1	Awareness training programme for farmers regarding organic farming (100 farmers @ Rs 50 each)	Nos.	100	5.00	125	620851 (124.2)
2	Institutional Training to Middle level and Sr. Level Officers regarding Organic Farming (10 trainings of 20 Officers @ Rs 25000 each for 2 days)	Nos.	10	2.50		
3	Workshop/ Seminar/ Conference on Organic Farming	Nos.	4	2.00	4	200000. (100.0)
4	Consultancy/ Studies regarding scope, potential area and potential crops for organic agriculture			25.00		1000000 (40.0)
	Contingency @ 5% (approx.)			1.72		129821 (75.5)
	Total			36.22		1950672 (53.9)

**Figures in parenthesis are percentages*

12.2 Socio- economic profile of sampled farmers

Developed block The socio- economic profiles of sampled beneficiary and non- beneficiary farmers are presented in Table 12.2. The table reveals that of all beneficiary farmers of the scheme, 63.33 percent belonged to general category, followed by 26.67 percent OBC and 10.00 percent SC category farmers. Among non-beneficiary farmers, 70.00 percent belonged to general, 20.00 percent OBC and 10.00 percent SC category farmers. The average family size among beneficiary farmers of the scheme was 5.30 persons and 5.20 persons among non- beneficiary farmers. Dependency ratio was 0.31 and 0.44 among beneficiary and non-beneficiary farmers respectively. The literacy rate among beneficiary farmers was 83.65 percent as compared to 76.92 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of all farmers. Similarly among non- beneficiary farmers agriculture was the main occupation of 90.00 percent farmers and the main occupation of 10.00 percent farmers was service.

Developing block The table reveals that of all beneficiary farmers of the scheme, 53.33 percent belonged to general category, followed by 26.67 percent OBC category and 20.00 percent belonged to SC category. Among non-beneficiary farmers, 70.00 percent farmers belonged to general category, 20.00 percent OBC and 10.00 percent SC category. The average family size was 5.00 persons each among beneficiary and non- beneficiary farmers. Dependency ratio was 0.28 among beneficiary and non- beneficiary farmers. The literacy rate among beneficiary farmers was 84.67 percent as compared to 80.00 percent among non- beneficiary farmers. Among beneficiary farmers agriculture was the main occupation of 86.67 percent farmers, followed by service 10.00 percent and other occupations 3.33 percent. Similarly among non- beneficiary farmers agriculture was the main occupation of 90.00 percent farmers, followed by service 10.00 percent farmers.

12.3 Land use pattern of sampled farmers

Land use pattern of sampled farmers in developed and developing block was presented in Table 12.3. The table reveals that there was a marginal change in the area under field crops of beneficiary and non- beneficiary farmers in developed block. Whereas in developing block since farmers were in the initial stages of adopting organic farming, hence they lay their fields un- cultivated and the overall area under field crops have declined from 1.06 ha/ household to 0.96 ha per household. Whereas, among non- beneficiary farmers the area under field crops remains same during the same period.

12.4 Cropping pattern of sampled farmers

12.4.1 Developed block

Cropping pattern of sampled farmers in developed block is presented in Table 12.4.1. The table reveals that more area was devoted by the beneficiary farmers for the cultivation of high value crops like cabbage, cauliflower, tomato, ladyfinger, french bean and capsicum. It is clearly seen from the table that the area under traditional crops like maize and wheat was declined after the implementation of the scheme. The table reveals that the cropping intensity among different category of farmers has also increased. Overall cropping intensity has increased from 161.11 to 172.73 percent after the intervention. Among non- beneficiary farmers the overall cropping intensity has increased from 165.62 to 167.44 percent during the same period.

12.4.2 Developing block

Cropping pattern of sampled farmers in developing block is presented in Table 12.4.2. The table reveals that the farmers are growing crops like maize, wheat, cabbage, cauliflower, tomato, potato, onion and other vegetables like reddish, carrot, turnip, spinach etc. The scheme of organic farming is in its initial stages in the district and farmers who attended awareness training programme on organic farming were very enthusiastic to do the same. Thus in our analysis,

beneficiaries are those which were attended awareness training programme on organic farming. On analyzing the cropping pattern of such beneficiary farmers, it was found that these farmers lying their fields vacant. Thus, the overall cropping intensity was declined from 158.49 to 122.92 percent among beneficiary farmers. Whereas, among non- beneficiary farmers overall cropping intensity increased from 162.26 to 165.09 percent during the same period.

Table 12.2: Socio- economic profile of Sampled Farmers (2004-05)

Particulars	Developed Block		Developing Block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	10.00	10.00	20.00	10.00
OBC	26.67	20.00	26.67	20.00
General	63.33	70.00	53.33	70.00
Avg. family size (No.)	5.30	5.20	5.00	5.00
Literacy (%)	83.65	76.92	84.67	80.00
Dependency ratio	0.31	0.44	0.28	0.28
Occupation (%)				
Agriculture	100.00	90.00	86.67	90.00
Service	-	10.00	10.00	10.00
Other	-	-	3.33	-

Table 12.3: Land use pattern of Sampled Farmers in Developed and Developing Block (2004-05)

(ha/household)

Farm category	Beneficiaries								Non-Beneficiaries							
	Field Crops		Current Fallow		Ghasni		Total		Field Crops		Current Fallow		Ghasni		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Developed Block																
Marginal	0.70	0.73	0.10	0.07	0.16	0.16	0.96	0.96	0.72	0.73	0.08	0.07	0.15	0.15	0.95	0.95
Small	0.95	0.96	0.10	0.09	0.20	0.20	1.25	1.25	0.92	0.92	0.12	0.12	0.18	0.18	1.22	1.22
Semi Med.	1.55	1.58	0.12	0.09	0.35	0.35	2.02	2.02	1.60	1.62	0.10	0.08	0.40	0.40	2.10	2.10
Medium	3.26	3.28	0.14	0.12	0.62	0.62	4.02	4.02	3.32	3.32	0.08	0.08	0.60	0.60	4.00	4.00
Overall	**1.08**	**1.10**	**0.11**	**0.08**	**0.23**	**0.23**	**1.42**	**1.42**	**1.28**	**1.29**	**0.09**	**0.08**	**0.28**	**0.28**	**1.65**	**1.65**
Developing Block																
Marginal	0.82	0.75	0.02	0.09	0.05	0.05	0.89	0.89	0.81	0.81	0.02	0.02	0.08	0.08	0.91	0.91
Small	1.02	0.90	0.06	0.18	0.10	0.10	1.18	1.18	0.97	0.97	0.05	0.05	0.15	0.15	1.17	1.17
Semi Med.	1.75	1.62	0.10	0.23	0.18	0.18	2.03	2.03	1.80	1.82	0.10	0.08	0.20	0.20	2.10	2.10
Medium	3.50	3.20	0.15	0.45	0.52	0.52	4.17	4.17	-	-	-	-	-	-	-	-
Overall	**1.06**	**0.96**	**0.06**	**0.16**	**0.09**	**0.09**	**1.21**	**1.21**	**1.06**	**1.06**	**0.04**	**0.04**	**0.12**	**0.12**	**1.22**	**1.22**

Table 12.4.1: Cropping pattern of Sampled Farmers in Developed Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.18	0.30	0.52	1.50	0.36	0.24	0.35	0.50	1.50	0.47
	After	0.12	0.15	0.40	1.00	0.23	0.24	0.35	0.50	1.42	0.46
Wheat	Before	0.25	0.40	1.00	2.00	0.53	0.37	0.62	1.10	2.25	0.83
	After	0.20	0.25	0.75	1.60	0.40	0.37	0.62	1.15	2.25	0.84
Cabbage	Before	0.15	0.15	0.20	0.25	0.16	0.10	0.15	0.20	0.25	0.15
	After	0.20	0.25	0.30	0.33	0.24	0.10	0.15	0.20	0.25	0.15
Cauliflower	Before	0.15	0.15	0.20	0.25	0.16	0.10	0.12	0.20	0.25	0.15
	After	0.20	0.25	0.30	0.30	0.24	0.10	0.12	0.20	0.25	0.15
Tomato	Before	0.10	0.15	0.25	0.30	0.15	0.10	0.15	0.25	0.25	0.17
	After	0.12	0.20	0.30	0.50	0.20	0.12	0.15	0.25	0.25	0.18
Lady Finger	Before	0.10	0.15	0.20	0.25	0.14	0.08	0.05	0.20	0.15	0.12
	After	0.15	0.18	0.25	0.50	0.20	0.10	0.05	0.20	0.17	0.13
French Bean	Before	0.15	0.13	0.10	0.25	0.14	0.10	0.04	0.10	0.25	0.10
	After	0.20	0.20	0.25	0.50	0.23	0.10	0.05	0.10	0.25	0.10
Capsicum	Before	0.08	0.10	0.15	0.20	0.10	0.10	0.10	0.15	0.30	0.13
	After	0.10	0.15	0.25	0.50	0.16	0.10	0.13	0.17	0.30	0.15
GCA	Before	1.16	1.53	2.62	5.10	1.74	1.19	1.58	2.70	5.20	2.12
	After	1.29	1.63	2.80	5.23	1.90	1.23	1.62	2.77	5.14	2.16
NSA	Before	0.70	0.95	1.55	3.26	1.08	0.72	0.92	1.60	3.32	1.28
	After	0.73	0.96	1.58	3.28	1.10	0.73	0.92	1.62	3.32	1.29
CI (%)	Before	165.71	161.05	169.03	156.44	161.11	165.28	171.74	168.75	156.63	165.62
	After	176.71	169.79	177.21	159.45	172.73	168.49	176.09	170.99	154.82	167.44

Table 12.4.2: Cropping pattern of Sampled Farmers in Developing Block (2004-05)

(Ha/HH)

Crops		Beneficiaries					Non- Beneficiaries				
		Marginal	Small	S. Medium	Medium	Overall	Marginal	Small	S. Medium	Medium	Overall
Maize	Before	0.25	0.30	0.60	1.00	0.32	0.25	0.30	0.75	-	0.37
	After	0.10	0.15	0.40	0.50	0.16	0.25	0.30	0.75	-	0.37
Wheat	Before	0.30	0.40	1.00	1.80	0.45	0.40	0.45	1.25	-	0.59
	After	0.20	0.20	0.80	1.20	0.29	0.40	0.45	1.25	-	0.59
Cabbage	Before	0.10	0.12	0.14	0.30	0.12	0.12	0.15	0.10	-	0.12
	After	0.10	0.12	0.15	0.30	0.12	0.12	0.15	0.10	-	0.12
Cauliflower	Before	0.10	0.15	0.15	0.30	0.13	0.10	0.15	0.10	-	0.12
	After	0.10	0.15	0.15	0.30	0.13	0.10	0.15	0.10	-	0.12
Tomato	Before	0.15	0.15	0.20	0.50	0.17	0.10	0.10	0.15	-	0.11
	After	0.15	0.10	0.20	0.20	0.14	0.10	0.10	0.15	-	0.11
Potato	Before	0.20	0.25	0.25	0.65	0.23	0.12	0.20	0.30	-	0.18
	After	0.15	0.10	0.10	0.40	0.14	0.12	0.22	0.30	-	0.19
Onion	Before	0.08	0.10	0.12	0.40	0.10	0.10	0.15	0.15	-	0.12
	After	0.10	0.10	0.10	0.25	0.10	0.10	0.15	0.20	-	0.13
Other vegetables	Before	0.15	0.15	0.20	0.25	0.16	0.11	0.10	0.15	-	0.11
	After	0.10	0.10	0.05	0.15	0.10	0.12	0.10	0.15	-	0.12
GCA	Before	1.33	1.62	2.66	5.20	1.68	1.30	1.60	2.95	-	1.72
	After	1.00	1.02	1.95	3.30	0.18	1.31	1.62	3.00	-	1.75
NSA	Before	0.82	1.02	1.75	3.50	1.06	0.81	0.97	1.80	-	1.06
	After	0.75	0.90	1.62	3.20	0.96	0.81	0.97	1.82	-	1.06
CI (%)	Before	162.19	158.82	152.00	148.57	158.49	160.49	164.95	163.89	-	162.26
	After	133.33	113.33	120.37	103.12	122.92	161.73	167.07	164.83	-	165.09

12.5 Change in income of sampled farmers

Income of sampled farmers is presented in Table 12.5. The table reveals that in developed block in case of beneficiary farmers the net return from crop production was increased by 16.16 percent as compared to 0.66 percent in case of non- beneficiary farmers. The net return was not very high because in case of organic produce, farmers are yet to get organic certification. Hence, they have to sell their produce at par with non- organic produce. On the other hand, In developing block net return in case of beneficiaries was -12.23 percent as compared to 0.72 percent among non- beneficiaries. The negative net return in case of beneficiary farmers was mainly due to the fact that these farmers have to lay their fields un- cultivated initially for adopting organic farming.

Table 12.5: Income from crop production on sampled farms (2004-05)

(Rs/ha)

Particulars		Developed Block		Developing Block	
		Before	After	Before	After
Gross cost	Beneficiaries	55187	54030	50078	33812
	Non- beneficiaries	57610	59201	50514	51080
Gross return	Beneficiaries	78094	80639	73500	54369
	Non- beneficiaries	81025	82770	73480	74211
Net return	Beneficiaries	22907	26609	23422	20557
	Non- beneficiaries	23415	23569	22966	23131
% Change	Beneficiaries	16.16		-12.23	
	Non- Beneficiaries	0.66		0.72	

B: Beneficiary & NB: Non- beneficiary

12.6 Response of farmers regarding various components of the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 12.6. The table reveals that 95.00 and 52.50 percent farmers attended the awareness training programme for farmers regarding organic farming in developed and developing block respectively and 100.00 percent farmers in both these blocks found the demonstration useful. After attending the training 87.50 and 60.00 percent farmers in the developed and developing block respectively replicate the same on their fields.

Table 12.6: Response of selected beneficiary farmers regarding different components of the scheme (2004-05)

(Percent)

Particulars	Developed Block	Developing Block
Farmers attended awareness training programme regarding organic farming	95.00	52.50
Farmers found above training programme useful	100.00	100.00
Farmers replicated the same on their fields	87.50	60.00

12.7 Attitude of Farmers about the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 12.7. The table reveals that 10.00 percent farmers in the developed block reported that training programme was inadequate whereas 45.00 percent farmers in developing block reported the same.

Table 12.7: Attitude of Beneficiary farmers in Developed and Developing block about the various components of the scheme

(Percent)

S. No.	Particulars	Responses					
		Inadequate		Adequate		High	
		Developed Block	Developing Block	Developed Block	Developing Block	Developed Block	Developing Block
1	Awareness training programme regarding organic farming	5.00	45.00	95.00	55.00	-	-

12.8 Summing Up

Organic farming is the need of the hour and the scheme was also launched with the objective of providing knowledge to the farmers about the organic farming and prepares them to opt for the same. For this awareness training programme for farmers were organized at every district under the scheme during 2004-05. Institution training to middle and senior level officers of the department regarding the organic farming was also provided. Since the scheme was in its preliminary stage, the results obtained in the concurrent evaluation may not strictly follow the year 2004-05, especially in case of developed block. In the developed block some of the villages visited are declared 100 percent organic. The income of the farmers through organic farming may be low due to low productivity and non- certification of the organic produce. Further, there is a no premium market for organic produce. Hence, it is suggested that organic extension services should be strengthened, certification and marketing of organic produce must be ensured. In the developing block, though none of the farmer is yet producing organic crops but some of the sampled farmers left the small portion of their fields uncultivated during the reference year. It may be concluded that in the coming year's organic farming proved to be a boon for the farmers in the State.

Chapter XIII

Scheme for Farm Women Empowerment

The present chapter attempts to evaluate the Physical and Financial Targets and achievements of Scheme for farm women empowerment. The chapter also analyses the impact of the scheme on the income of beneficiaries of the scheme and examines the problems faced by the beneficiaries of the scheme.

13.1 Physical and Financial Targets and Achievements

Physical and financial targets and achievements of the scheme are presented in Table 13.1.

Table 13.1: Targets and Achievements of Scheme for farm women empowerment (2004-05)

S. No.	Component	HIMACHAL PRADESH			
		Target		Achievement	
		Phy.	Fin.	Phy.	Fin.
1	Link workers training		2.20		294008 (133.6)
2	Honorarium to link workers for organizing fortnightly meeting at group level		4.00		312950 (78.2)
3	Village based trainings for groups		12.00		1342964 (111.9)
4	Result demonstration for the groups formed during 2003-04 and 2004-05		5.00		412900 (82.6)
5	Mahila Goshits		5.00		262500 (52.5)
6	Contingency to be kept at State HQ		0.15		34485 (230.0)
	Total		28.35		2659807 (93.8)

**Figures in parenthesis are percentages*

13.2 Socio- economic profile of sampled farm women

Developed block The socio- economic profile of sampled beneficiary and non- beneficiary farm women is presented in Table 13.2. The table reveals that of all beneficiaries of the scheme, 40.00 percent belonged to general category and

30.00 percent each belonged to SC and OBC category. Literacy rate was found to be 83.33 percent. The average age of sampled farm women entrepreneurs was 33.60 years. Among these women, 60.00, 30.00 and 10.00 percent are married, un-married and widow respectively. Main occupation of the sampled women was agriculture 90.00 percent and other like animal husbandry etc. 10.00 percent. The enterprise on which the training to these women was imparted was taken as their main occupation by 63.33 percent women and subsidiary occupation by 36.67 percent women. Among non- beneficiary farm women 80.00 percent belonged to general category, followed by SC and OBC category 10.00 percent each. Literacy rate was 90.00 percent. Average age of non- beneficiary women was 34.70 years. Out of the total 80.00 percent are married and 20.00 percent unmarried. Agriculture was the main occupation of all non- beneficiary women.

Developing block The table reveals that of all beneficiaries of the scheme, 76.66 percent belonged to general category, followed by 16.67 percent belonged to OBC and 6.67 percent SC category. Literacy rate was found to be 86.67 percent. The average age of sampled farm women was 33.33 years. Among these women, 73.33, 20.00 and 6.67 percent are married, un-married and widow respectively. Agriculture was the main occupation of 93.33 percent and other activities 6.67 percent. The enterprise on which the training to these women was imparted was taken as their main occupation by 13.33 percent women and subsidiary occupation by 86.67 percent women. Among non- beneficiary farm women 90.00 percent belonged to general category, followed by 10.00 percent OBC category. Literacy rate was 90.00 percent. Average age of non- beneficiary women was 35.70 years. Out of the total 70.00 percent are married and 30.00 percent unmarried. Agriculture was the main occupation of all non- beneficiary women.

Table 13.2: Socio- economic profile of Sampled Farm Women in Developed block (2004-05)

Particulars	Developed Block		Developing Block	
	Beneficiaries	Non- beneficiaries	Beneficiaries	Non- beneficiaries
Caste (%)	100.00	100.00	100.00	100.00
SC	30.00	10.00	6.67	-
OBC	30.00	10.00	16.67	10.00
General	40.00	80.00	76.66	90.00
Literacy (%)	83.33	90.00	86.67	90.00
Average Age (Years)	33.60	34.70	33.33	35.70
Married (%)	60.00	80.00	73.33	70.00
Unmarried (%)	30.00	20.00	20.00	30.00
Widow (%)	10.00	-	6.67	-
Main Occupation (%)				-
Agriculture	90.00	100.00	93.33	100.00
Service	-	-	-	-
Other	10.00	-	6.67	-
Enterprise as Main Occupation (%)	63.33	-	13.33	-
Enterprise as Subsidiary Occupation (%)	36.67	-	86.67	-

13.3 Time spent by women on day to day activities

Average time spent by sampled women on various day to day activities is presented in Table 13.3. The table reveals that in developed block among beneficiary farm women, except rest and leisure the maximum time was spent on agriculture, followed by food preparation, family care, other activities and dairy farming. Whereas, in case of non- beneficiary farmers maximum time spent by farm women on agriculture, followed by food- preparation, family care and other activities. In the developing block among beneficiary and non- beneficiary women, the maximum time was spent on agriculture, followed by family care, food preparation and other activities.

Table 13.3: Average time spent by sampled women on various day to day activities (2004-05)

(Hrs/ day)

Activity	Developed block		Developing block	
	Beneficiary	Non- beneficiary	Beneficiary	Non- beneficiary
Agriculture	6.20	4.00	5.00	4.30
Dairy farming	1.25	2.30	2.30	3.00
Food preparation	2.30	3.30	2.30	3.00
Family care	2.30	3.30	3.00	4.00
Other activities	2.15	3.30	2.30	3.00
Rest & Leisure	8.00	7.00	8.00	6.30
Total Hours	24.00	24.00	24.00	24.00

13.4 Response of farm women entrepreneurs regarding various components of the Scheme

Attitude of beneficiary farmers towards various components of the scheme is presented in Table 13.4. The table reveals that 100.00 and 95.00 percent women members of the SHGs attended village based training programme in the developed and developing block respectively and 100.00 percent women entrepreneurs in both these blocks found the training useful. 75.00 and 47.50 percent women entrepreneurs in developed and developing block respectively attended result demonstration and 100.00 percent of them found it useful in both these blocks. In

the developed block 60.00 percent entrepreneurs attended Mahila Goshthis as compared to 37.50 percent in developing block.

Table 13.4: Response of selected beneficiary farm women entrepreneurs regarding different components of the scheme (2004-05)

(Percent)

Particulars	Developed Block	Developing Block
Farm women entrepreneurs attended village based training	100.00	95.00
Farm women entrepreneurs found above training programme useful	100.00	100.00
Farm women entrepreneurs attended result demonstration	75.00	47.50
Farm women entrepreneurs found result demonstration useful	100.00	100.00
Farm women entrepreneurs attended Mahila Goshthis	60.00	37.50

13.5 Impact of the scheme on the status of women

The prime objective of the introduction of the farm women empowerment scheme was to provide due recognition to women farmers and enabling them to economically more contributing to the agricultural economy, The programme also has important ramifications for improving the status of women in family and society. The independent income has enabled them to contribute for family expenditure. The aspects related to the empowerment of women are presented in Table 13.5. The following results were obtained after analysing the table.

Status in the family In the developed block status of women in the family was improved after the intervention of the scheme. The low status in the family was declined from 20.00 to 2.25 percent after the intervention. Whereas, high status has attributed to 47.75 percent women against 10.33 percent earlier. In the developing block also higher status in the family has achieved by 34.00 percent women against 8.67 percent earlier.

Status in the society In the developed block status of 30.00 percent farm women has improved in the society against 16.00 percent earlier. Whereas, the same was observed in case of 25.00 percent women in the developing block.

Level of encouragement by family In the developed block, 6.33, 25.00 and 68.67 percent women entrepreneurs were low, moderately and highly encouraged respectively by their family members to join and work under the scheme. In case of developing block, 30.00, 26.50 and 43.50 percent women were low, moderately and highly encouraged by their family members respectively.

Freedom in spending money The freedom of spending money was not so liberal to the women counterparts in the family both in developed and developing block. The table reveals that, in case of developed block only 5.00 percent women have higher freedom of spending money against 5.25 percent in developing block. Though it was improved after the intervention of the scheme.

Freedom in day to day family decisions Most of the women in developed as well as developing block has moderate freedom in day to day family decisions. These decisions are generally taken with mutual consent of their male counterparts.

Greater freedom in own decisions Most of the women in developed as well as developing block has moderate freedom in their own decisions. But the situation was slightly improved in the developed block after the intervention. Here 16.00 percent women have higher freedom for taking their own decisions against 11.00 percent before the implementation of the scheme.

Contribution towards children & family welfare The contribution of women towards their children and family has increased after the intervention of the scheme. The higher contribution rendered by women was 28.33 percent against 5.00 percent earlier in developed block and 8.67 percent against 4.25 percent earlier in the developing block.

Help rendered by male members The help rendered by male members of the households in day to day activities was also increased after the implementation of the scheme in both developed and developing block.

Table 13.5: Impact of Farm women empowerment scheme on the status of women in the family and society

(Percent)

Particulars	Developed block		Developing block	
	Before	After	Before	After
1. Status in family				
a) Low	20.00	2.25	28.00	15.00
b) Moderate	69.67	50.00	63.33	51.00
c) High	10.33	47.75	8.67	34.00
2. Status in the society				
a) Low	4.00	0.00	2.50	0.00
b) Moderate	80.00	70.00	83.00	75.00
c) High	16.00	30.00	14.50	25.00
3. Level of encouragement by family				
a) Low	-	6.33	-	30.00
b) Moderate	-	25.00	-	26.50
c) High	-	68.67	-	43.50
4. Freedom in spending money				
a) Low	60.00	45.00	63.67	50.50
b) Moderate	38.67	50.00	33.83	44.25
c) High	1.33	5.00	2.50	5.25
5. Freedom in day to day family decisions				
a) Low	6.67	3.50	5.75	4.33
b) Moderate	80.00	78.00	92.25	93.00
c) High	13.33	18.50	2.00	2.67
6. Greater freedom in own decisions				
a) Low	0.00	0.00	0.00	0.00
b) Moderate	89.00	84.00	91.00	91.00
c) High	11.00	16.00	9.00	9.00
7. Contribution towards children & family welfare				
a) Low	15.00	3.67	14.75	8.00
b) Moderate	80.00	68.00	81.00	83.33
c) High	5.00	28.33	4.25	8.67
8. Help rendered by male members in day to day work				
a) Low	69.00	54.25	72.00	63.33
b) Moderate	27.74	34.85	26.00	25.40
c) High	3.26	10.90	2.00	5.27

13.6 Income of farm women from various activities

Income of farm women entrepreneurs from various activities is presented in Table 13.6. The table reveals that in the developed block income of beneficiary farm women entrepreneurs from animal husbandry has raised to Rs 12480 per annum against Rs 8840 in case of non- beneficiary women. The beneficiary farm women has also raised income from selling vermi compost to the neighbouring farmers. The annual income from selling vermi compost is Rs 3870 and Rs 3280 in developed and developing block respectively. Income of beneficiary women entrepreneurs from fruit canning/ jam & pickle preparation was found to be Rs 1340 and Rs 1880 in developed and developing block respectively. Income of women from mushroom cultivation was Rs 6550 per annum in developed block. Income of farm women from agriculture was found to be Rs 5080 and Rs 4364 against Rs 2160 and Rs 2410 in developed and developing block respectively. The income from agriculture is the imputed value of agricultural produce which was raised by women entrepreneurs organically and in their kitchen garden for the use of own household and enhanced income through the recommended practices on their farms.

Table 13.6: Impact of scheme on income of farm women entrepreneurs from various activities

(Rs/ Annum/hh)

Activity	Developed block		Developing block	
	Beneficiary	Non- Ben.	Beneficiary	Non- Ben.
Animal Husbandry	12480	8840	9421	7550
Vermi compost	3870	-	3280	-
Fruit Canning/ Jam & Pickle preparation	1340	-	1880	-
Mushroom Cultivation	6550	-	-	-
Agriculture	5080	2160	4364	2410

13.7 Attitude of Farm Women about the Scheme

Attitude of beneficiary farm women towards various components of the scheme is presented in Table 13.7. The table reveals that 4.00 percent women in the developed block reported that help rendered by the department in the formation of SHGs was inadequate whereas 25.00 percent women in developing block reported the same. Village based training to farm women was found inadequate by 6.67 and 15.00 percent women in developed and developing block respectively. Result demonstration for practical training was found inadequate by 12.50 and 20.00 percent women in developed and developing block respectively. The percentage of sampled women found Mahila Goshthis and training to link workers inadequate was 25.00, 30.00 and 22.50, 15.00 percent in developed and developing block respectively. The honorarium of Rs 50 given to link workers for organizing monthly group meetings was found inadequate by 80.00 and 84.67 percent women in developed and developing block respectively. They want that it should be raised to at least Rs 250 per month.

Table 13.7: Attitude of selected beneficiary farm women entrepreneurs regarding different components of the scheme (2004-05)

(Percent)

S. No.	Particulars	Responses					
		Inadequate		Adequate		High	
		Developed Block	Developing Block	Developed Block	Developing Block	Developed Block	Developing Block
1	Help rendered by the department in the formation of SHG	4.00	25.00	96.00	75.00	-	-
2	Village based trainings	6.67	15.00	93.33	85.00	-	-
3	Result demonstration for practical training	12.50	20.00	87.50	80.00	-	-
4	Organizing *Mahila Goshthis*	25.00	30.00	75.00	70.00	-	-
5	Honorarium to link workers	80.00	84.67	20.00	15.33	-	-
6	Training to link workers	22.50	15.00	77.50	85.00	-	-

13.8 Summing Up

The scheme for farm women empowerment was launched with the objective of giving due recognition to women farmers and enabling them to economically more contributing to the agricultural economy. The scheme was implemented in 65 blocks of the 10 districts except Kinnaur and Lahaul- Spiti in the State. Under this programme women farmers were organized into groups to whom technical know how is rendered. To make the groups effective, a link worker in each group has identified. After analysing the results and during field survey it was observed that after the implementation of the programme women have started feeling economic as well as social independence especially after receiving training on various enterprises. The women of the trainee groups were of the opinion that by attending training on various aspects improved their status in the society. Now they were be able to interact on equal footing which has been the result of positive change in their mental attitude. This ultimately brought a positive change in their family atmosphere. The training also helped in inculcating the quality of leadership in them. It was also found that women SHGs are reluctant to avail credit facilities due

to unnecessary institutional formalities. Hence, it may be suggested that there should be a single window system to provide credit to these SHGs with minimal paper work.