

# **MACRO MANAGEMENT OF AGRICULTURE SCHEMES IN INDIA -A CONSOLIDATED REPORT**



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## Foreword Note

Macro Management of Agricultural (MMA) Schemes is one of the major initiatives of the Ministry of Agriculture, Government of India. The scheme was initiated in the year 2000-01 with the objective to ensure that the Central Assistance for agriculture is spent on focused areas and specific interventions are made effective for the development of agriculture in the respective states. With the launch of National Horticulture Mission in 2005-06, 10 components relating to horticulture were dropped from the purview of MMA Scheme. Since the beginning of this scheme impact studies have been done by a large number of states with varied components. However, the macro level study of the same has not been undertaken ever since its inception. For proper functioning of such schemes and to contribute for the development of agricultural sector, a macro level evaluation of the scheme has become need of the hour.

The Agricultural Development and Rural Transformation Centre (ADRRTC) has been one of the leading centres in initiating and successfully completing the coordinated studies of the Ministry of Agriculture. This study has incorporated five schemes namely, (i) Integrated Cereal Development Programmes of Rice, Wheat and Coarse grains (ICDP); (ii) Sustainable Development of Sugarcane Based Cropping System Areas (SUBACS); (iii) Foundation and Certified Seed Production of Vegetable Crop (FCSPVC); (iv) Special Jute Developmental Program (SJDP); and (v) Balanced Integrated use of Fertilizers/Integrated Nutrient Management (INM).

The study evaluates the performance of the Schemes especially the production and productivity of the area brought under cultivation after the implementation of the Schemes. The study also brings out some important issues on financial targets and achievements, social inclusion and the development of lower rung farmers under these Schemes. Study also throws light on how to strengthen delivery system, extension services and training programmes and so on.

I am indeed grateful to the Ministry of Agriculture, Government of India for having assigned this important study to the Institute for Social and Economic Change (ISEC). I am sure that the report will be quite useful in policy formulation pertaining to the components of the Schemes as well as to the researchers and policy makers who are looking into the effectiveness of the interventionist programmes in the agricultural sector.

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# Chapter I

## Macro Management of Agriculture Schemes: An Overview

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### 1.1 Introduction

Agriculture has played a significant role in the overall development of India since independence. At present, this sector accounts for 18 percent of country's GDP and employs more than 50 percent of the total workforce of the country. So, the development of this sector is paramount for the achievement of rapid growth of the country's economy. Advancement in the agricultural growth is necessary not only for attaining high overall growth but also for eradication of poverty, ensuring better employment, food security, etc. (Subrahmanyam and Sekhar 2003; Majumdar 2006).

Initiative for agricultural development in India was started from the beginning of Five Year Plans. Despite of the concerted efforts, the sector remains weak in all fronts. Recently, in order to bring about all round development of agriculture, a scheme called '*Macro Management of Agriculture*' (MMA hereafter) was approved by the Cabinet Committee on Economic Affairs (CCEA) on 4<sup>th</sup> October 2000 and became operational from 2001 in all the States and Union Territories (UTs) by integrating the then existing 27 Centrally Sponsored Schemes of agriculture and its related activities (Ministry of Agriculture, Govt. of India).

The Macro Management of Agriculture Scheme is one of the centrally-sponsored schemes formulated with the objective to ensure that central assistance is spent on focused areas and specific interventions for the development of agriculture is made across the States in the country. The scheme provides sufficient flexibility to the states to develop and pursue the programmes on the basis of their regional priorities. Thus, the states have been given a free hand to finalise their sector-wise allocation as per requirements of their developmental priorities (Ministry of Agriculture, Govt. of India; Economic Survey 2010-11). However, with the launching of the National Horticulture

Mission (NHM) in 2005-06, altogether 10 schemes/components pertaining to horticulture development were taken out of the purview of this scheme.

<b>Table 1.1</b>	
<b>List of Centrally Sponsored 27 Schemes under MMA</b>	
1	Assistance to Co operative and Weaker Section
2	Assistance to Women Cooperatives
3	Non-overdue Cover Scheme
4	Agricultural Credit Stabilization Fund
5	Special Scheme for SC/ST
6	Integrated Cereal Development Programmes in Rice Based Cropping System Areas
7	Integrated Cereal Development Programmes in Wheat Based Cropping System Areas
8	Integrated Cereal Development Programmes in Coarse Cereals Based Cropping System Areas
9	Special Jute Development Programme
10	Sustainable Development of Sugarcane Based Cropping System
11	Balanced & Integrated Use of Fertilizer
12	Promotion of Agricultural Mechanization among Small Farmers
12	Integrated Development of Tropical, Arid & Temperate Zone Fruits
14	Production and Supply of Vegetable Seeds
15	Development of Commercial Floriculture
16	Development of Medicinal and Aromatic Plants
17	Development of Roots and Tuber Crops
18	Development of Cocoa and Cashew
19	Integrated Programme for Development of Spices
20	Development of Mushroom
21	Use of Plastics in Agriculture
22	Bee-Keeping
23	National Watershed Development Project for Rain fed Areas
24	Scheme for Foundation & Certified Seed Production of Vegetable Crops
25	Soil Conservation in Catchments of River Valley Projects & Flood Prone Rivers
26	Reclamation & Development of Alkali Soils
27	State Land Use Board

Source: Ministry of Agriculture, Govt. of India

For further development, three institutions have been commissioned to make an impact assessment of the Macro Management of Agriculture Scheme in different areas.

They are: IIM (Calcutta)<sup>1</sup>, NABARD Consultancy Limited<sup>2</sup> and Agricultural Finance Corporation Limited<sup>3</sup> respectively.

Thus, the MMA scheme contains with 17 components or sub-schemes after the launching of NHM in 2005-06, focusing mainly on rice, wheat, coarse cereals, farm mechanisation and watershed development, etc. (Ministry of Agriculture, Govt. of India).

<b>Table 1.2: List of the Centrally Sponsored 17 Schemes remaining with MMAs (after launching of NHM* in 2005-06)</b>	
1	Integrated Cereal Development Programmes in Rice Based Cropping System Areas
2	Integrated Cereal Development Programmes in Rice Based Cropping System Areas
3	Integrated Cereal Development Programmes in Coarse Cereals Based Cropping System Areas
4	Special Jute Development Programme
5	Sustainable Development of Sugarcane Based Cropping System
6	Balanced and Integrated Use of Fertilize
7	Promotion of Agricultural Mechanization among Small Farmers
8	National Watershed Development Project for Rainfed Areas
9	Scheme for Foundation and Certified Seed Production of Vegetable Crops
10	Soil Conservation in Catchments of River Valley Projects and Flood Prone Rivers
11	Reclamation and Development of Alkali Soils
12	State Land Use Board
13	Assistance to Cooperatives of Weaker Section
14	Assistance to Women Cooperatives
15	Non-overdue Cover Scheme
16	Agriculture Credit Stabilization Fund
17	Special Scheme for SC/ST

Source: Ministry of Agriculture, Govt. of India

\* National Horticulture Mission

Further, the Macro Management of Agriculture (MMA) scheme was revised in July, 2008 to improve its efficacy in supplementing/complementing the efforts of the States towards enhancement of agricultural production and productivity, and provide opportunity to draw upon their agricultural development programmes relating to crop production and natural resource management, with the flexibility to use 20 per cent of resources for innovative components. The revised MMA Scheme has formula-based

<sup>1</sup> IIM (C) covers North-Eastern States and Sikkim, Bihar, Jharkhand, Orissa, West Bengal and Andaman & Nicobar Islands.

<sup>2</sup> This consultancy Ltd covers Gujarat, Rajasthan and Dadra & Nagar Haveli, Madhya Pradesh, Maharashtra, Goa & Chhattisgarh, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Pondicherry & Lakshadweep.

<sup>3</sup> Punjab, Haryana, Himachal Pradesh and Jammu & Kashmir, Uttar Pradesh & Uttarakhand

allocation criteria and provides assistance in the form of grants to the States/UTs on the basis of 90:10 ratios except in the case of north-eastern States and Union Territories where the Central share is 100 per cent.

The introduction of the Macro Management of Agriculture Schemes has been a major initiative towards the agricultural sector in India. Under the new system, the states have freedom to develop and pursue activities on the basis of their regional priorities through their own work plans. The states are also free to include new interventions in the work plans, provided these are not covered under any other scheme of Central Government or are not part of any on-going State Government schemes. The states have been given a free hand to finalise their sector-wise allocation as per requirements of their developmental priorities. Thus, it has been a conscious attempt from the Central Government to move away from the previous pattern of rigid uniformly structured schematic approach, permitting little or no flexibility, which often resulted in large unutilised financial balances held with the States/UTs.

As such, the MMA schemes have been conceived as a major step towards achieving decentralisation in pursuance of restoring primacy of the States in agricultural development planning, allowing States the flexibility to choose suitable interventions from the various components in addition to their own efforts towards growth of the agriculture sector.

### **1.1 Financial assistance and Release of funds**

The approved pattern of financial assistance under this scheme is in the ratio of 90:10 between the centre and the states respectively, except in the case of north-eastern states, in case of which 100 per cent central assistance is extended. Central assistance to the states is released in two installments in the ratio of 80 per cent as grants and 20 per cent as loans. The Government of India has approved separate guidelines for implementation of the scheme. According to these guidelines, 50 per cent of the allocation is to be released as first installment. The release of the second and final installment is considered on the fulfillment of the following conditions (Ministry of Agriculture, Annual Report 2006-07):

- Utilisation Certificate for the funds released up to the previous financial year.

- Expenditure of at least 60 per cent of available funds i.e., unspent balance of the previous year plus the releases in the first installment.
- Full release of the corresponding share of the State Government.

The scheme further provides that the release of the second and final installment shall be made on a 'graded' basis depending on the time of reporting of the utilisation of the amount sanctioned, as also the receipt of the complete proposal for release of the second installment.

While the funds under the MMA Scheme would be released to the States in two installments (preferably in April and October every year), timely release of funds by the State Governments to the implementing departments and agencies, i.e., within two weeks of the receipt of the funds from the Centre would be insisted upon to meet the requirements of the cropping seasons. Only 10 percent of the total unspent balance will be allowed to be carried forward to the next financial year. The remaining unspent balance will be adjusted in the amount to be released as the second installment. In case, a State Government does not seek release of the second installment, the unspent balance over and above 10 percent will be deducted from the release of first installment during the next fiscal. Further, submission of performance reports in terms of the physical and financial achievements would be necessary before the release of the second installment.

## **1.2 Revised Macro Management of Agriculture (MMA) Schemes**

In the year 2008, the Macro-Management of Agriculture scheme was revised. The role of the scheme has been redefined to avoid overlapping and duplication of efforts and to make it more relevant to the present agricultural scenario in the states for achieving the basic objective of food security, and to improve the livelihood system for rural people. The revision of the scheme was made in the month of July 2008 after launching the new initiatives, namely the National Food Security Mission (NFSM) and Rashtriya Krishi Vikas Yojana (RKVY).

The Revised MMA Scheme attempts to:

- avoid overlap with the activities under the two major initiatives launched during 2007-08, namely, the National Food Security Mission (NFSM) and the Rashtriya Krishi Vikas Yojana (RKVY).
- revise and rationalize the cost and subsidy norms vis a vis other schemes to bring about uniformity and avoid confusion at the field level.
- provide an alternative window of funding to the States till RKVY stabilizes fully.
- make it more relevant to the present agriculture scenario in the States to achieve the basic objective of food security and to improve the livelihood system for rural masses.

### **1.3 Major Activities under the Revised Macro Management Schemes**

In order to give the focused attention, the financial assistance would be provided under the revised MMA Schemes for the following broad activities.

(1) Distribution of hybrid/high yielding variety seeds, not older than ten year. The older varieties which are having higher yield may also be distributed. Emphasis would also be on production of seeds where involvement of private sector will be encouraged.

(2) Distribution of seed mini-kits. The size of mini-kit should be 1/10<sup>th</sup> of the recommended seed rate of different crops. Variety/hybrid seeds included in the mini-kit should not be older than five years.

(3) Demonstration of improved package, system of rice intensification (SRI), hybrid seeds, resource conservation technology, i.e., zero tillage, Furrow Irrigated Raised Bed System (FIRB).

(4) Distribution of micro-nutrients, bio-fertilizers, bio-pesticides, gypsum/pyrite/lime/zinc, application of green manure.

(5) Promotion of agricultural mechanisation equipment, especially small farm implements like cono-weeder, zero till machine, rotavator, improved hand-tools, i.e., gender friendly equipment, bullock drawn implements and power operated equipments, etc. At least 25 percent of the overall allocation for the agricultural mechanisation should be earmarked only for the new technology equipment recommended by ICAR.

(6) Training through Farmer's Field Schools, exposure visits of farmers/officials of the State, video conferencing, use of print and electronic media.

(7) Skill development in the farming community, including training of farmers in modern methods of agriculture as well as imparting the skills relevant for related non-agricultural activities.

(8) Strengthening and creation of infrastructure for soil, fertilizer, and pesticide testing facilities, distribution of soil health cards, training of manpower, etc.

(9) Decentralised production and use of bio-fertilizers, organic farming and vermin compost.

(10) Primary processing of crops for value addition to the farm produces.

(11) Primary market activities at village level to avoid distress sale of the farm produces.

(12) Other extension activities to facilitate crop production for which Public Private Partnership model may be used, wherever possible.

(13) Frontline demonstrations on rice, wheat, coarse cereals, pulses, oilseeds, sugarcane by Indian Council of Agriculture Research (ICAR), State Agriculture Universities, Research Institutions, etc., organising National and State Level Workshop/Seminars, conducting evaluation studies, etc. under Direct Funded Component by Crop Development Directorates.

#### **1.4 Inclusion of the new components under revised MMASs**

Under the Revised MMA Scheme, it has been decided to enhance the permissible ceiling for "New Initiatives" from the existing 10 percent to 20 percent of the total allocation to facilitate the State Governments to implement new activities/innovations as per the felt needs of the State, especially with regard to the activities for gender empowerment and development of risk prone/backward/tribal areas. Schemes which encourage group formation among women/SC/ST farmers would have to be included in the Work Plan, and preference given to these. In order to give a boost to the production of pulses and oilseeds to meet the food and nutritional security, it has been decided to include pulses and oilseeds as one of the crop production programmes under the revised MMA Scheme. This would also address a long standing demand of a number of States.

However, to avoid overlapping, it has been decided that the crop production programme for pulses, oilseeds and maize will only be implemented in the areas not covered under the Integrated Scheme of Oilseeds, Pulses, Oil palm and Maize (ISOPOM). About 16 million hectares of cultivated land has acidic soil in the States of Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Goa, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Sikkim, Tripura, Orissa, Tamil Nadu, Uttarakhand and West Bengal. In the past, the State Governments have specifically requested the Department of Agriculture to initiate specific interventions to treat the acidic soil to improve productivity. To address this problem, it has been decided to introduce a new component "Reclamation of Acidic Soil" along with the existing component of "Reclamation of Alkali Soil" under the Revised MMA Scheme.

List of the programmes under the Revised Macro Management schemes will be as follows. (i) Integrated Cereal Development Programmes in Rice Based Cropping System Areas (ICDP - Rice) (ii) Integrated Cereal Development Programmes in Wheat Based Cropping System Areas (ICDP -Wheat) (iii) Integrated Cereal Development Programmes in Coarse Cereals Based Cropping System Areas (ICDP - Coarse Cereal) (iv) Integrated Development Programme for Pulses and Oilseeds (v) Sustainable Development of Sugarcane Based Cropping System Areas (SUBACS) (vi) Balanced & Integrated Use of Fertilizer and Pesticides (vii) Promotion of Agricultural Mechanisation among Farmers (viii) National Watershed Development Project for Rainfed Areas (NWDPR) (ix) Soil Conservation in Catchments of River Valley Projects & Flood Prone Rivers (RVP & FPR) (x) Reclamation & Development of Alkali and Acidic Soils, and (xi) State Land Use Board (SLUB).

### **1.5 Implementing Agencies**

The Agriculture Department would continue to be the nodal agency at the State level for implementation of the revised MMA Scheme in close coordination and cooperation with other Departments/agencies. The Department will be responsible for preparation of the Work Plan, coordination between various Departments within the State Governments, management of fund and submission of performance reports and utilisation certificates

within the stipulated time frame. However, the State Governments may appoint an implementing agency with sufficient flexibility, as in case of the RKVY for implementation of this scheme. Further, the States will be required to set up a committee consisting of the Secretaries and Directors of all the Departments in the agriculture and allied sectors and representatives from the Planning and Finance Departments under the chairmanship of the Agriculture Production Commissioner or the senior-most Secretary to formulate the Work Plan and review its implementation on a regular basis as also ensure timely flow of funds to implementing departments/agencies.

### **1.6 Objectives of the study**

Ever since the implementation of Macro Management of Agriculture Scheme in the States, no concrete study on the impacts of its schemes and sub-schemes has been carried out. The present study is a consolidated report of five (5) sub-schemes evaluated by nine (9) Agro Economic Research Centres (AERCs) all over the country.

The specific objectives of the study are given below:

- To assess the impact of States' interventions of the five sub-schemes listed here under: (a) Integrated Cereal Development programme (ICDP) of Rice, Wheat and Coarse Cereals, (b) Foundation/Certified Seed Production of Vegetable Crop, (c) Special Jute Developmental Program, (d) Sustainable Development of Sugarcane Based Cropping System and (e) Integrated Nutrient Management/Balanced Integrated use of Fertilizers.
- To analyse the impact of efforts made by the states /Union Territories (UTs) in ensuring timely availability of sufficient quantity and quality seeds, and
- To give a macro level picture of the five sub-schemes evaluated by nine AERCs in the country.

In addition to the above objectives, there is always a need to assess the impact of interventions made under the specific sub schemes under the MMA scheme, so as to examine the impact of such a decentralised approach at the grass root level and to

verify whether or not local needs have been fulfilled. Hence, the study also attempts to examine the followings:

1. To examine the public expenditure pattern of MMAs, in terms of the Financial achievement;
2. To review the distribution of various benefits like Seeds distribution, Bio- agents, Micro-nutrients, Agricultural implements, Soil testing, Mini-kits, Demonstrations, Trainings, etc. under each scheme, across different sizes of farming;
3. To capture the changes under each of the scheme in terms of the area under the cultivation, yield and income before and after the implementation of each of the scheme;
4. To highlight the problems and difficulties in getting access to various facilities under each of the scheme by farming sizes; and
5. To propose new policy implications for the selected MMAs to encourage effective implementation of the same and to bring about the visible change in the farming community.

### **1.7 Methodology and Data source**

The study is based on both the primary and secondary data collected from published and unpublished sources, from the Directorate of Agriculture; Directorate of Economics and Statistics, Government of India; Centre for monitoring Indian Economy (CMIE); Economic Survey of various issues; and other official sources over the years. The primary data were collected with the help of three stages sampling procedure following a stratified sampling survey by tested questionnaire for each scheme.

Secondary data have also been collected from the official sources as well as the different nodal offices at State, district and at the block levels. And, especially the chapter I and II of this study are based on the secondary data. The selection of the sample blocks has been based on the progress of the particular scheme selected for the study and 2007-08 has been considered as the year of reference for the study. The selection of the Blocks, Villages, Beneficiaries and Farmers for the study is given in the following Table (Table No. 1:3).

The present study concentrates on the few selected sub-schemes (between 3 to 5 schemes depending on AERCs) in 10 (ten) States, evaluated by nine (9) AERCs in the country. The schemes covered are: (a) Integrated Cereal Development programme (ICDP) of Rice, Wheat and Coarse Cereals, (b) Foundation/Certified Seed Production of Vegetable Crop, (c) Special Jute Developmental Program, (d) Sustainable Development of Sugarcane Based Cropping System and (e) Balanced Integrated use of Fertilizers/Integrated Nutrient Management.

**Table 1.3:  
Selection of the sample blocks and beneficiaries for the study**

<b>First Group</b> (5 programs)	<b>Second Group</b> (4 programs)	<b>Third Group</b> (3 programs)
1. Orissa 2. Uttar Pradesh 3. West Bengal  <b>(3 States)</b>	1. Andhra Pradesh 2. Assam 3. Bihar 4. Goa 5. Gujarat 6. Haryana 7. Karnataka 8. Madhya Pradesh 9. Maharashtra 10. Rajasthan 11. Tamil Nadu  <b>(11 States)</b>	1. Chattisgarh 2. Himachal Pradesh 3. Kerala 4. Punjab 5. Sikkim 6. Tripura 7. Uttaranchal  <b>(7 States)</b>
5 blocks from each State (5 X 3=15)	4 blocks from each State (4 X 11=44)	3 Blocks from each State (3 X 7=21)
5 Villages from each Block (5 X 15=75)	4 Villages from each block (4 X 44=176)	3 Villages from each block (3 X 21=63)
15 Farmers from each village (15 X 75 = 1125) (375 farmers from each state)	15 farmers from each village (15 X 176=2640) (240 farmers from each state)	15 farmers from each village (15 X 63=945) (135 farmers from each State)

And, the States covered in this study and their respective agencies (AERCs) are: 1. Karnataka (ADRTC, ISEC Bangalore); 2. Maharashtra (AERC, Gokhle Institute of Politics and Economics. Pune); 3. West Benagal (AERC, Visva-Bharati. Kolkata); 4. Punjab (AERC Punjab Agricultural University, Ludhiana); 5. Assam (AERC for NEI, Assam Agricultural University, Jorhat); 6. Himachal Pradesh (AERC, Himachal Pradesh University, Simla); 7. Tamil Nadu (AERC, University of Madras, Chennai); 8. Uttarakhand; and 9. Haryana (AERC, University of Delhi)<sup>4</sup>; 10. Uttar Pradesh (AERC, University of Allahabad). The detail of the schemes evaluated by the AERCs is given in the Table 1.4 below.

### **1.9 Chapter Scheme**

To understand a concrete viewpoint of MMA in different States and the performance level of the schemes the entire consolidated study is divided into 8 (eight) chapters. The first chapter (Chapter I) briefly highlights the growth and genesis of MMA, concept, structure, objectives, difficulties, and methodology of the study.

Chapter II focuses on the trends and patterns of public expenditure under the MMA schemes in the country. Whether the fund provided by the centre is sufficient or not for the scheme, can it be utilised in the focused area or not are also being discussed in this chapter.

Chapter III concentrates on Sustainable Development of Sugarcane Based Cropping System (SUBACS) scheme under MMA. Similarly, chapter IV, V, VI and VII study the performance of the schemes, Integrated Cereal Development Programme (ICDP); Integrated Nutrient Management (INM); Foundation and Certified Seed Production of Vegetable Crops/Development of Vegetable Crops; and Special Jute Development Programme respectively in different states.

Chapter VIII finally wraps up with some concluding remarks and possible comments for further research and sorts out some areas to be developed in future for the development of agricultural sector.

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<sup>4</sup> AERC, University of Delhi covers Haryana and Uttarakhand, and this centre

**Table 1.4:  
Details of MMA schemes evaluated by AERCs**

<b>AERCs</b>	<b>Name of the scheme Evaluated</b>	<b>No. of Schemes Assigned for the evaluation</b>	<b>No. of sample taken for the study</b>	<b>Allotted sample size according to proposal</b>
Karnataka (ADRTC, ISEC Bangalore)	<ol style="list-style-type: none"> <li>1. Sustainable Development of Sugarcane Based Cropping System (SUBACS)</li> <li>2. Integrated Cereal Development Programme (ICDP) of Rice, Wheat and Coarse Cereals.</li> <li>3. Integrated Nutrient Management (INM)</li> <li>4. Foundation and Certified Seed Production of Vegetable Crops/Development of Vegetable Crops.</li> </ol>	<b>4</b>	<b>240</b>	<b>240</b>
Maharashtra (AERC, Gokhle Institute of Politics and Economics. Pune)	<ol style="list-style-type: none"> <li>1. Sustainable Development of Sugarcane Based Cropping System (SUBACS)</li> <li>2. Integrated Cereal Development Programme (ICDP) of Rice, Wheat and Coarse Cereals.</li> <li>3. Integrated Nutrient Management (INM).</li> </ol>	<b>4</b>	<b>135</b>	<b>240</b>
West Bengal (AERC, Visva-Bharati. Kolkata)	<ol style="list-style-type: none"> <li>1. Sustainable Development of Sugarcane Based Cropping System (SUBACS)</li> <li>2. Integrated Cereal Development Programme (ICDP) of Rice, Wheat and Coarse Cereals.</li> <li>3. Balanced and Integrated Use of Fertilizer and Pesticides (BIUF) /Integrated Nutrient Management (INM).</li> <li>4. Special Jute development Program</li> </ol>	<b>5</b>	<b>250</b>	<b>375</b>
Punjab (AERC Punjab Agricultural University, Ludhiana)	<ol style="list-style-type: none"> <li>1. Integrated Cereal Development Programme (ICDP) of Rice, Wheat and Coarse Cereals.</li> <li>2. Integrated Nutrient Management (INM).</li> </ol>	<b>3</b>	<b>135</b>	<b>135</b>
Assam (AERC for NEI, Assam Agricultural University, Jorhat)	<ol style="list-style-type: none"> <li>1. Integrated Cereal Development Programme (ICDP) of Rice</li> <li>2. Special Jute Development Programme (SJDP)</li> </ol>	<b>4</b>	<b>120</b>	<b>240</b>
Himachal Pradesh (AERC, Himachal Pradesh University, Simla)	<ol style="list-style-type: none"> <li>1. Integrated Cereal Development Programme (ICDP) of Rice, Wheat and Coarse Cereals.</li> <li>2. Integrated Nutrient Management (INM).</li> </ol>	<b>3</b>	<b>90</b>	<b>135</b>
Tamil Nadu (AERC, University of Madras, Chennai)	<ol style="list-style-type: none"> <li>1. Integrated Cereal Development Programme (ICDP) of Rice.</li> <li>2. Innovative Scheme (as decided by the centre)</li> </ol>	<b>4</b>	<b>120</b>	<b>240</b>

Delhi (Jharkhand and Uttaranchal)  (AERC, University of Delhi)	<i>No particular scheme has been evaluated, general assessment of overall MMA schemes of Jharkhand and Uttaranchal is made.</i>	-	<b>135</b>	<b>135</b>
Uttar Pradesh  (AERC, University of Allahabad)	1. Sustainable Development of Sugarcane based Cropping System (SUBACS) 2. Integrated Cereal Development Programme (ICDP)of Wheat 3. Integrated Cereal Development Programme (ICDP)of Coarse Grain 4. Special Sun Hemp development programme.	<b>5</b>	<b>375</b>	<b>375</b>

### 1.10 Constraints of the Study

Any sort of research work confronts at least one or the other problem. Similarly, the present study has also got some weaknesses. To mention some of them:

- a. no uniform approach, methodology of evaluation was made by the centres across the country;
- b. no uniform number of scheme was evaluated by the centres;
- c. no uniform sample size and questionnaire was made by the centres;
- d. limitation of the time for preparing consolidated report as the centres did not send their reports on time;

Despite these differences, the present study tries to consolidate and make a uniform analysis to give or assess a clear picture of the MMA scheme in the country.

## Chapter II

### Trends in the public expenditure under the Macro Management of Agricultural Schemes

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#### 2.1 Introduction

Even if many modern economists and pro-globalisers have inclined more towards the privatization, the role of public expenditure is still significant for the underdeveloped nations, like India. The evidence of growth of public expenditure can be traced back from the classic works of the scholars, like Wagner and Keynes. Bird (1971) stated that as economy develops the demand for public goods also increases. This leads to high demand for public expenditure. In India too, public expenditure had increased from Rs. 530 crore in 1950-51 to Rs. 750885 crore in 2008-09. Similarly, with the growth and development of agricultural sector, the size of public expenditure of this sector has also been increasing in India.

The agricultural sector was neglected little during the 1990s with the emergence of liberalization, and after 2000s, its importance has been revived and set a target for 4 percent annual growth rate of this sector. Since then, government's budget on agriculture has increased from Rs. 1666.04 crore in 2000-01 to Rs. 10794.86<sup>5</sup> crore in 2009-10. The Budget has set apart Rs 12,308 crores as the Central Plan outlay for agriculture and allied sectors for 2010-11. This is Rs 2,185 crores, or 21.58 percent, higher than the 2009-10 Revised Estimates (RE) of Rs 10,123 crores. The major part of the additional allocation has gone to the Department of Agriculture and Cooperation. The rest has been shared by the Department of Agricultural Research and Education (DARE) and the Department of Animal Husbandry, Dairying and Fisheries.

It has been mandatory to consider the budget estimates and expenditure made under the schemes to assess its progress. As such, it is evident that the government of India has been assigning more importance to the schemes and the budget estimates are more than doubled after the 9 year of its commencement (2009). This shows the growing

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<sup>5</sup> Provisional data up to March 2010

importance of agricultural sector and its budget expenses. The present study tries to understand (in the later part of this study) the impact of its expenditure on the development of agriculture. The picture of public expenditure under the MMA scheme is given below in the Table 2.1:

<b>Table 2.1: Trends of Public Expenditure under MMA till 2009-10 (Rs. in Crores)</b>			
<b>Years</b>	<b>Budget Estimates</b>	<b>Revised Estimates</b>	<b>Actual Expenditure</b>
2000-01	490	381	381
2001-02	850	680	678
2002-03	738	597	597
2003-04	700	648	648
2004-05	720	1150	1186
2005-06	913	819	842
2006-07	910	911	759
2007-08	1100	1048	1001
2008-09	950	981	923
2009-10	950	930	706
<b>Total</b>	<b>8321</b>	<b>8145</b>	<b>7721</b>

Source: Ministry of Agriculture, Govt. of India

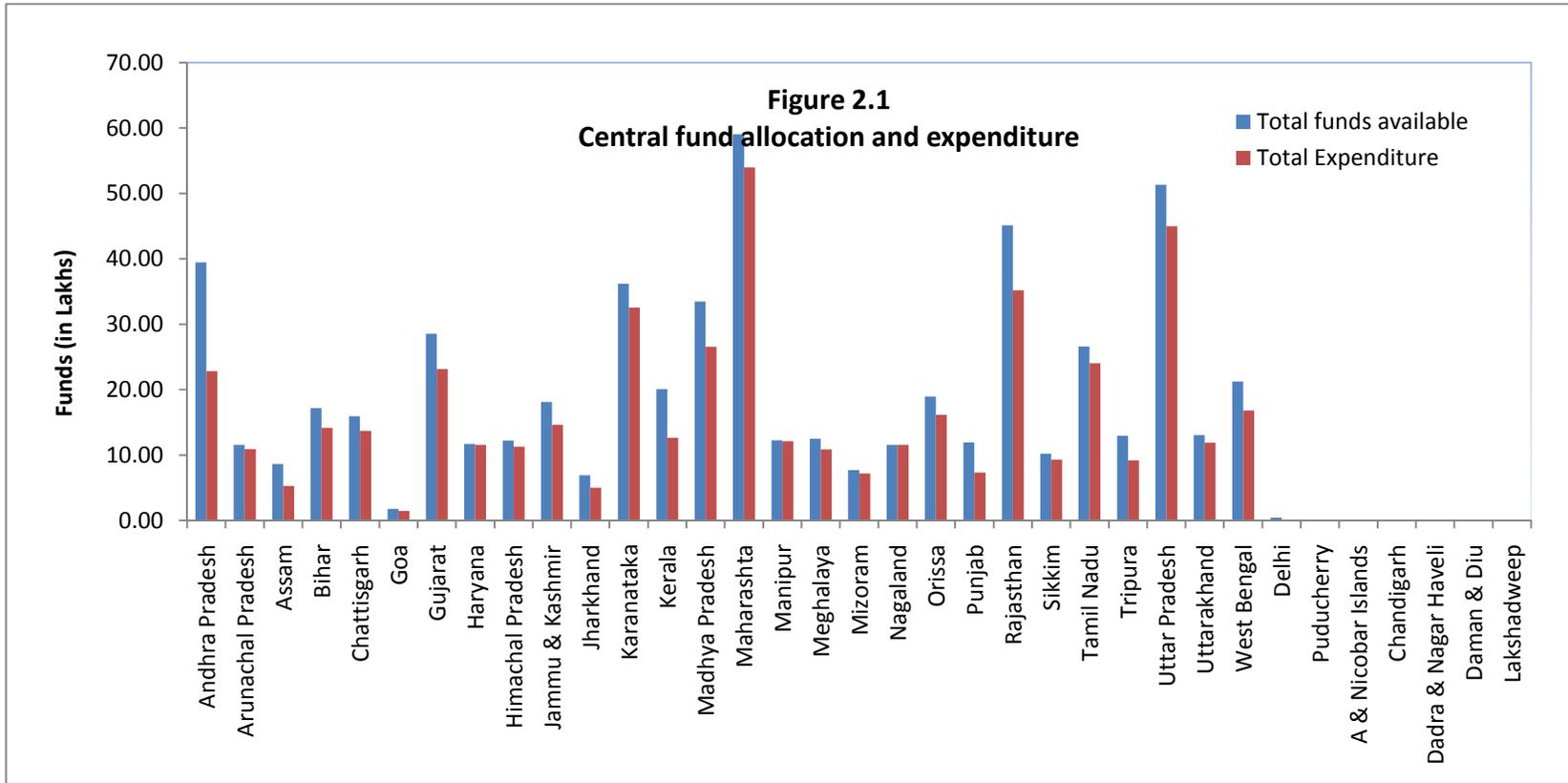
From Table 2.1 it is evident that the actual expenditure has increased from Rs. 381 crore in 2000-01 to almost double amount to at Rs. 678 crore in 2001-02. But, very interestingly, the growth trend was not as smooth as Wagner's theory suggests. With constant growth, reached ever highest level (up to date) at Rs. 1186 crore in 2004-05, the trend has gone down to Rs. 706 crore in 2009-10.

To understand and view inter-state disparities of expenditure pattern, the public expenditure made for various Macro Management Schemes in different states is presented in the Table 2.2. and subsequent in Figure 2.1.

**Table 2.2:**  
**Total Fund Allocation and Expenditure under MMA in different States**  
**(2005-06 to 2009-10) Rs. in Lakh**

States	Total funds available	Total Expenditure
Andhra Pradesh	39461.08	22833.71
Arunachal Pradesh	11567.09	10901.18
Assam	8650.91	5287.00
Bihar	17157.31	14176.93
Chattisgarh	15939.59	13699.83
Goa	1740.23	1428.23
Gujarat	28521.53	23173.88
Haryana	11710.79	11572.53
Himachal Pradesh	12190.46	11292.42
Jammu & Kashmir	18104.65	14638.95
Jharkhand	6891.71	5037.12
Karnataka	36217.33	32524.65
Kerala	20117.55	12621.10
Madhya Pradesh	33460.27	26561.83
Maharashtra	59058.98	54006.57
Manipur	12258.32	12103.41
Meghalaya	12502.20	10874.71
Mizoram	7677.55	7189.25
Nagaland	11560.54	11560.54
Orissa	18951.39	16150.88
Punjab	11928.04	7322.26
Rajasthan	45101.31	35207.36
Sikkim	10228.70	9295.63
Tamil Nadu	26587.31	24025.31
Tripura	12953.55	9198.15
Uttar Pradesh	51345.67	44973.24
Uttarakhand	13021.05	11892.44
West Bengal	21236.29	16807.28
Delhi	397.61	21.13
Puducherry	141.53	62.09
A & Nicobar Islands	126.52	75.62
Chandigarh	0.00	0.00
Dadra & Nagar Haveli	40.46	16.03
Daman & Diu	0.00	3.13
Lakshadweep	58.83	52.31

Source: Ministry of Agriculture, Govt. of India



For the purpose of analysis, the states have been classified under seven (7) zones, viz. Northern, Southern, Eastern, Western, Central, North Eastern and Union Territories. The total funds for the schemes are made available from two streams, Central allocation and State's share. In fact, according to the guidelines of the Macro Management Schemes, the share of the Central and the State's contribution is made at the ratio of 90:10, except NE Zone<sup>6</sup>. During the period under review (2005-06 to 2009-10), the total allocation of funds under MMA schemes was Rs. 497649 lakhs. Out of which, Rs. 456082 or (91.65 percent) was made available by the Central governments and Rs. 41567 (8.35 percent) was the share of the State governments. It is evident from the Table 2.3 that the Central Zone which consists of Chhattisgarh, Madhya Pradesh, Uttar Pradesh and Uttaranchal states stands highest in terms of the allocation of funds with Rs. 104272 lakhs (20.95 percent) followed by Southern Zone with Rs. 95056 lakhs (19.10 percent). Of which, Karnataka stands on the top with a total fund of Rs. 30, 833 lakhs. Further, Northern zone, which consists of Haryana, Himachal Pradesh, Punjab, Jammu and Kashmir, and Rajasthan, stands third in terms of allocation of funds. It has been allocated Rs. 85511 lakhs, and it works out to be 17.18 percent of the total allocated funds under MMA Schemes. Similarly, North Eastern Zone, Eastern and Western Zone stands at Fourth, Fifth and Sixth positions respectively with their percentage shares of 16.30 percent, 14.33 percent and 12 percent funds allocation respectively. Union Territories have been allocated a nominal amount of Rs. 1093 lakhs under MMA Schemes which is only 0.21 percent of the total allocated funds. The detail of the funds allocated, utilised and unutilised are given in the Table 2.3. Further, Figure 2.2 clearly shows that the funds available for the scheme were not utilised fully by any of the zones during the 2005-06 to 2009-10.

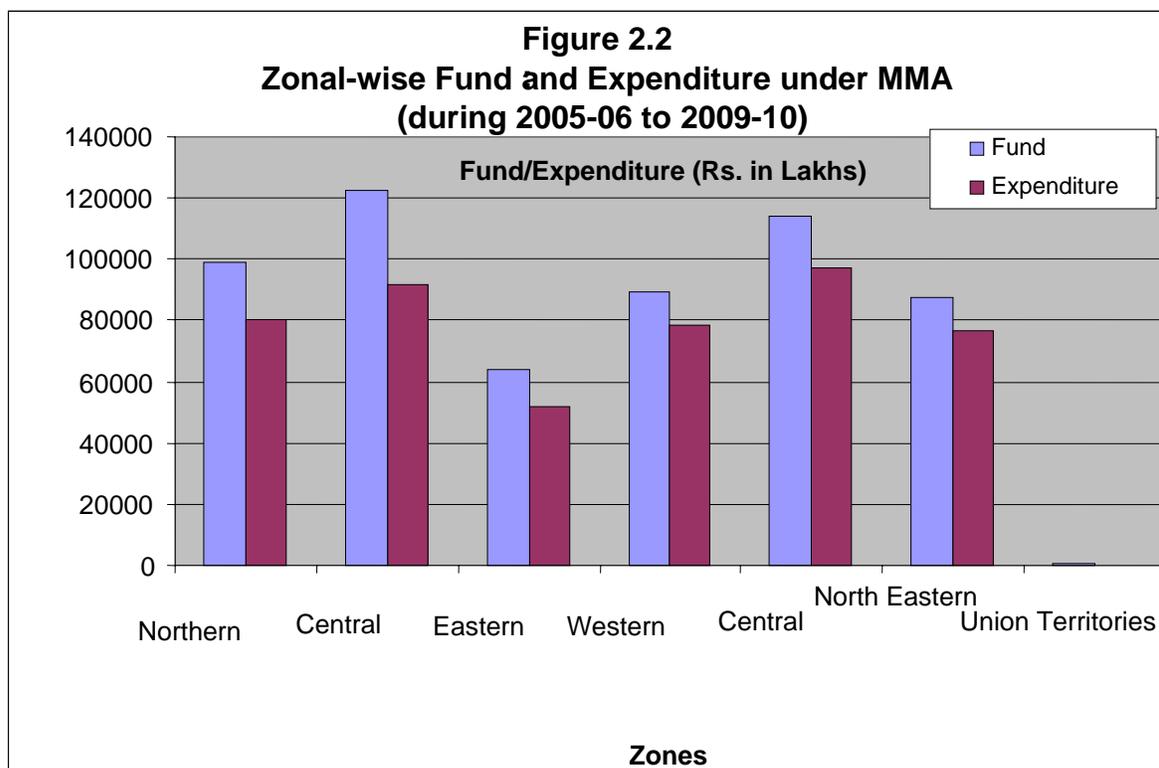
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<sup>6</sup> In the North Eastern Zone, 100 percent of the fund is provided by the Centre as it is considered as 'Special Category' states.

**Table 2.3:**  
**Zonal-wise Allocation of Funds and Expenditure under MMA in 2005-06 to 2009-10 (Rs. in Lakh)**

States	Unspent Balance carried forward	Allocation (Central share)	State Share	Total allocation	Released	Total Funds Available	Total Expenditure
<b>Northern Zone</b>							
Haryana	311	9270	1030	10300	11400	11711	11573
Himachal Pradesh	920	9940	1104	11044	11271	12190	11292
Punjab	7227	5900	656	6556	4701	11928	7322
Jammu & Kashmir	3832	18560	2062	20622	14272	18105	14639
Rajasthan	14232	33290	3699	36989	30869	45101	35207
<b>Total</b>	<b>26522</b>	<b>76960</b>	<b>8551</b>	<b>85511</b>	<b>72513</b>	<b>99035</b>	<b>80034</b>
<b>Southern Zone</b>							
Andhra Pradesh	14886	25780	2864	28644	24575	39461	22834
Karnataka	9043	27750	3083	30833	27174	36217	32525
Kerala	8910	11460	1273	12733	11208	20118	12621
Tamilnadu	2712	20560	2284	22844	23875	26587	24025
<b>Total</b>	<b>35551</b>	<b>85550</b>	<b>9506</b>	<b>95056</b>	<b>86832</b>	<b>122383</b>	<b>92005</b>
<b>Eastern Zone</b>							
Bihar	3279	14070	1563	15633	13864	17157	14177
Jharkhand	2897	6790	754	7544	3995	6892	5037
Orissa	2652	14410	1601	16011	16300	18951	16151
West Bengal	3293	18040	2004	20044	17943	21236	16807
<b>Total</b>	<b>12120</b>	<b>53310</b>	<b>5923</b>	<b>59233</b>	<b>52102</b>	<b>64237</b>	<b>52172</b>
<b>Western Zone</b>							
Goa	349	960	107	1067	1391	1740	1428
Gujarat	6694	16650	1850	18500	21828	28522	23174
Maharashtra	5357	46580	5176	51756	53702	59059	54007
<b>Total</b>	<b>12400</b>	<b>64190</b>	<b>7132</b>	<b>71322</b>	<b>76921</b>	<b>89321</b>	<b>78609</b>
<b>Central Zone</b>							
Chattisgarh	5239	10790	1199	11989	10700	15940	13700
Madya Pradesh	10152	27950	3106	31056	23308	33460	26562
UttaraPradesh	8148	43985	4887	48872	43198	51346	44973
Uttranchal	1199	11120	1236	12356	11822	13021	11892
<b>Total</b>	<b>24738</b>	<b>93845</b>	<b>10427</b>	<b>104272</b>	<b>89029</b>	<b>113767</b>	<b>97127</b>
<b>North Eastern Zone</b>							
Arunachal Pradesh	997	10370	0	10370	10570	11567	10901
Assam	3571	9020	0	9020	5080	8651	5287
Manipur	564	10550	0	10550	11695	12258	12103
Meghalay	1111	11050	0	11050	11391	12502	10875
Mizoram	1826	9000	0	9000	5852	7678	7189
Nagaland	356	11950	0	11950	11205	11561	11561
Sikkim	876	9422	0	9422	9353	10229	9296
Tripura	4717	9800	0	9800	8237	12954	9198
<b>Total</b>	<b>14017</b>	<b>81162</b>	<b>0</b>	<b>81162</b>	<b>73382</b>	<b>87399</b>	<b>76410</b>
<b>Union Territories</b>							
Puduchery	89	225	17	242	53	142	62
Andaman & Nicobar	32	361	0	361	96	127	76
Chandigarh	0	0	0	0	0	0	0
Dadra & Nagara Haveli	17	72	0	72	32	40	16
Daman & Diu	0	0	0	0	0	0	3
Lakshadweep	7	267	0	267	0	59	52
Delhi	398	140	11	151	0	398	21
<b>Total</b>	<b>543</b>	<b>1065</b>	<b>28</b>	<b>1093</b>	<b>181</b>	<b>765</b>	<b>230</b>
<b>All Groups</b>	<b>125891</b>	<b>456082</b>	<b>41567</b>	<b>497649</b>	<b>450959</b>	<b>576906</b>	<b>476587</b>

Source: Ministry of Agriculture, Govt. of India



As per the revised guidelines of the MMA Schemes, the funds released between the Centre and the States is at the ratio of 90:10. However, it should be noted that, the share of North Eastern Zone has been borne by the central government as it covers the special category states. In terms of the percentage of expenditure against the released amount, the Union Territories stand first with 127 percent followed by states of the northern and central zone with 110 percent and 109 percent of the expenditure respectively. Again, the states of the southern zone have also satisfactory fund utilisation with 105 percent. The expenditure made from the North Eastern and Western zone state towards the MMA schemes also remains significant with 104 percent and 102 percent respectively against the fund released.

Further, with respect to the expenditure against the total funds, all the zones have shown satisfactory progress. But, the Union Territories could utilise only 30.11 percent of the available funds. However, the over all percentage expenditure of the states against the available funds works out to be 82.61 percent with Western zone being the first with 88.01 percent, and it is followed by North Eastern zone with 87.43 percent, Central Zone

with 85.37 per cent, Eastern Zone with 81.22 percent, Northern Zone with 80.81 percent and Southern Zone with 75.18 percent.

As far as the MMA fund allocation is concerned, it has been found that there are both positive and negative growth rates among the State governments over the years. It can be discerned from Table 2.4 that Bihar stands first in terms of the allocation with a positive annual compound growth of 25.19 percent followed by Andhra Pradesh and Uttar Pradesh with 19.79 percent and 19.31 percent respectively. States like West Bengal (15.82 percent), Gujarat (13.54 percent), Orissa (13.21 percent) and Madhya Pradesh (12.60 percent) are also having positive growth rates. It is important to note that since the funds have not been allocated for UTs and for few other states for some years, the growth rates have not been calculated for those states (refer to Table 2.3; 2.4 and 2.5).

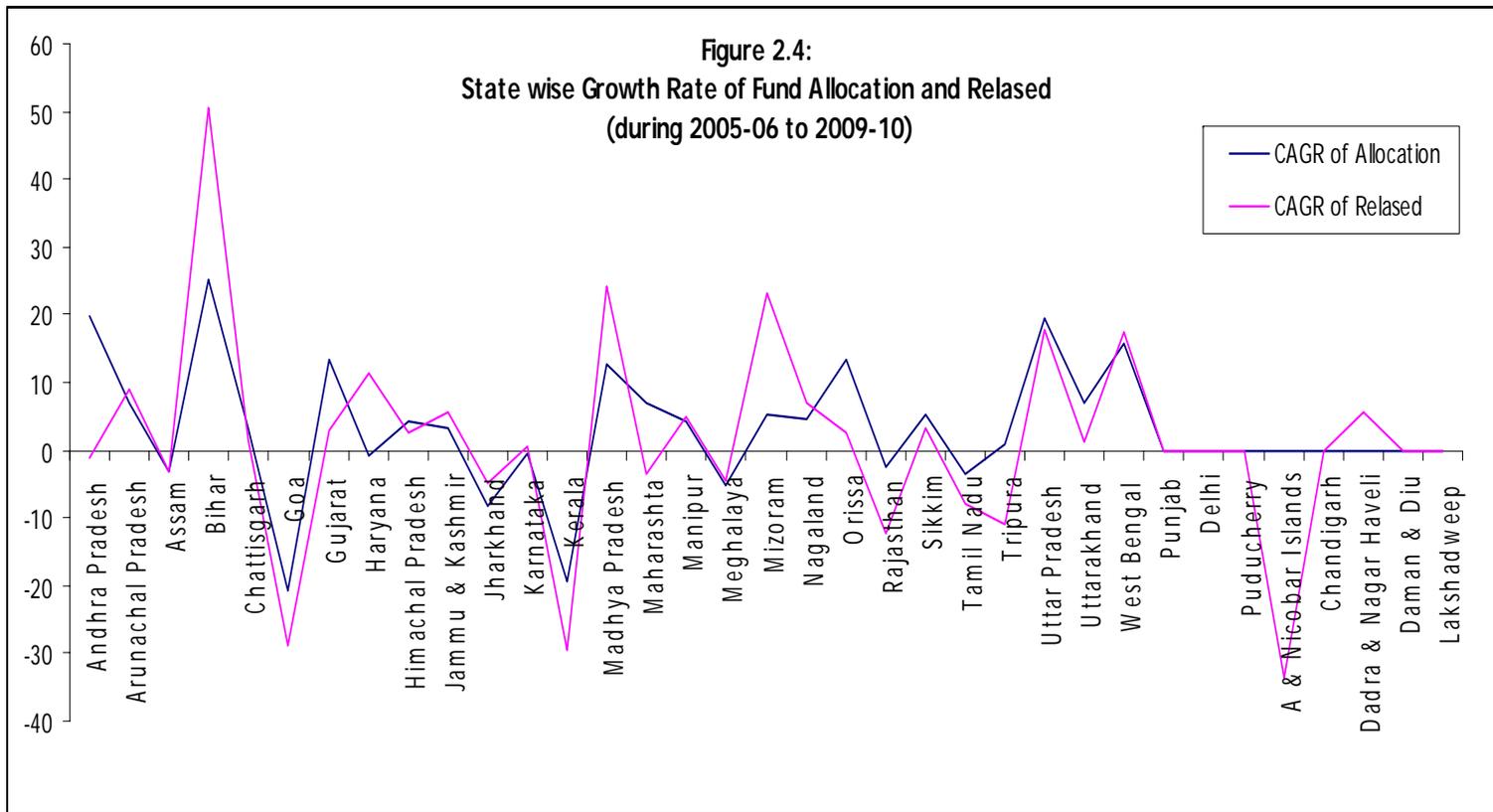
Regarding the state-wise fund over the years (2005-06 to 2009-10) under the MMA scheme, Bihar positions at the top with 50.38 percent of annual compound growth rate and followed by Madhya Pradesh, Mizoram and Uttar Pradesh with 24.04 percent, 23.16 percent and 17.63 percent respectively. At the bottom, Andaman and Nicobar Island stands lowest with -33.58 percent, followed by Kerala, Goa and Rajasthan with -29.38 percent, -28.94 percent and -12.28 percent respectively.

**Table 2.4:**  
**State-wise allocation and the growth rates of the funds under MMA**  
(Rs. in lakhs)

Sl. No	States	Years					Growth Rate (CAGR)
		2005-06	2006-07	2007-08	2008-09	2009-10	
1	Andhra Pradesh	3666.67	4677.78	5777.78	7261.11	7261.11	19.79
2	Arunachal Pradesh	1420.00	2200.00	2650.00	2050.00	2050.00	6.86
3	Assam	1720.00	2000.00	2050.00	1625.00	1625.00	-3.16
4	Bihar	1888.89	2411.11	2666.67	4333.33	4333.33	25.19
5	Chhattisgarh	2000.00	2555.56	2611.11	2411.11	2411.11	3.20
6	Goa	222.22	288.89	333.33	111.11	111.11	-20.87
7	Gujarat	2444.44	3122.22	4833.33	4050.00	4050.00	13.54
8	Haryana	1777.78	2266.67	2500.00	1877.78	1877.78	-0.78
9	Himachal Pradesh	1777.78	2266.67	2555.56	2222.22	2222.22	4.35
10	Jammu & Kashmir	3333.33	4444.44	4711.11	4066.67	4066.67	3.13
11	Jharkhand	1444.44	1844.44	1888.89	1183.33	1183.33	-8.08
12	Karnataka	5222.22	6655.56	7788.89	5583.33	5583.33	-0.41
13	Kerala	2666.67	3400.00	3833.33	1416.67	1416.67	-19.26
14	Madhya Pradesh	4333.33	5533.33	7222.22	6983.33	6983.33	12.60
15	Maharashtra	7611.11	9700.00	13833.33	10305.56	10305.56	6.89
16	Manipur	1600.00	2200.00	2650.00	2050.00	2050.00	4.34
17	Meghalaya	1800.00	2500.00	3000.00	2325.00	1425.00	-5.25
18	Mizoram	1600.00	1800.00	1850.00	1425.00	2325.00	5.27
19	Nagaland	1800.00	2500.00	3000.00	2325.00	2325.00	4.49
20	Orissa	2222.22	2833.33	3666.67	3644.44	3644.44	13.21
21	Punjab	1222.22	0.00	1444.44	1944.44	1944.44	0*
22	Rajasthan	6444.44	8211.11	9555.56	6388.89	6388.89	-2.64
23	Sikkim	1422.00	1900.00	2400.00	1850.00	1850.00	5.12
24	Tamil Nadu	4000.00	5100.00	6055.56	3844.44	3844.44	-3.55
25	Tripura	1700.00	2000.00	2400.00	1850.00	1850.00	0.91
26	Uttar Pradesh	6444.44	8222.22	9000.00	12638.89	12566.67	19.31
27	Uttarakhand	1888.89	2411.11	2944.44	2555.56	2555.56	6.85
28	West Bengal	2777.78	3544.44	3888.89	4916.67	4916.67	15.82
29	Delhi	55.56	0.00	55.56	0.00	40.00	0*
30	Pondicherry	111.11	0.00	55.56	35.00	40.00	0*
31	A & Nicobar Islands	0.00	25.00	40.00	8.00	8.00	0*
32	Chandigarh	0.00	0.00	0.00	0.00	0.00	0*
33	Dadra & Nagar Haveli	0.00	10.00	30.00	6.00	6.00	0*
34	Daman & Diu	0.00	0.00	0.00	0.00	0.00	0*
35	Lakshadweep	0.00	25.00	30.00	6.00	6.00	0*

Source: Calculated from the Ministry of Agriculture.

\* Since there are discrepancies in the data, growth rates cannot be calculated



**Table 2.5:  
State-wise Released and the growth rates of the funds under MMA  
From 2005-06 to 2009-10 (Rs in lakhs)**

Sl.No	States	Years					Growth Rate (CAGR)
		2005-06	2006-07	2007-08	2008-09	2009-10	
1	Andhra Pradesh	7707.69	2541.54	4643.82	3428.72	6253.22	-1.18
2	Arunachal Pradesh	1420.00	2200.00	2650.00	2050.00	2250.00	8.87
3	Assam	860.00	1000.00	1594.64	812.50	812.5	-3.16
4	Bihar	850.00	1564.37	3042.14	4593.03	3814.75	50.38
5	Chhattisgarh	2775.00	1129.76	2455.48	2170.00	2170	1.62
6	Goa	332.59	385.77	432.63	140.00	100	-28.94
7	Gujarat	4850.00	2330.84	5771.65	5045.00	3830.30	3.05
8	Haryana	1460.00	2700.00	2250.00	2300.00	2690.00	11.20
9	Himachal Pradesh	1700.00	2770.59	2214.88	2585.09	2000	2.59
10	Jammu & Kashmir	2250.00	3351.50	2554.04	3026.35	3090.5	5.47
11	Jharkhand	906.00	830.00	850.00	532.50	876.48	-4.97
12	Karnataka	4702.58	5214.24	7346.88	4885.43	5025	0.68
13	Kerala	5950.00	1350.00	1725.00	907.50	1275	-29.38
14	Madhya Pradesh	2550.00	3963.00	4789.92	5834.64	6170.58	24.04
15	Maharashtra	10328.01	11751.30	12034.63	10313.09	9275	-3.40
16	Manipur	1785.40	2200.00	3309.25	2050.00	2350.00	4.91
17	Meghalaya	1950.00	2300.00	3000.00	2716.28	1425.00	-4.50
18	Mizoram	800.00	900.00	925.00	1425.00	1801.63	23.16
19	Nagaland	1800.00	2221.04	2384.00	2325.00	2475.00	7.06
20	Orissa	2300.00	3550.00	3736.11	4360.00	2353.63	2.55
21	Punjab	0.00	426.00	650.00	1750.00	1875.00	0.00**
22	Rajasthan	6255.00	8212.55	7835.42	3775.00	4791.48	-12.28
23	Sikkim	1422.00	2000.00	2335.46	1850.00	1745.54	3.38
24	Tamil Nadu	3670.00	6337.70	6662.51	4270.00	2935.04	-8.07
25	Tripura	1861.56	2000.00	1444.80	1850.00	1080.25	-11.01
26	Uttar Pradesh	7423.23	5668.14	7153.27	10893.24	12060.00	17.63
27	Uttarakhand	1787.87	3144.37	2353.87	2300.00	2236.34	1.36
28	West Bengal	2500.00	3190.00	3364.21	3811.30	5077.68	17.29
29	Delhi	0.00	0.00		0.00	0	0*
30	Puducherry	10.00	0.00	25.00	17.50	0	0*
31	A & Nicobar Islands	35.00	25.00	20.00	8.00	8.00	-33.58
32	Chandigarh	0.00	0.00		0.00		0*
33	Dadra & Nagar Haveli	5.00	5.00	10.00	6.00	6.00	5.62
34	Daman & Diu	0.00	0.00		0.00		0*
35	Lakshadweep	23.25	12.50	15.00	6.00	0	0*

Source: Calculated from the Ministry of Agriculture.

\* Since there are discrepancies in the data, growth rates cannot be calculated

\*\* CAGR cannot be calculated as zero value carries in 2005-06

## Chapter III

# Sustainable Development of Sugarcane Based Cropping System (SUBACS)

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### 3.1 Introduction

One of the flagship schemes of Macro Management of Agriculture called “Sustainable Development of Sugarcane Based Cropping System” (SUBACS hereafter) was introduced along with other schemes in the year 2000-01. The prime objective of this scheme is to boost up the production and productivity of sugar cane and to meet the domestic consumption and export demand of the country. To live upon these needs, the scheme intends to transfer the improved production technology to the farmers through field demonstrations, trainings, supply of farm implements, enhancing production of planting materials, efficient use of water, etc. The scheme has been implemented in 22 states<sup>7</sup> in the country. It has been implemented by the State Department of Agriculture or State Department of Sugarcane, as the case may be, and agencies like Indian Council of Agricultural Research (ICAR), Krishi Vigyan Kendras (KVKs), State Agricultural Universities (SAUs), Directorate of Agriculture/Directorate of Sugarcane Development and other agencies like Sugar Mills, Farmers’ Cooperatives/Associations, etc. States may also involve these agencies including NGOs, if required, for implementation of components. The pattern of assistance under the scheme is indicated in the Table 3.1, that there are 8 (eight) components upon which the public expenditure is expected to be earmarked and to be spent by the implementing agencies in the country.

In this section of the study, an attempt has been made to examine the performance of the selected states for effective implementation of the scheme, SUBACS. The impact of the intervention of the scheme on the farming economy has been evaluated by conducting empirical investigations in the four districts in each selected states (four)

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<sup>7</sup> Andhra Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal and Pondicherry

namely Karnataka (Mandya), West Bengal (Birbhum), Maharashtra (Sangli) and Uttar Pradesh (Lakshmipur Kheri).

### **3.2 Financial Targets and Achievement under SUBACS**

An analysis of secondary data from the sources given by four states on the financial target and achievement of SUBACS reveals that the states have experienced an increasing trend in the allotment of funds for the scheme ever since its inception (refer to Table 3.1 and Figure 3.1) of the scheme. The utilisation of the funds by the states has been quite impressive, ranging from 86 percent to more than 96 percent. It can be seen from the Table 3.1 that the overall utilisation of the funds by the selected states works out to be 96.6 per cent, where Uttar Pradesh stands first with as high as 99.1 percent of financial achievement followed by Maharashtra with 96.7 percent and Karnataka with 93.3 percent against the target. West Bengal stands at the bottom (fourth) place amongst the states with the financial achievement of 86.9 percent against the target. However, a deeper examination of the Table 3.1 shows that Maharashtra has been allotted with a higher fund under SUBACS which accounts for Rs. 5538.8 lakhs, followed by Uttar Pradesh, West Bengal and Karnataka with 2520.0 lakhs, 276.3 lakhs and 156.7 lakhs respectively.

### **3.3 Socio-Economic Profile of the sample Farmers under SUBACS**

To identify the societal category of the farmers under this scheme, 230 sample farmers were selected from the four states (refer to Table 3.2). It can be discerned from the Table 3.2 that large number of the sample beneficiary farmers belongs to the General Category under the study areas. They constitute 53 percent of the total sample farmers, and it is followed by the Other Backward Category (OBC) with 23.9 percent. The Scheduled Caste (SC) and Scheduled Tribe (ST) farmers constitute comparatively lesser number with 10.9 and 12.2 percent respectively. The proportion of SC farmer is even lesser in the states of Uttar Pradesh and Maharashtra with only 4 percent and 2.2 percent respectively. No ST farmer is found in both the states under this scheme.

**Table: 3.1**  
**Financial Targets and Achievements under SUBACS in selected States.**

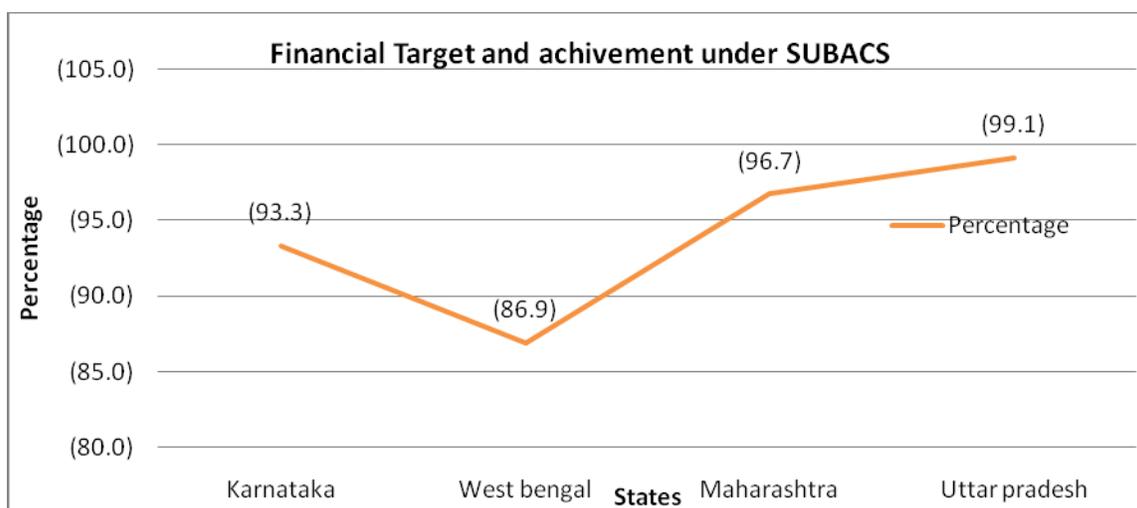
(Rupees in lakhs)

States		2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	Total
Karnataka	Tar	0	0	0	45	56	0	55.7	0	156.7
	Ach	0	0	0	61	50	0	35.2	0	146.2
percent		(0.0)	(0.0)	(0.0)	(135.6)	(89.3)	(0.0)	(63.2)	(0.0)	(93.3)
West Bengal	Tar	32	33.3	20.0	20.0	29.2	30.1	50.0	61.8	276.3
	Ach	32	20.7	15.9	19.5	29.2	28.7	44.8	49.3	240.1
percent		(100.0)	(62.0)	(79.4)	(97.7)	(100.0)	(95.6)	(89.6)	(79.8)	(86.9)
Maharashtra	Tar	0	540.0	549.5	550.0	548.0	892.8	1303.3	1155.3	5538.8
	Ach	0	534.9	500.0	532.4	513.6	873.2	1247.3	1157.1	5358.5
percent		(0.0)	(99.1)	(91.0)	(96.8)	(93.7)	(97.8)	(95.7)	(100.2)	(96.7)
Uttar Pradesh	Tar	0	280.0	323.0	381.0	284.0	300.0	587.0	365.0	2520.0
	Ach	0	280.0	323.0	381.0	284.0	298.0	567.0	365.0	2498.0
percent		(0.0)	(100.0)	(100.0)	(100.0)	(100.0)	(99.3)	(96.6)	(0.0)	(99.1)
Total	Tar	0	32.0	853.3	892.5	996.0	917.2	1222.8	1996.0	6909.8
	Ach	0	32.0	835.5	838.9	994.0	876.8	1199.9	1894.3	6671.5
percent			(100.0)	(97.9)	(94.0)	(99.8)	(95.6)	(98.1)	(94.9)	(96.6)

Source: Compiled from the information provided by the Directorates of Agriculture of the selected States

Note: 'Tar' and 'Ach' imply Target and Achievement respectively.

**Figure 3.1:**



Glancing through state-wise classification, most of the farmers in Karnataka are OBC (65 percent), followed by SC and General category with 13.3 percent and 11.7 percent of the total sampled farmers respectively. The number of ST Farmer is at the bottom with 10 percent in the State.

For Maharashtra, majority of the beneficiaries of this scheme are from general category, consisting of 86.7 percent. It is followed by OBC with 11.1 percent and SC with 2.2 percent. Interestingly, as the collected sample data reveals that no ST farmer enjoys this scheme.

West Bengal is concerned in this matter; more or less equally, all the categories of the society got benefited from this scheme. To be particular, 44 percent of the ST community benefits from this scheme. It is followed by SC and General category equally with 26 percent, and OBC is at the bottom with 4 percent.

Finally, in Uttar Pradesh, most of the general category farmers (84 percent) got benefited from this scheme. It is followed by less percentage of the OBC and SC community with 12 percent and 4 percent respectively. Similar to Maharashtra, no ST farmer got benefited from this scheme in Uttar Pradesh.

**Table: 3.2**  
**Classification of Sample Farmers by Social Groups**

States	SC	ST	OBC	Gen	Sample (N)
<b>Karnataka</b>	8 (13.3)	6 (10.0)	39 (65.0)	7 (11.7)	60 (26.1)
<b>Maharashtra</b>	1 (2.2)	0 (0.0)	5 (11.1)	39 (86.7)	45 (19.6)
<b>West Bengal</b>	13 (26.0)	22 (44.0)	2 (4.0)	13 (26.0)	50 (21.7)
<b>Uttar Pradesh</b>	3 (4.0)	0 (0.0)	9 (12.0)	63 (84.0)	75 (32.6)
<b>Total</b>	<b>25</b> (10.9)	<b>28</b> (12.2)	<b>55</b> (23.9)	<b>122</b> (53.0)	<b>230</b> (100.0)

Source: Compiled from the report of four AERCs (Karnataka, Maharashtra, WB & UP)

Note: Figures in the parentheses are the per cent of the total

By land holding size, fortunately, the sample consists of majority of marginal and small farmers. It is revealed from the Table 3.3 that more than half of the sample farmers

belong to the marginal and small farmer categories. It is pertinent to note that out of total sample small farmers, Karnataka with 48.3 percent and Maharashtra with 46.7 percent have the highest share followed by West Bengal with 26.0 percent and Uttar Pradesh with 17.3 percent. It should also be noted that, West Bengal has the highest proportion of marginal farmers with 70.0 percent. Uttar Pradesh forms majority of the semi-medium and medium farmers, which accounts for 28 percent and 41.3 percent respectively. It is followed by Maharashtra with 24.4 percent of semi-medium and 8.9 percent medium farmers. Further, it is important to note that small segment of the sample are the category of large farmers, which works out to be only 2.2 percent in Maharashtra and 1.7 percent in Karnataka. However, no large category farmer is found in the states of West Bengal and Uttar Pradesh.

**Table: 3.3**  
**Details of the selected sample farmers by Size of holdings**

States	Marginal	Small	Semi-medium	Medium	Large	Sample
<b>Karnataka</b>	13 (21.7)	29 (48.3)	11 (18.3)	6 (10.0)	1 (1.7)	60 (26.1)
<b>Maharashtra</b>	8 (17.8)	21 (46.7)	11 (24.4)	4 (8.9)	1 (2.2)	45 (19.6)
<b>West Bengal</b>	35 (70.0)	13 (26.0)	2 (4.0)	0 (0.0)	0 (0.0)	50 (21.7)
<b>Uttar Pradesh</b>	10 (13.3)	13 (17.3)	21 (28.0)	31 (41.3)	0 (0.0)	75 (32.6)
<b>Total</b>	66 (28.7)	76 (33.0)	45 (19.6)	41 (17.8)	2 (0.9)	230 (100.0)

Source: Compiled from the report of four AERCs (Karnataka, Maharashtra, WB & UP)

Note: Figures in the parentheses are the per cent of the total

### 3.4 Sources of Sugarcane seed procurement by farmers

As far as the procurement of sugarcane seed by the sample farmers is concerned, the study found that the majority of the farmers have obtained Sugar cane seed from the government outlets, while a few have opted for the domestic and some other sources. It can be seen from Table 3.4 that the beneficiary farmers, irrespective of their holding size, predominantly depend on the government outlets to obtain sugarcane seed which include

seed distribution facilities provided by the Seed Corporations, Department of Agriculture and other Agricultural offices at the block levels. As a result of which the retail shops, open markets were least preferred by the farming community. It is quite interesting to note that despite of the efforts made by the government to develop a mechanism for an organised supply of seed, a good section of the farmers have robust faith in the domestic seeds, more so by the small and semi-medium farming categories.

**Table: 3.4**  
**Sources of Sugarcane seed of the sample farmers by Size of holdings (in percent)**

Farm holdings	States	Government Outlets	Retail Shops	Open Market	Domestic	Others	No. of Sample
<b>Marginal</b>	Karnataka	69.2	0.0	0.0	30.8	0.0	13
	West Bengal	68.6	0.0	11.4	20.0	0.0	35
	Maharashtra	25.0	0.0	0.0	12.5	62.5	8
	Uttar Pradesh	60.0	0.0	0.0	10.0	30.0	10
<b>Small</b>	Karnataka	51.7	6.9	0.0	41.4	0.0	29
	West Bengal	53.8	0.0	23.1	23.1	0.0	13
	Maharashtra	81.0	0.0	0.0	0.0	19.0	21
	Uttar Pradesh	61.5	0.0	0.0	15.4	23.1	13
<b>Semi medium</b>	Karnataka	9.1	0.0	9.1	81.8	0.0	11
	West Bengal	50.0	0.0	0.0	50.0	0.0	2
	Maharashtra	90.9	0.0	0.0	9.1	0.0	11
	Uttar Pradesh	61.9	0.0	0.0	23.8	14.3	21
<b>Medium</b>	Karnataka	67.0	0.0	0.0	33.0	0.0	6
	West Bengal	0.0	0.0	0.0	0.0	0.0	0
	Maharashtra	75.0	0.0	0.0	0.0	25.0	4
	Uttar Pradesh	45.2	0.0	0.0	22.6	32.3	31
<b>Large</b>	Karnataka	100.0	0.0	0.0	0.0	0.0	1
	West Bengal	0.0	0.0	0.0	0.0	0.0	0
	Maharashtra	0.0	0.0	0.0	0.0	0.0	1
	Uttar Pradesh	0.0	0.0	0.0	0.0	0.0	0
<b>Total</b>	Karnataka	50.0	3.3	1.7	45.0	0.0	60
	West Bengal	64.0	0.0	14.0	22.0	0.0	50
	Maharashtra	73.3	0.0	0.0	4.4	22.2	45
	Uttar Pradesh	54.7	0.0	0.0	20.0	25.3	75

Source: Compiled from the AERCs reports

It is evident from the Table 3.4 that 45 percent of Karnataka, 22 percent of West Bengal, 20 percent of Uttar Pradesh and 4.4 percent of the farmers from Maharashtra have used Sugar cane seeds from their own house hold sources. However, the efforts of the government officers in making the farmers aware of the government facilities are better reflected from the facts that significant numbers of farming community have

obtained the seeds from the government bodies. What is more striking is that more among the marginal and small farmers have availed the seed distribution facilities provided by the government authorities. Among the marginal farmers, a considerable proportion of 69.2 percent of Karnataka, 68.6 percent of West Bengal farmers, 60 percent of Uttar Pradesh and 25 percent of farmers from Maharashtra have obtained the seeds from the government outlets.

Similarly, the proportion of the small farmers who have obtained the seeds from the government outlets is also remarkably higher among the selected States. It can also be observed from the Table 3.4 that out of 29 samples small farmers of Karnataka, 15 farmers (51.7 percent) of them have depended on the government outlets for their seed procurement. Again, as high as 81.0 percent of small farmers of Maharashtra and 61.5 percent of small farmers of Uttar Pradesh are found to have procured seed from the government sources. The proportion of the West Bengal under the same category of farmer is also note worthy, where 53.8 percent of small farmers have obtained seeds from the government sources.

### **3.5 Sugarcane Demonstration**

Demonstration is one of the important interventions under the selected MMASs. The objective of the demonstrations is to expose the farmers towards the new techniques, methods, seed treatment, and various other components of cultivation. Besides exposing to plant treatment, plant protection, efficient use of water, resistant varieties, method of planting, weed control, and use of fertilizers, etc. are new techniques which are exposed to the farmers.

In the case of sugarcane cultivation, the demonstrations include, Ring Pit, Single Eye Bud, and Ratoon Management, etc are the some important techniques of this cultivation. As Indian Institute of Sugarcane Research (IISR), Lacknow (2004) explores, at the time of sugar cane harvesting, 60 percent of cane comprise of tillers in sub-tropical India, whereas in tropical parts most cane population is formed by the main shoots. This may be one of the reasons for higher yield in tropical climate than in the sub-tropical one, as tillers are short in size and thin in diameter compared to main shoots. Therefore, if the main shoot is increased and that of tillers decreased, considerable yield improvement can

be achieved. Considering this advantage, Ring Pit method of planting sugarcane was developed during 1984 by Indian Institute of Sugarcane Research (IISR) in 2004. It has been maintained that sugarcane planted with this method can provide 3-4 ratoons without reducing cane yield and also cost of the cultivation can be minimised in the long term.

In this method of cultivation, water and nutrient efficiencies can be achieved as compared to the conventional methods of cultivation. It is further believed that, the sugar recovery can also be increased.

Ratoon is an integral part of sugarcane and contributes a major share to total sugar production. Ratoon management or Ratoon Cropping is an old system practiced by the sugarcane growers for many years in the country.

In sugarcane, ratooning is an integral component of commercial cultivation of this crop and it accounts for about 50 per cent of the total area (4.0 million hectares) under sugarcane cultivation in India. The average yield of sugar cane ratoon compared to the experimental maximum, however, ranges from 22 to 57 per cent. Considerable scope therefore exists for improvement in the productivity of ratoon cane. In fact, ratoon management is a most common demonstration conducted for the sugarcane crop and it is regularly followed by majority of the farmers. For the proper ratoon management, three practices namely thrash management, nitrogen fertilization and artificial ripening are particular relevance, should be efficiently implemented. Lastly, under the Single Eye Bud demonstration, the single eye sugarcane cropping method will be shown to the farmers by planting the cane at a distance of 150 cms. This method has a conspicuous advantage that with equal spacing maintained on all the sides, sugarcane plants grow steadily. Continuous supply of nutrition and spacing induces the early physiological maturity, which is a major benefit for the farmers and single eye bud sugarcane cropping pattern has given a cane yield at 135.03 tons per hectare. As per the design of the scheme, farmers growing sugarcane are taken to *field school* (a type of demonstration) for exposition at the district and block levels. The sugarcane growing farmers underwent various demonstrations under SUBACS is presented in Table 3.5. It reveals that, four kinds of demonstrations relating Sugarcane cultivation are conducted in the study areas which are Ring Pit, Single Eye Bud, Ratoon Management and Farmers Field School/Training programme. Among them, Single Bud, and Ratoon management

demonstrations are most common and more frequently conducted in the selected states. The demonstration on the Ring Pit method of Sugar cane cultivation has not been conducted in the Karnataka where as it has been successfully held in the other states of the study. On the other hand, Single Eye bud demonstration is popular in Karnataka and has been held more frequently than in other states. However, Ratoon management and Farmers Field School demonstrations are conducted almost equally in all the selected states.

**Table 3.5**  
**Participation in the Sugarcane Demonstrations under SUBACS (In Percentage)**

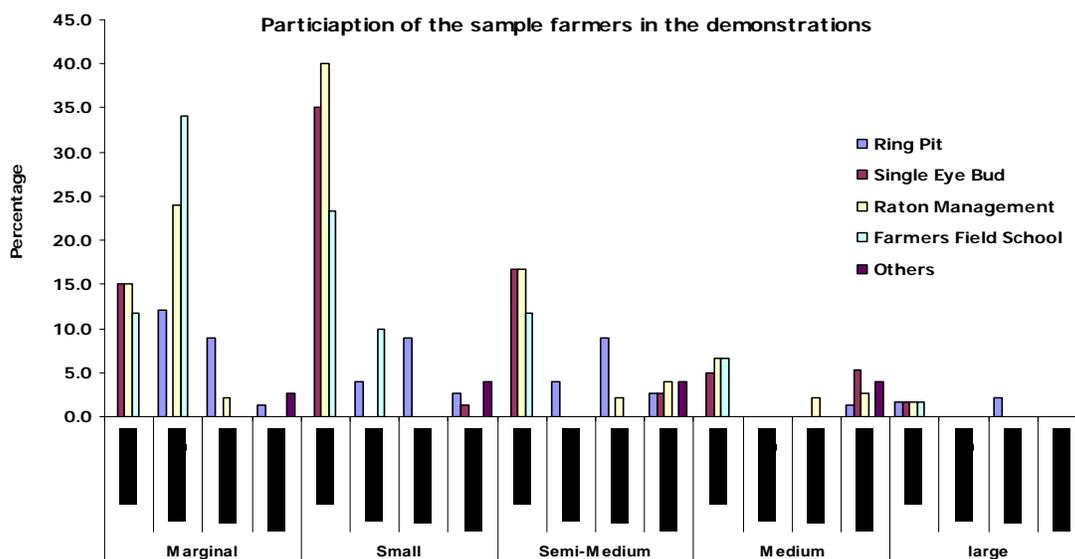
Category of Farmer	States	Ring Pit	Single Eye Bud	Ratoon Mgt	Farmer Field School	Others	All	No. of Response	No. of Sample
<b>Marginal</b>	Karnataka	0.0	15.0	15.0	11.7	0.0	41.7	58.3	60
	West Bengal	12.0	0.0	24.0	34.0	0.0	70.0	30.0	50
	Maharashtra	8.9	0.0	2.2	0.0	0.0	11.1	88.9	45
	Uttar Pradesh	1.3	0.0	0.0	0.0	2.7	4.0	96.0	75
<b>Small</b>	Karnataka	0.0	35.0	40.0	23.3	0.0	98.3	1.7	60
	West Bengal	4.0	0.0	0.0	10.0	0.0	14.0	86.0	50
	Maharashtra	8.9	0.0	0.0	0.0	0.0	8.9	91.1	45
	Uttar Pradesh	2.7	1.3	0.0	0.0	4.0	8.0	92.0	75
<b>Semi-Medium</b>	Karnataka	0.0	16.7	16.7	11.7	0.0	45.0	55.0	60
	West Bengal	4.0	0.0	0.0	0.0	0.0	4.0	96.0	50
	Maharashtra	8.9	0.0	2.2	0.0	0.0	11.1	88.9	45
	Uttar Pradesh	2.7	2.7	4.0	0.0	4.0	13.3	86.7	75
<b>Medium</b>	Karnataka	0.0	5.0	6.7	6.7	0.0	18.3	81.7	60
	West Bengal	0.0	0.0	0.0	0.0	0.0	0.0	100.0	50
	Maharashtra	0.0	0.0	2.2	0.0	0.0	2.2	97.8	45
	Uttar Pradesh	1.3	5.3	2.7	0.0	4.0	13.3	86.7	75
<b>large</b>	Karnataka	1.7	1.7	1.7	1.7	0.0	6.7	93.3	60
	West Bengal	0.0	0.0	0.0	0.0	0.0	0.0	100.0	50
	Maharashtra	2.2	0.0	0.0	0.0	0.0	2.2	97.8	45
	Uttar Pradesh	0.0	0.0	0.0	0.0	0.0	0.0	100.0	75
<b>Total</b>	Karnataka	<b>0.3</b>	<b>14.7</b>	<b>16.0</b>	<b>11.0</b>	<b>0.0</b>	<b>42.0</b>	<b>58.0</b>	<b>300</b>
	West Bengal	<b>4.0</b>	<b>0.0</b>	<b>4.8</b>	<b>8.8</b>	<b>0.0</b>	<b>17.6</b>	<b>82.4</b>	<b>250</b>
	Maharashtra	<b>5.8</b>	<b>0.0</b>	<b>1.3</b>	<b>0.0</b>	<b>0.0</b>	<b>7.1</b>	<b>92.9</b>	<b>225</b>
	Uttar Pradesh	<b>1.6</b>	<b>1.9</b>	<b>1.3</b>	<b>0.0</b>	<b>2.9</b>	<b>7.7</b>	<b>92.3</b>	<b>375</b>

Source: Compiled from the AERCs

While the extent of participation of sample farmers in the above mentioned demonstrations are concerned, it is evident from Table 3.5 that though demonstrations are important interventions made under MMA schemes; the participation by the farmers is

unsatisfactory. In spite of the government's efforts, only 42.0 percent of sample farmers from Karnataka, 17.6 percent from West Bengal, and 7.1 percent from Maharashtra and 7.7 percent from Uttar Pradesh are reported to have participated in the demonstrations. However, it should be noted that the participation of the farmers in the Sugarcane demonstrations is quite acceptable in the case of Karnataka compared to the other states. It is found that 41.7 percent of Marginal, 98.3 percent of small, 45 percent of Semi-medium, 18.3 and 6.7 percent of medium and large farmers respectively have participated in the various Sugar cane demonstrations in Karnataka. It is followed by West Bengal where, 70 and 14 percent of Marginal and Small farmers respectively reported to have participated in the demonstrations. Whereas it appears that the farmers under Semi-medium have not given much importance in taking part in the demonstrations. Further Table 3.5 reveals that only 4.0 percent of the farmers are accounted to have participated in the demonstrations. It is needless to state that, the extent of participation of the farmers in the demonstrations are very poor in Uttar Pradesh (7.7 percent) and Maharashtra (7.1 percent) states and steps need to be taken by the concerned authorities to make the farmers get informed about the benefits of taking part in the demonstrations, workshops and other training programmes. The same is also visible from the Table 3.5 and Figure 3.2 that in West Bengal, large and medium farmers do not participate in the demonstration.

Figure 3.2:



### **3.6 Cost of attending demonstrations borne:**

The cost of attending demonstrations is generally borne by the organisers. In fact, there is provision to hold a separate budget to provide transport facility for the farmers to enable them to participate in the technology demonstrations. Table 3.6 gives the details about the cost borne while attending the demonstrations in the selected study areas. It has been found that in most cases the organisers have borne the cost of attending the demonstrations. In Karnataka, 71.7 percent of the sample farmers irrespective of the size have reported that the cost in attending the demonstrations was borne by the organisers. However, five percent of the farmers have informed that they have borne the cost from their own pocket for attending the demonstration. It is interesting to know from the survey that 68 percent of the farmers in West Bengal revealed that they had borne their own expenses to participate in the demonstrations. In the case of Maharashtra and Uttar Pradesh, 31 percent and 34.7 percent of the farmers respectively have reported that their expenses on account of transportation to the venue of the demonstration are borne by the organisers, whereas 24.4 percent and 34.7 percent of sample farmers from Maharashtra and Uttar Pradesh respectively reported to have borne the cost from their own. However, it was revealed by the farmers during the survey that in all the demonstrations/trainings/meetings, packaged beverages containing light refreshment were served to the participating farmers.

Perhaps, conducting the demonstrations in the busy periods of farmers (harvesting and plantation) could be some inconveniences for the beneficiaries and measures should be taken by the conducting agencies to hold the demonstration at the farmers convenience. What is significant here is that none among the beneficiaries of West Bengal and as good as 96 percent of the farmers from Maharashtra have come across many difficulties in attending the demonstrations. Whereas, around 80 percent of beneficiary farmers from Karnataka and 30.7 percent from Uttar Pradesh have also disclosed that they had no difficulty in participating demonstrations. Nevertheless, a strict assessment of the survey reveals that it is the lower rung farmers who had been exposed to more difficulties in attending the demonstrations than the other categories of farmers.

**Table 3.6**  
**Cost of attending Demonstrations as informed by Sample Farmers (in percent)**

Category of Farmers	States	Organizers	Self Finance	Others	No response	No of Sample
<b>Marginal</b>	Karnataka	61.5	0.0	7.7	30.8	13
	West Bengal	17.1	82.9	0.0	0.0	35
	Maharashtra	12.5	37.5	0.0	50.0	8
	Uttar Pradesh	70.0	10.0	0.0	20.0	10
<b>Small</b>	Karnataka	72.4	6.9	0.0	20.7	29
	West Bengal	15.4	38.5	0.0	46.2	13
	Maharashtra	28.6	19.0	0.0	52.4	21
	Uttar Pradesh	53.8	23.1	0.0	23.1	13
<b>Semi Medium</b>	Karnataka	81.8	9.1	0.0	9.1	11
	West Bengal	0.0	0.0	0.0	100.0	2
	Maharashtra	54.5	18.2	0.0	27.3	11
	Uttar Pradesh	28.6	47.6	0.0	23.8	21
<b>Marginal</b>	Karnataka	66.7	0.0	0.0	33.3	6
	West Bengal	0.0	0.0	0.0	0.0	0
	Maharashtra	0.0	50.0	0.0	50.0	4
	Uttar Pradesh	19.4	38.7	0.0	41.9	31
<b>Large</b>	Karnataka	100.0	0.0	0.0	0.0	1
	West Bengal	0.0	0.0	0.0	0.0	0
	Maharashtra	100.0	0.0	0.0	0.0	1
	Uttar Pradesh	0.0	0.0	0.0	0.0	0
<b>Total</b>	<b>Karnataka</b>	<b>71.7</b>	<b>5.0</b>	<b>1.7</b>	<b>21.7</b>	<b>60</b>
	<b>West Bengal</b>	<b>16.0</b>	<b>68.0</b>	<b>0.0</b>	<b>16.0</b>	<b>50</b>
	<b>Maharashtra</b>	<b>31.1</b>	<b>24.4</b>	<b>0.0</b>	<b>44.4</b>	<b>45</b>
	<b>Uttar Pradesh</b>	<b>34.7</b>	<b>34.7</b>	<b>0.0</b>	<b>30.7</b>	<b>75</b>

Source: Compiled from the AERCs

### **3.7 Problems faced by the farmers in attending the demonstrations.**

When asked about the difficulties in attending the demonstrations the responses of the sample farmers were found interesting. Majority of them informed that attending demonstrations will cost a lot and opportunity cost of other agricultural activities is quite high. Table 3.7 reveals that out of the 60 beneficiaries (sample farmers) in Karnataka, 10 farmers or 16.7 percent of the total sample in the state had to attend the demonstrations at the cost of other agricultural works. Around 1.7 percent of the beneficiaries have felt that they had no proper transport facility and it has kept them away from the demonstrations. Similarly, altogether 33.3 percent of the beneficiaries of Uttar Pradesh have opined that attending the demonstrations would cost their other agricultural activities. Nevertheless, around 15 percent of the sample farmers have informed that the venues of conducting the

demonstrations and training programmes are too far to take part. However, Table 3.7 reveals overall satisfactory level of demonstration. Most of the sample farmers have reported that they had no difficulty in attending demonstration. It is clear that 80 percent of the farmers of Karnataka have agreed that they had no problem in participating demonstrations. Similarly, as high as 96 percent and 100 percent of sample from Maharashtra and Uttar Pradesh respectively have not come across any kind of difficulty in attending the demonstrations.

**Table 3.7**  
**Difficulties faced by the sample Farmers in attending Demonstrations (in percent)**

Classification of Farmer	States	At the Cost of other Agricultural works	No Proper Transport Facility	Far Distance	Others	No Problem	No. of Sample
<b>Marginal</b>	Karnataka	23.1	7.7	0.0	0.0	69.2	13
	Maharashtra	0.0	0.0	0.0	2.9	97.1	35
	West Bengal	0.0	0.0	0.0	0.0	100.0	8
	Uttar Pradesh	50.0	0.0	20.0	10.0	20.0	10
<b>Small</b>	Karnataka	20.7	0.0	0.0	3.4	75.9	29
	Maharashtra	0.0	7.7	0.0	0.0	92.3	13
	West Bengal	0.0	0.0	0.0	0.0	100.0	21
	Uttar Pradesh	46.2	0.0	23.1	7.7	23.1	13
<b>Semi Medium</b>	Karnataka	9.1	0.0	0.0	0.0	90.9	11
	Maharashtra	0.0	0.0	0.0	0.0	100.0	2
	West Bengal	0.0	0.0	0.0	0.0	100.0	11
	Uttar Pradesh	28.6	0.0	9.5	38.1	23.8	21
<b>Medium</b>	Karnataka	0.0	0.0	0.0	0.0	100.0	6
	Maharashtra	0.0	0.0	0.0	0.0	0.0	0
	West Bengal	0.0	0.0	0.0	0.0	100.0	4
	Uttar Pradesh	25.8	0.0	12.9	19.4	41.9	31
<b>Large</b>	Karnataka	0.0	0.0	0.0	0.0	100.0	1
	Maharashtra	0.0	0.0	0.0	0.0	0.0	0
	West Bengal	0.0	0.0	0.0	0.0	100.0	1
	Uttar Pradesh	0.0	0.0	0.0	0.0	0.0	0
<b>Total</b>	<b>Karnataka</b>	<b>16.7</b>	<b>1.7</b>	<b>0.0</b>	<b>1.7</b>	<b>80.0</b>	<b>60</b>
	<b>Maharashtra</b>	<b>0.0</b>	<b>2.0</b>	<b>0.0</b>	<b>2.0</b>	<b>96.0</b>	<b>50</b>
	<b>West Bengal</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100.0</b>	<b>45</b>
	<b>UP</b>	<b>33.3</b>	<b>0.0</b>	<b>14.7</b>	<b>21.3</b>	<b>30.7</b>	<b>75</b>

Source: Compiled from the AERCs

### 3.8 Soil Amelioration

Lack of acidity and salinity reduces the productivity of soil. Thus, encouraging the use of soil ameliorants like gypsum, pirate and lime is one of the major concerns under the implementation of the Macro Management of Agriculture Scheme. In fact, for improving the availability of these soil ameliorants in adequate quantities at places wherever it is needed and at proper time, incentives are given by the government to the dealers. The dealers of soil ameliorants receiving the incentives for transportation have to pass on the incentive to the farmers at the reduced prices. Considering the need of soil ameliorants for sugar cultivation, it is proposed to make available to the farmers by distributing at the reduced prices. Table 3.8 shows the extent of the sample beneficiaries those who have used the soil ameliorates like gypsum, zinc and lime in the selected states.

**Table 3.8**  
**No. of Farmers used Soil Ameliorants after receiving Training of Demonstration**

Category	States	Gypsum	Zinc	Pirate	Lime	Total	Not Used	No. of Sample
<b>Marginal</b>	Karnataka	7.7	61.5	0.0	0.0	69.2	30.8	13
	West Bengal	2.9	0.0	0.0	5.7	8.6	91.4	35
	Maharashtra	12.5	12.5	0.0	0.0	25.0	75.0	8
	Uttar Pradesh	0.0	80.0	0.0	0.0	80.0	20.0	10
<b>Small</b>	Karnataka	0.0	41.4	0.0	0.0	41.4	58.6	29
	West Bengal	0.0	0.0	0.0	15.4	15.4	84.6	13
	Maharashtra	9.5	28.6	0.0	0.0	38.1	61.9	21
	Uttar Pradesh	0.0	76.9	0.0	0.0	76.9	23.1	13
<b>Semi medium</b>	Karnataka	0.0	72.7	0.0	0.0	72.7	27.3	11
	West Bengal	0.0	0.0	0.0	50.0	50.0	50.0	2
	Maharashtra	18.2	0.0	0.0	0.0	18.2	81.8	11
	Uttar Pradesh	0.0	95.2	0.0	0.0	95.2	4.8	21
<b>Medium</b>	Karnataka	0.0	50.0	0.0	0.0	50.0	50.0	6
	West Bengal	0.0	0.0	0.0	0.0	0.0	0.0	0
	Maharashtra	25.0	50.0	0.0	0.0	75.0	25.0	4
	Uttar Pradesh	0.0	83.9	0.0	0.0	83.9	16.1	31
<b>Large</b>	Karnataka	0.0	100.0	0.0	0.0	100.0	0.0	1
	West Bengal	0.0	0.0	0.0	0.0	0.0	0.0	0
	Maharashtra	100.0	0.0	0.0	0.0	100.0	0.0	1
	Uttar Pradesh	0.0	0.0	0.0	0.0	0.0	0.0	0
<b>Total</b>	<b>Karnataka</b>	<b>1.7</b>	<b>53.3</b>	<b>0.0</b>	<b>0.0</b>	<b>55.0</b>	<b>45.0</b>	<b>60</b>
	<b>West Bengal</b>	<b>2.0</b>	<b>0.0</b>	<b>0.0</b>	<b>10.0</b>	<b>12.0</b>	<b>88.0</b>	<b>50</b>
	<b>Maharashtra</b>	<b>15.6</b>	<b>20.0</b>	<b>0.0</b>	<b>0.0</b>	<b>35.6</b>	<b>64.4</b>	<b>45</b>
	<b>Uttar Pradesh</b>	<b>0.0</b>	<b>85.3</b>	<b>0.0</b>	<b>0.0</b>	<b>85.3</b>	<b>14.7</b>	<b>75</b>

Source: Compiled from the AERCs

Note: All the figures in Percentage

It is evident that though large numbers of sample farmers have learnt to apply the soil ameliorants from the demonstration, yet significant proportion of the farmers are not interested to do so. However, it is perceived from the Table 3.8 that 55 percent of Karnataka farmers, 12 percent of West Bengal, 35.6 percent of Maharashtra and 85.3 percent of Uttar Pradesh sample have used the ameliorants.

**Table 3.9**  
**Assistance of Agricultural implements (in % of farmers)**

Category	States	Disk/Blade	Sprayer	Cultivator	No of sample
<b>Marginal</b>	Karnataka	0.0	70.0	30.0	13
	West Bengal	-	-	-	-
	Maharashtra	-	-	-	-
	Uttar Pradesh	-	-	-	-
<b>Small</b>	Karnataka	8.3	50.0	41.7	29
	West Bengal	-	-	-	-
	Maharashtra	-	-	-	-
	Uttar Pradesh	-	-	-	-
<b>Semi- medium</b>	Karnataka	0.0	50.0	50.0	11
	West Bengal	-	-	-	-
	Maharashtra	-	-	-	-
	Uttar Pradesh	-	-	-	-
<b>Medium</b>	Karnataka	0.0	20.0	80.0	6
	West Bengal	-	-	-	-
	Maharashtra	-	-	-	-
	Uttar Pradesh	-	-	-	-
<b>Large</b>	Karnataka	0.0	0.0	0.0	1
	West Bengal	-	-	-	-
	Maharashtra	-	-	-	-
	Uttar Pradesh	-	-	-	-
<b>Total</b>	Karnataka	5.1	51.3	43.6	60
	West Bengal	-	-	-	-
	Maharashtra	-	-	-	-
	Uttar Pradesh	-	-	-	-

Source: Compiled from the AERCs

It should also be noted that among the four ameliorants, Gypsum and Zinc have been most preferred by the farmers than Pirate and Lime which is true from the fact that, 53.3 percent of the farmers of Karnataka, 20 percent of Maharashtra and 85.3 percent of Uttar Pradesh farmers have used Zinc to their land. However, the application of Gypsum is very less compared to the Zinc, where 15.6 percent of the samples of Maharashtra have

used gypsum. It is followed by West Bengal and Karnataka to the negligible extent of the same at 2.0 percent and 1.7 percent respectively.

Regarding the Assistance of Agricultural Implements, though it is the information of Karnataka only, Table 3.9 reveals that, in the study areas, the assistance is given for the three farm implements, like Disks/Blades, Sprayers and Cultivators. It is learnt that more than half of the sample farmers (51.3 percent) have availed the assistance of Sprayers, and it is followed by the Cultivators (43.6 percent). The farmers have also got incentives on the Disks/Blades at the tune of 5.1 percent in the selected block for the study. Due the non-availability of information of the other three States, the statistic of this part is left blank for the said States.

However, it can be stated that the objective of targeting the lower segment of the farmers is better reached under the scheme. It is the lower rung farmers who have been mostly benefited while getting the incentives on the farm implements. It can be seen from Table 3.9 that 70 percent of the marginal, 50 percent of the small and semi medium farmers have got the assistance on the Sprayers. Similarly, in the case of cultivators, 30 percent of the marginal, 41.7 percent of the small, and 50 percent of the semi-medium farmers are reportedly to have benefited from this assistance. Nevertheless, the size of the medium farmers who got benefited of Cultivators is also as high as 80 percent.

### **3.9 Best Varieties of Sugarcane Seed**

Table 3.10 shows the varieties of the Sugarcane seed as preferred by the sample farmers. Varieties of the seed differ according to the size and composition of the soil structure. In Karnataka, the sample farmers have preferred five varieties of the sugarcane seeds, viz. CO-419, CO-62175, CO-86032, Red and White Sugar cane seeds.

Among the seeds mentioned above, 41.7 percent of the farmers are found to have sown CO- 62175 variety of seed, followed by CO- 419 where 40 percent of the farmers have preferred it. Further, white sugar cane has been preferred by the sample farmers at the tune of 15 percent, and CO -86032 and Red sugar cane were preferred equally by the farmers at the extent of 1.7 percent. On the other hand, the sample farmers of West Bengal have sown two varieties of sugar cane seed, namely BO- 91 and CO-997. It is obvious from the Table 3.10 that BO-91 is the most preferred variety by the sample

farmers irrespective of the size of holdings. It is seen that among 80 percent of the sample farmers which is more noticeable in the case of marginal and small farmers. CO-997 is rather preferred by 20 percent of the sample farmers in the West Bengal, and more so by the Semi-medium farmers to the extent of 50 percent followed by the 20 percent of marginal and 15.4 percent of small farmers.

However, when asked about the reasons for preferring these particular varieties, most common responses given by the sample farmers are the high yield, increased juice content which results into higher production of Jaggery for domestic consumption as well as commercial production.

**Table 3.10**  
**Farmers' preference of Sugarcane Seed (In percentage of farmers)**

<b>Karnataka</b>						
<b>Varieties</b>	<b>Marginal</b>	<b>Small</b>	<b>Semi-medium</b>	<b>Medium</b>	<b>Large</b>	<b>Total</b>
CO-419	30.8	44.8	36.4	50.0	0.0	40.0
CO-62175	30.8	41.4	63.6	33.3	0.0	41.7
CO-86032	7.7	0.0	0.0	0.0	0.0	1.7
White Sugarcane	30.8	10.3	0.0	16.7	100.0	15.0
Red Sugarcane	0.0	3.4	0.0	0.0	0.0	1.7
No of Sample	13.0	29.0	11.0	6.0	1.0	60.0
<b>West Bengal</b>						
BO-91	80.0	84.6	50.0	0.0	0.0	80.0
CO-997	20.0	15.4	50.0	0.0	0.0	20.0
No of Sample	35.0	13.0	2.0	0.0	0.0	50.0
<b>Uttar Pradesh</b>						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
<b>Maharashtra</b>						
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Source: Compiled from the AERCs

### **3.10 Area, Production and Yield of Sugarcane**

In the production of sugarcane, not surprisingly, Uttar Pradesh stands first with the total production of 10926.0 tons, followed by Maharashtra with 3681.6 tons of the total operated area in 2007-08. Karnataka stands third in terms of the production of sugarcane from the sample farmers with total output of 2995.1 tons, followed by West Bengal (last position) with 779.9 tons of the total cultivated area of sample farmers in the

same period. However, a deeper examination of the Table 3.11 reveals that, though the lower rung farmers (marginal, small and semi-medium farmers) hold a small proportion of the area, their contribution to the total production is outstanding.

**Table 3.11**  
**Area, Production and Yield of the Sampled Farmers (2007-08)**

Category	Area (Acres)	Production (Ton)	Yield (Ton/Acre)
<b>Karnataka</b>			
Marginal	13.0	282.5	21.3
Small	58.0	1084.4	18.6
Semi- medium	35.0	605.4	17.5
Medium	30.0	499.7	16.6
Large	16.0	523.1	32.7
<b>Total</b>	<b>152.0</b>	<b>2995.1</b>	<b>106.7</b>
<b>West Bengal</b>			
Marginal	5.0	100.0	20.0
Small	17.9	370.5	20.7
Semi -medium	26.3	309.4	30.9
Medium	0.0	0.0	0.0
Large	0.0	0.0	0.0
<b>Total</b>	<b>49.2</b>	<b>779.9</b>	<b>71.6</b>
<b>Maharashtra</b>			
Marginal	2.1	121.6	58.6
Small	4.6	236.3	51.1
Semi- medium	8.3	430.8	51.9
Medium	16.3	830.4	51.1
Large	37.5	2062.5	55.0
<b>Total</b>	<b>68.8</b>	<b>3681.6</b>	<b>267.7</b>
<b>Uttar Pradesh</b>			
Marginal	9.2	265.0	28.7
Small	32.1	937.0	29.2
Semi- medium	101.6	3028.0	29.8
Medium	237.7	6696.0	28.2
Large	0.0	0.0	0.0
<b>Total</b>	<b>380.6</b>	<b>10926.0</b>	<b>115.9</b>

Source: Compiled from the AERCs' report

It is supported by the fact that, all 100 percent of output was contributed by marginal, small, and semi-medium farmers in West Bengal. In the case of Karnataka,

65.9 percent of the total production was contributed by the marginal, small and semi medium farmers (lower rung farmers). Similarly, Uttar Pradesh also fairly higher proportion of the share was contributed (38.7 percent) by these sections of the farmers. Whereas, in Maharashtra, it is the medium and large farmers (upper rung farmers) who contributed the lion share of production with 78.6 percent of the total Sugarcane in the State.

Coming to the land holding pattern of this crop, in Maharashtra, 78.2 percent of the total sampled area of sugarcane cultivation is held by medium and large rung farmers, and 21.8 percent by lower rung farmers. In Uttar Pradesh, the upper rung farmers contribute 62.5 percent of the production supported by the large size holdings. It is obvious from Table 3.11 that the yield of the crop has under gone a sea change both within the sample blocks as well as across the selected States.

It is quite agreeable that the farmers of Maharashtra and Uttar Pradesh are getting almost constant yield across the farm sizes. The lower rung farmers in Maharashtra are equally competent enough to get the yield same as the medium and large farmers. It is clear from the figures that the marginal farmers get rather high yield at the tune of 58.6 tons per acre as against the contribution (Yield) of 51.1 and 55 tons of the medium and large farmers respectively. The consistency in the sugarcane yield is unambiguous in Uttar Pradesh where there are minor changes in the yield across the sizes. Marginal, small, semi-medium, medium and large farmers get the yield in the order of 28.7 tons per acre, 29.2 tons per acre, 29.8 tons per acre, and 28.2 tons per acre respectively.

On the other hand, in West Bengal and Karnataka, the yield of the crop is more so in the Karnataka. Though the yield of the sample farmers of the Karnataka is nearer to the state average, it is 21.3 and 18.6 tons per acre for the marginal and small farmers respectively, whereas, large farmers get 32.7 tons of sugarcane per acre in the State. In the case of West Bengal, marginal and small farmers get almost equal yield of 20 tons per acre whereas, the semi-medium farmers get 30.9 tons. However, it can be inferred from Table 3.11 that the yield is quite consistent in Maharashtra and Uttar Pradesh though there are minute changes across the sizes. Despite of low yield in both States compared to the average yield of the other two states, it is more inconsistent among the farmers' land holdings in Karnataka and West Bengal.

### **3.11 Area, Production and Yield under SUBACS (change after the Scheme)**

The implementation of the SUBACS in the study areas has made visible differences among the farming community in terms of bringing additional area under cultivation, which has resulted an increased production and yield. The conspicuous changes in the additional area brought under the cultivation are evident from Table 3.12. On the whole, the implementation of the SUBACS has been successful in bringing 22 acres of land under cultivation of this crop. As result of which, the production has also increased from 15547 tons to 18553 tons, which works out to be 19.3 percent of growth after the introduction of the scheme. Similarly, the yield per acre has also mounted up to 29 tons per acre from the 25 tons (before the scheme), it is an increased of 4 tons more per acre after the introduction of the scheme. It is exactly 16 percent growth in the productivity after introduction of the scheme. By size of the farmers, marginal, small and semi-medium segment have taken a lead in bringing the additional land under the cultivation. With the implementation of the SUBACS, the area under the cultivation of this segment has increased from 271 acres to 313 acres, which accounts for 15.4 percent growth in real sense. The total production of this segment has also increased from 6305 tons to 7941 tons. The best testimony for having adopted new methods of cultivation under the scheme has increased in the total production of medium and large farmers, and the increased quantity of these categories is from 6852 tons to 8026 tons and 2390 to 2586 tons respectively. Excepting a marginal declined for the small and large segments, the yield has also increased for the sample farmers after the introduction of the scheme. Across the states, the sample farmers of Karnataka are more benefited compared to other states in terms of additional area brought under the cultivation of sugarcane after the scheme. As it can be observed from Table 3.12, the total area operated by the sample farmers in Karnataka has increased from 103 acres to 152 acres. These farmers have also experienced the rise in production level from 1964 tons to 2995 tons. However, the yield of the crops has not been affected much by the implementation of the scheme and it has remained same after the intervention of the scheme.

**Table 3.12:  
Area, Production and Yield of the sample farmers**

	Karnataka					
	Area (Acre)		Production (ton)		Yield (Ton/Acre) *	
	Before	After	Before	After	Before	After
Marginal	12.0	13.0	195.0	282.5	17.0	21.3
Small	36.0	58.0	856.0	1084.4	23.8	18.6
Semi medium	26.0	35.0	365.0	605.4	14.0	17.5
Medium	18.0	30.0	218.0	499.7	12.1	16.6
Large	11.0	16.0	330.0	523.1	30.0	32.7
Total	103.0	152.0	1964.0	2995.0	19.2	19.7
	West Bengal					
Marginal	3.2	5.0	124.0	100.0	38.8	24.0
Small	9.0	17.9	180.0	370.0	20.0	20.6
Semi medium	12.0	26.3	250.0	480.0	20.8	18.2
Medium	0.0	0.0	0.0	0.0	0.0	0.0
Large	0.0	0.0	0.0	0.0	0.0	0.0
Total	24.2	49.3	554.0	950.0	22.9	19.3
	Maharashtra					
Marginal	2.1	2.1	103.0	122.0	49.6	58.6
Small	4.6	4.6	215.0	236.0	46.5	51.1
Semi medium	8.3	8.3	350.0	431.0	42.2	51.9
Medium	16.3	16.3	760.0	830.0	46.8	51.1
Large	37.5	37.5	2060.0	2063.0	54.9	55.0
Total	68.8	68.8	3488.0	3681.6	50.7	53.6
	Uttar Pradesh					
Marginal	10.0	9.2	230.0	265.0	24.0	28.7
Small	35.0	32.1	750.0	937.0	22.0	29.2
Semi medium	114.0	101.6	2687.0	3028.0	24.0	29.8
Medium	275.0	237.7	5874.0	6696.0	21.0	28.2
Large	0.0	0.0	0.0	0.0	0.0	0.0
Total	433.0	381.0	9541.0	10926.0	22.0	29.0
	All States					
Marginal	27.0	30.0	652.0	769.0	25.0	26.0
Small	84.0	113.0	2001.0	2627.0	24.0	23.0
Semi medium	160.0	171.0	3652.0	4544.0	23.0	27.0
Medium	309.0	284.0	6852.0	8026.0	22.0	28.0
Large	49.0	54.0	2390.0	2586.0	49.0	48.0
Total	629.0	651.0	15547.0	18553.0	25.0	29.0

Source: Compiled from the AERCs report

\* Last figures of Yield is the mean of all category of the farmers

West Bengal has also experienced a positive impact of the scheme on the farmer's area and production levels. It is evident from the fact that the total area under sugarcane has increased from the 24.2 acres to 49.3 acres after the scheme in the state. There has been an increased in the production level from 554 tons to 950 tons, where the semi-medium farmers have taken a lead with 92 percent growth in production in the State. However, the yield has been negatively affected in the post implementation period in the state and the same can be attributed to the scale of operation. In the case of Maharashtra, though the impact of the scheme on the area and the total production appear neutral in the post implementation of the scheme, it has resulted in a traceable change in the level of yield. Table 3.12 shows that, the total yield of the sample farmers of Maharashtra has increased from 50.7 tons to 53.6 tons after the scheme, where the increase is more noticeable for the marginal, small and semi-medium farmers. In percentage term, the yield has increased from 49.6 tons to 58.6 tons per acre of the marginal farmers, 46.5 tons to 51.1 tons for small and 42.1 tons to 51.9 tons per acre for the semi-medium farmers.

### **3.12 Concluding Remarks**

Sugarcane is one of the most important crops in agriculture sector in India. With the introduction of the SUBACS, the production, productivity, cropping pattern and overall scenario of this crop has got a paradigm shift in recent past. This has made some positive impact on the socio-economic conditions of the beneficiary farmers of the selected states of MMA scheme. All the size of farmers have by and large benefited from this scheme, especially for the marginal and small farmers of the country.

For further development of this scheme and raising more productivity of this crop, more ground work or institutional arrangement is to be done. For instance, information regarding the new technology, training and advanced crops provided by the government are not easily adopted by the rural farmers. It is probably either due to the information gap or lack of enthusiasm from the government machineries/officials. Proper institutional arrangement, in terms of mobilisation at the grass-root level is to be made for further development of this scheme.

## **Chapter IV**

### **Integrated Cereal Development Programme (ICDP) of Rice, Wheat and Coarse Cereals based Cropping System**

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#### **4.1 Introduction:**

On the basis of the major cropping systems followed in the country, schemes for three cereal-based major cropping systems, namely Rice, Wheat and Coarse Cereals Based Cropping System were formulated. These include (i) Integrated Cereals Development Programme in Rice Based Cropping Systems Areas (ICDP-Rice), (ii) Integrated Cereals Development Programme in Wheat Based Cropping Systems Areas (ICDP-Wheat); and (iii) Integrated Cereals Development Programme in Coarse Cereals Based Cropping Systems Areas (ICDP-Coarse Cereals). Under the schemes, emphasis has been laid on the transfer of improved crop production technologies through organisation of field demonstrations, farmers training, etc. At the same time, to motivate the farmers to adopt the improved crop production technologies, incentives are being provided in the form of inputs like certified seeds/quality seeds, etc. For the sake of uniformity, activities and cost norms followed under the National Food Security Mission (NFSM), it has been adopted as Integrated Cereal Development Programme (ICDP) for Rice, Wheat, and Coarse Cereals. This would not only meet the demand of the states but also facilitate enhancement of agricultural production and productivity in the states to achieve the objective of food security. The prime objective of ICDP scheme is to cope up with the requirement of the rice, wheat and other cereals, while the thrust is being given for increasing the productivity per unit of area; per unit of time; and to bring about an increase in the overall productivity of the crops. In this chapter, altogether eight states (Karnataka, Assam, Himachal Pradesh and Tamil Nadu states for ICDP Rice; Maharashtra, Punjab and West Bengal for ICDP Wheat; Karnataka, Uttar Pradesh and Maharashtra for ICDP Coarse Cereals) are covered with different crops. As it has mentioned in first chapter, the entire study is based on the period of 2007-08.

## 4.2 Financial Assistance (Target) and Achievement under ICDP:

For the above objectives, proper financial assistance is very important. It is also clear from the conventional economic growth theory that greater the investment greater will be the output, and greater investment comes when greater capital is made. When we come to the overall development of the scheme, proper and efficient utilisation of the resources especially the financial resources becomes very significant. The pattern of assistance for various components under the Integrated Cereal Development Programme (ICDP) scheme for Rice, Wheat and Coarse Cereals is given in the Table 4.1.

**Table 4.1:**  
**Financial Targets and Achievements under ICDP of Rice, Wheat and Coarse Cereals-based Cropping System (2000-01 to 2008-09) (Rs. in lakhs)**

Year	Financial	KAR	TN	MH	WB	ASSAM	HP	PUNJAB	UP	Total
2000-01	Tar	0.00	392.27	579.87	0.00	0.00	0.00	0.00	0.00	993.59
	Ach	0.00	242.43	173.43	0.00	0.00	0.00	0.00	0.00	415.86
2001-02	Tar	0.00	513.36	202.01	0.00	0.00	116.50	0.00	0.00	858.16
	Ach	0.00	334.47	181.71	0.00	0.00	115.70	0.00	0.00	631.88
2002-03	Tar	0.00	494.05	155.00	0.00	70.00	164.33	0.00	0.00	901.68
	Ach	0.00	386.42	167.51	0.00	70.00	88.55	0.00	0.00	712.48
2003-04	Tar	0.00	383.66	280.00	0.00	15.00	193.27	0.00	0.00	938.73
	Ach	0.00	377.99	288.25	0.00	15.00	182.97	0.00	0.00	864.21
2004-05	Tar	186.00	311.29	248.00	0.00	0.00	227.88	0.00	0.00	1186.17
	Ach	186.00	311.34	248.15	0.00	0.00	190.73	0.00	0.00	936.22
2005-06	Tar	393.00	469.83	400.00	0.00	0.00	178.45	0.00	0.00	1453.28
	Ach	332.00	469.95	404.04	0.00	0.00	75.31	0.00	0.00	1281.30
2006-07	Tar	75.00	700.26	660.00	253.00	32.00	455.10	0.00	0.00	2336.36
	Ach	68.00	695.85	657.38	215.00	32.00	376.00	0.00	0.00	2044.23
2007-08	Tar	142.00	0.00	891.05	377.50	0.00	379.52	0.00	0.00	1790.07
	Ach	116.00	0.00	821.73	377.50	0.00	302.54	0.00	0.00	1617.77
2008-09	Tar	0.00	0.00	714.30	0.00	0.00	0.00	0.00	0.00	714.30
	Ach	0.00	0.00	693.30	0.00	0.00	0.00	0.00	0.00	693.30
Total	Tar	796.00	3264.72	4130.23	630.50	117.00	1715.05	0.00	0.00	10623.5
	Ach	702.00	2818.45	3635.50	592.50	117.00	1331.80	0.00	0.00	9197.25
percent	Ach	88.19	86.33	88.02	93.97	100.00	77.65	0.00	0.00	86.33

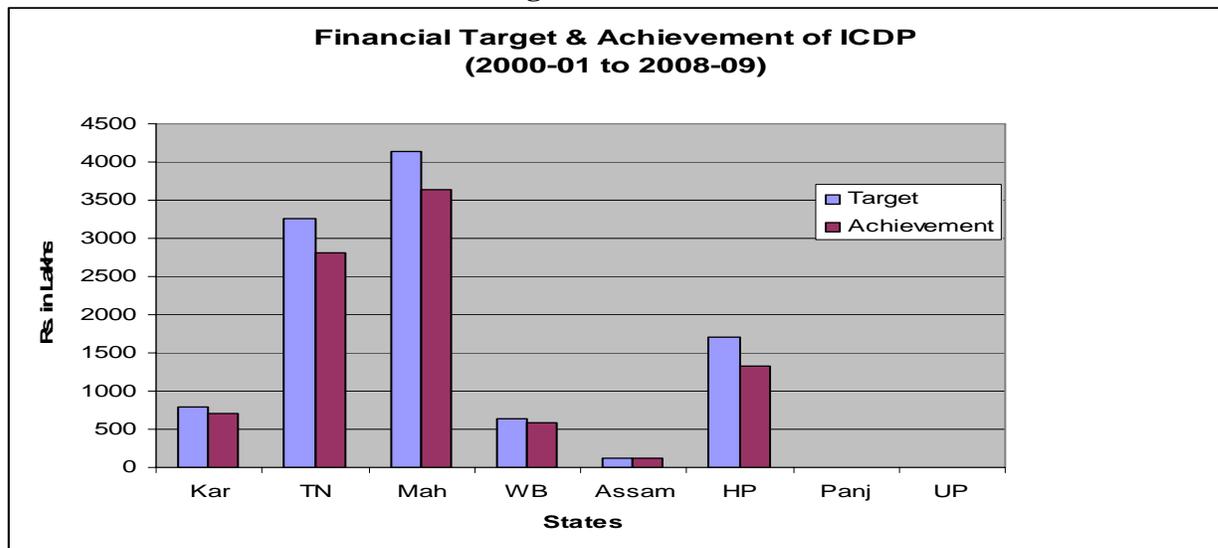
Source: Compiled from the AERCs

Note: Excluding UP and Punjab as the data of UP and Punjab are not available

From the above Table 4.1 and Figure 4.1 it is clear that overall financial targets achievement rate of the eight states was 86.33 percent during the period from 2000-01 to 2008-09. During the same period, amongst the states, Maharashtra gets highest target level with Rs. 4130.23, and Assam falls at the bottom with Rs. 117.00.

Looking at the state-wise achievement level, Assam gets lowest target, while its achievement rate is the highest in the country with 100 percent. Assam is followed by West Bengal with 93.97percent and Himachal Pradesh at the bottom with 77.65 percent. Interestingly, year-wise the achievement rate is concerned; it has been increasing dramatically from the inception of the scheme. In 2008-09, the achievement rate of the assistance of the scheme given by the government is 97.06 percent. It is followed by the 92.06percent in 2003-04 and least rate in 2000-01 with 41.85 percent. This clearly shows that achievement rate against the financial assistance given by the government for the development of ICDP scheme in the country is getting momentum.

**Figure 4.1:**



#### 4.2 Socio-economic profile of the sample Farmers:

To identify the societal category of the farmers under this scheme, 530 sample farmers were surveyed from eight states (refer to Table 4.2). It can be discerned from Table 4.2 that large numbers of the sample beneficiary farmers belong to the General Category of community in the study areas. They constitute 50.6 percent followed by the Other Backward Category (OBC) with 29.4 percent. However, the Scheduled Caste (SC) and Scheduled Tribe (ST) farmers constitute comparatively lesser number with 14.2 and 5.5 percent respectively. The number of ST farmer is quite low at the tune of 5.5 per cent compared to other categories.

State-wise community benefited under this scheme is not uniformly distributed. Karnataka comprises of 60 total sampled farmers (11.3 percent of the 530 sample farmers of all the state) of all the states of this scheme. Out of which, OBC occupies 56.7 percent and it is followed by 23.3 percent of SC and 13.3 percent of ST community. General category community stands at the last in this regard with 6.7 percent. The scenario is quite opposite in case of West Bengal, where SC category ranks on the top with 42 percent and it is quite uniformly followed by SC and general category with 28 percent and 24 percent respectively. OBC stands at the bottom with 6 percent only in the state.

**Table 4.2:**  
**Social Classification of Sample Farmers under ICDP**

<b>States</b>	<b>SC</b>	<b>ST</b>	<b>OBC</b>	<b>General</b>	<b>Total</b>
<b>Karnataka</b>	14 (23.3)	8 (13.3)	34 (56.7)	4 (6.7)	<b>60</b> (100.0)
<b>West Bengal</b>	21 (42.0)	14 (28.0)	3 (6.0)	12 (24.0)	<b>50</b> (100.0)
<b>Maharashtra</b>	3 (6.7)	0 (0.0)	4 (8.9)	38 (84.4)	<b>45</b> (100.0)
<b>Uttar Pradesh</b>	12 (16.0)	0 (0.0)	34 (45.3)	29 (38.7)	<b>75</b> (100.0)
<b>Tamil Nadu</b>	8 (13.3)	0 (0.0)	39 (65.0)	13 (21.7)	<b>60</b> (100.0)
<b>Assam</b>	10 (16.7)	8 (11.7)	11 (16.7)	31 (51.7)	<b>60</b> (100.0)
<b>Punjab</b>	1 (0.7)	0 (0.0)	1 (0.7)	133 (98.5)	<b>135</b> (100.0)
<b>Himachal Pradesh</b>	6 (13.3)	0 (0.0)	31 (68.9)	8 (17.8)	<b>45</b> (100.0)
<b>Total</b>	<b>75</b> (14.2)	<b>29</b> (5.5)	<b>156</b> (29.4)	<b>268</b> (50.6)	<b>530</b> (100.0)

Source: Compiled from the AERCs

Note: Figures in the parentheses are percentages to the total

In the case of Maharashtra, the distribution of category-wise involvement of the farmers in is quite lopsided. The general category occupies with 84.4 percent and the SC and OBC are at the very low rate with 6.7 percent and 8.9 percent respectively of the total sample farmers of the state. But, no ST category farmer is found in this scheme in this state. Similarly, Himachal Pradesh, Punjab, UP and Tamil Nadu also do not have ST farmer under this scheme. Among other three categories of farmer in these four states mentioned above,

UP has got quite uniformly distribution of the farmer's category of benefits with 16 percent, 45.3 percent and 38.7 percent of SC, OBC and general category farmers respectively. In Tamil Nadu, OBC positions at the top with 65 percent and it is followed by general and SC with 21.7 percent and 13.3 percent respectively. In Assam, except general category with 51.7 percent, ST got 11.7 percent and the remaining two categories SC and OBC score at equal rate with 16.7 percent. Similar to Assam, Punjab has very unequal distribution of the farmers under this scheme. General category stands at 98.5 percent and SC and OBC stand at 0.7 percent only. Himachal Pradesh is concerned; it is distributed with 68.9 percent OBC, and 13.3 percent and 17.8 percent of SC and general category respectively.

**Table 4.3**  
**Category of Farmers with respect to Farm size under ICDP**

Category/State	Marginal	Small	Semi-medium	Medium	Large	All Category
<b>Karnataka</b>	<b>11</b>	<b>25</b>	<b>12</b>	<b>7</b>	<b>5</b>	<b>60</b>
percent	(18.3)	(41.7)	(20.0)	(11.7)	(8.3)	(100.0)
<b>West Bengal</b>	<b>42</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>50</b>
percent	(84.0)	(14.0)	(2.0)	(0.0)	(0.0)	(100.0)
<b>Maharashtra</b>	<b>1</b>	<b>8</b>	<b>16</b>	<b>17</b>	<b>3</b>	<b>45</b>
percent	(2.2)	(17.8)	(35.6)	(37.8)	(6.7)	(100.0)
<b>Uttar Pradesh</b>	<b>37</b>	<b>24</b>	<b>10</b>	<b>4</b>	<b>0</b>	<b>75</b>
percent	(49.3)	(32.0)	(13.3)	(5.3)	(0.0)	(100.0)
<b>Tamil Nadu</b>	<b>15</b>	<b>26</b>	<b>11</b>	<b>5</b>	<b>3</b>	<b>60</b>
percent	(25.0)	(43.3)	(18.3)	(8.3)	(5.0)	(100.0)
<b>Assam</b>	<b>16</b>	<b>29</b>	<b>9</b>	<b>6</b>	<b>0</b>	<b>60</b>
percent	(26.7)	(48.3)	(15.0)	(10.0)	(0.0)	(100.0)
<b>Punjab</b>	<b>0</b>	<b>14</b>	<b>49</b>	<b>47</b>	<b>25</b>	<b>135</b>
percent	(0.0)	(10.4)	(36.3)	(34.8)	(18.5)	(100.0)
<b>Himachal Pradesh</b>	<b>31</b>	<b>9</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>45</b>
percent	(68.9)	(20.0)	(11.1)	(0.0)	(0.0)	(100.0)
<b>Total</b>	<b>153</b>	<b>142</b>	<b>113</b>	<b>86</b>	<b>36</b>	<b>530</b>
percent	(28.9)	(26.8)	(21.3)	(16.2)	(6.8)	(100.0)

Source: Compiled from the AERCs

Note: Figures in the parenthesis are percentages to the total

Table 4.3 gives five categories of farmers with their size of land holdings. Out of the total 530 sample farmers collected from the eight states, 135 sample farmers were taken from Punjab. Second highest sample was collected from Uttar Pradesh with 75

farmers, and 50 sample from West Bengal. 60 samples each from Karnataka, Tamil Nadu and Assam, and finally least sample with 45 each were collected from Maharashtra and Himachal Pradesh.

Classification of farm size is concerned, unlike societal category in the Table 4.2; this category is quite uniformly distributed among the sample farmers. Table 4.3 clearly shows that the marginal farmers consist of 28.87 percent and it is followed by small farmers with 26.79 percent. Semi-medium and medium farmers rank at the third and fourth position with 21.32 percent and 16.23 percent respectively. Very interestingly, large scale farmers consist of 6.79 percent only of under this scheme.

Intra-state classification of farmers' category with respect to farm size holdings, in Karnataka, 41.7 percent of the state's farmers are small category and 18.3 percent are marginal farmers. Semi-medium farmers occupy second largest position with 20 percent in the state. Medium and large farmers are at the bottom with 11.7 percent and 8.3 percent respectively. Situation is quite unbalanced in West Bengal that 84 percent of the state's farmers are marginal and it is followed by small farmers with 14 percent. Semi-medium farmers are at the bottom with 2 percent only. However, there is no large and medium farmer of this scheme in West Bengal. In Maharashtra, medium scale farmers occupy first position in the state with 37.8 percent and it is closely followed by semi-medium farmers with 35.6 percent of the total states farm size. Marginal and small farmers occupy very small sizes of share with 2.2 percent and 17.8 percent respectively. Large scale farmers also got small share of this crops area compared to other categories in the state with 6.7 percent only. Similar to West Bengal, the scenario of Uttar Pradesh is quite interesting that marginal and small farmers got highest share of crop area (49.3 percent of marginal farmer and 32 percent of small farmer). Whereas, medium and semi-medium scale farmers occupy least share of land under this crop in the state with 5.3 percent and 13.3 respectively and no large scale farmer is found in this scheme. In Tamil Nadu also, small and marginal farmers occupy major share of crop area with 43.3 percent and 25 percent respectively. It is followed by semi-medium and medium farmers with 18.3 percent and 8.3 percent respectively. Large scale farmers fall at the bottom with 5 percent of the total crop area in the state. In Assam too, small and marginal farmers occupy major crop area of the state with 48.3 percent and 26.7 percent respectively, and

semi-medium and medium scale farmers occupy at the least share under this scheme in the state with 15 percent and 10 percent respectively. In Punjab, medium and large scale farmers occupy 34.8 percent and 18.5 percent respectively of the state's total crop area of this sub-scheme. Semi-medium and small farmers occupy 36.3 percent and 10.4 percent respectively. And finally, in Himachal Pradesh, marginal farmers occupy largest share of crop area in the state under this scheme with 68.9 percent and it is followed by small farmers with 20 percent. Semi-medium farmers occupy least size of the crop area with 11.1 percent only. However, no medium and large scale farmer is found under this crop in the state.

#### **4.4 Sources of Seed Procurement:**

For better production and productivity of crops, better seed and availability of it is very important. Traditionally, rural farmers have been using the seeds which are domestically produced and protected. They are not fully aware of the importance and availability of the modern scientific seeds. This is one of the reasons for slow pace in the agricultural development process. The government of India has been trying to develop this sector by encouraging and educating farmers in terms of technology, market and know-how. Usage of quality seed by the farmers in proper time and place is one of the most important strategies for the development of this sector. The main objective of this section is to understand the nature and pattern of the usage of modern seeds under this scheme (MMA).

##### **4.4:1 Sources of Seed Procurement of Sample farmers for ICDP Rice**

Table 4.4:1 shows the sources of seed procurement of rice of the farmers. It indicates that despite of concerted efforts made by the government to use scientific seeds under this scheme, almost all the seed, i.e. 270 quintals out of 427 quintals of four states (Karnataka, Assam, Himachal Pradesh and Tamil Nadu) are procured from the domestic seeds. It can be seen from Table 4.4:2 that 63.2 percent of the seed are from the traditional sources and only 19.4 percent are getting seed of rice from the government outlets. Only 9.4 percent are getting seed from the retail shop and 8 percent are getting from open market.

**Table 4.4:1**  
**Sources of Seed Procurement of Sample farmers for ICDP Rice (in quantity)**

States	Category	Govt.	Retail	Open market	Domestic	Others	Total (qtl)
Karnataka	Marginal	2 (33.3)	0 (0.0)	2 (33.3)	2 (33.3)	0 (0.0)	6 (100.0)
	Small	2 (40.0)	0 (0.0)	0 (0.0)	3 (60.0)	0 (0.0)	5 (100.0)
	Semi-medium	1 (16.7)	0 (0.0)	2 (33.3)	3 (50.0)	0 (0.0)	6 (100.0)
	medium	2 (50.0)	0 (0.0)	0 (0.0)	2 (50.0)	0 (0.0)	4 (100.0)
	Large	3 (42.9)	0 (0.0)	1 (14.3)	3 (42.9)	0 (0.0)	7 (100.0)
	<b>Total</b>	<b>10</b> (35.7)	<b>0</b> (0.0)	<b>5</b> (17.9)	<b>13</b> (46.4)	<b>0</b> (0.0)	<b>28</b> (100.0)
Assam	Marginal	2 (28.6)	0 (0.0)	0 (0.0)	5 (71.4)	0 (0.0)	7 (100.0)
	Small	4 (12.9)	5 (16.1)	2 (6.5)	20 (64.5)	0 (0.0)	31 (100.0)
	Semi-medium	3 (16.7)	3 (16.7)	2 (11.1)	10 (55.6)	0 (0.0)	18 (100.0)
	medium	2 (8.7)	0 (0.0)	0 (0.0)	21 (91.3)	0 (0.0)	23 (100.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>11</b> 13.9	<b>8</b> 10.1	<b>4</b> 5.1	<b>56</b> 70.9	<b>0</b> 0.0	<b>79</b> 100.0
Himachal Pradesh	Marginal	1 (33.3)	0 (0.0)	0 (0.0)	2 (66.7)	0 (0.0)	3 (100.0)
	Small	1 (11.1)	5 (55.6)	2 (22.2)	1 (11.1)	0 (0.0)	9 (100.0)
	Semi-medium	1 (14.3)	3 (42.9)	2 (28.6)	1 (14.3)	0 (0.0)	7 (100.0)
	medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>3</b> (15.8)	<b>8</b> (42.1)	<b>4</b> (21.1)	<b>4</b> (21.1)	<b>0</b> (0.0)	<b>19</b> (100.0)
Tamil Nadu	Marginal	16 (80.0)	0 (0.0)	0 (0.0)	4 (20.0)	0 (0.0)	20 (100.0)
	Small	27 (36.5)	5 (6.8)	5 (6.8)	37 (50.0)	0 (0.0)	74 (100.0)
	Semi-medium	6 (9.8)	10 (16.4)	10 (16.4)	35 (57.4)	0 (0.0)	61 (100.0)
	medium	4 (6.1)	9 (13.6)	7 (10.6)	46 (69.7)	0 (0.0)	66 (100.0)
	Large	6 (7.3)	0 (0.0)	0 (0.0)	76 (92.7)	0 (0.0)	82 (100.0)
	<b>Total</b>	<b>59</b> (19.5)	<b>24</b> (7.9)	<b>22</b> (7.3)	<b>198</b> (65.3)	<b>0</b> (0.0)	<b>303</b> (100.0)
All States	Marginal	21 (58.3)	0 (0.0)	2 (5.6)	13 (36.1)	0 (0.0)	36 (100.0)
	Small	34 (28.6)	16 (13.4)	8 (6.7)	61 (51.3)	0 (0.0)	119 (100.0)
	Semi-medium	11 (12.1)	15 (16.5)	16 (17.6)	49 (53.8)	0 (0.0)	91 (100.0)
	medium	8 (8.7)	9 (9.8)	7 (7.6)	68 (73.9)	0 (0.0)	92 (100.0)
	Large	9 (10.1)	0 (0.0)	1 (1.1)	79 (88.8)	0 (0.0)	89 (100.0)
	<b>Grand Total</b>	<b>83</b> (19.4)	<b>40</b> (9.4)	<b>34</b> (8.0)	<b>270</b> (63.2)	<b>0</b> (0.0)	<b>427</b> (100.0)

Source: Compiled from the AERCs

Note: Figures in the parentheses are the percentages of the total.

Intra-state classification of seed procurement of rice under this scheme shows that in Karnataka, 46.4 percent of the total seed are procured from the domestic sources and only 35.7 percent are used from the government outlets. Only 17.9 percent are procured from the open market. Statistic is quite imbalance in case of Assam that 70.9 percent of the total state's seed of rice is procured from the domestic sources and only 13.9 percent are from government outlets. It is followed by retail and open market sources with 10.1 percent and 5.1 percent respectively. In Himachal Pradesh, distribution is quite equal, that 15.8 percent of seed is procured from the government outlet and 21.1 percent of the same is procured from the domestic sources. In this state, highest number of seed consisting of 42.1 percent is procured (rice) from the retail shops. In case of Tamil Nadu, 65.3 percent of the seed are procured from the domestic sources and only 19.5 percent from the government outlets. Retail and open market have almost equal share of seed supply with 7.9 percent and 7.3 percent respectively in the state.

#### **4.4:2 Sources of Seed Procurement of the sample farmers of ICDP Wheat**

Coming to the wheat, despite of concerted efforts made by the government under this scheme, majority of the farmers are relying on the domestic seeds (Table 4.4:2). Altogether 803 quintals of seeds (wheat) are procured by three states (32 quintals by Maharashtra, 721 quintals by Punjab and 50 quintals by West Bengal) from four sources, like government outlets (164 qtls), retail shop (0 qtl), open market (27 qtls) and domestic sources (612 qtls). It can be seen from Table 4.4:2 that almost all the seeds of this crop are procured from the traditional or domestic sources. It comprises of 76.2 percent of the total seed procurement of this crop. Only 20.4 percent of the total seed is coming from the government sources. Very interestingly, large scale farmers are still basically depending on the traditional domestic seed. In percentage term, 77.4 and 81.8 percent of the large and medium scale farmers respectively are still depending on the domestic sources. Similarly, most of the semi-medium farmers (79.5 per cent) are also procuring seed from the domestic sources. Whereas, only 31 percent of marginal farmers of this crop are procuring seed from domestic sources compared to the large scale farmers. Small farmers and semi-medium farmers constitute 62.5 percent and 79.5 percent of the total seed procurement of this crop from domestic sources.

Table 4.4:2

## Sources of Seed Procurement of the sample farmers under ICDP Wheat

States	Category of the Farmers	Govt. outlet	Retail Shop	Open Market	Domestic	Total (qtl.)
Maharashtra	Marginal	0	0	0	0	0
		(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
	Small	1	0	3	0	4
		(25.0)	(0.0)	(75.0)	(0.0)	(100.0)
	Semi Medium	10	0	3	0	13
		(76.9)	(0.0)	(23.1)	(0.0)	(100.0)
	Medium	8	0	4	1	13
(61.5)		(0.0)	(30.8)	(7.7)	(100.0)	
Large	0	0	2	0	2	
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	
<b>Total</b>	<b>19</b>	<b>0</b>	<b>12</b>	<b>1</b>	<b>32</b>	
		<b>(59.4)</b>	<b>(0.0)</b>	<b>(37.5)</b>	<b>(3.1)</b>	<b>(100.0)</b>
Punjab	Marginal	0	0	0	0	0
		(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
	Small	1	0	0	14	15
		(6.7)	(0.0)	(0.0)	(93.3)	(100.0)
	Semi Medium	10	0	0	93	103
		(9.7)	(0.0)	(0.0)	(90.3)	(100.0)
	Medium	35	0	1	215	251
(13.9)		(0.0)	(0.4)	(85.7)	(100.0)	
Large	75	0	3	274	352	
	(21.3)	(0.0)	(0.9)	(77.8)	(100.0)	
<b>Total</b>	<b>121</b>	<b>0</b>	<b>4</b>	<b>596</b>	<b>721</b>	
		<b>(16.8)</b>	<b>(0.0)</b>	<b>(0.6)</b>	<b>(82.7)</b>	<b>(100.0)</b>
West Bengal	Marginal	19	0	10	13	42
		(45.2)	(0.0)	(23.8)	(31.0)	(100.0)
	Small	4	0	1	2	7
		(57.1)	(0.0)	(14.3)	(28.6)	(100.0)
	Semi Medium	1	0	0	0	1
		(100.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Medium	0	0	0	0	0
(0.0)		(0.0)	(0.0)	(0.0)	(0.0)	
Large	0	0	0	0	0	
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	
<b>Total</b>	<b>24</b>	<b>0</b>	<b>11</b>	<b>15</b>	<b>50</b>	
		<b>(48.0)</b>	<b>(0.0)</b>	<b>(22.0)</b>	<b>(30.0)</b>	<b>(100.0)</b>
All states	Marginal	19	0	10	13	42
		(45.2)	(0.0)	(23.8)	(31.0)	(100.0)
	Small	6	0	4	16	26
		(23.1)	(0.0)	(15.4)	(61.5)	(100.0)
	Semi Medium	21	0	3	93	117
		(17.9)	(0.0)	(2.6)	(79.5)	(100.0)
	Medium	43	0	5	216	264
(16.3)		(0.0)	(1.9)	(81.8)	(100.0)	
Large	75	0	5	274	354	
	(21.2)	(0.0)	(1.4)	(77.4)	(100.0)	
<b>Total</b>	<b>164</b>	<b>0</b>	<b>27</b>	<b>612</b>	<b>803</b>	
		<b>(20.4)</b>	<b>(0.0)</b>	<b>(3.4)</b>	<b>(76.2)</b>	<b>(100.0)</b>

Source: Compiled from the AERCs

Note: Figures in the parentheses are the percentages to the total.

State-wise classification is concerned; all the states have not uniformly procured seeds from the four sources available. Very unevenly, in Punjab, 82.7 percent of the state's total seed of this crop are procured from the domestic sources. It is followed meagerly by the 16.8 percent of seed from government sources. Only 0.6 percent of the total seed of the state of this crop was procured from the open market. However, Maharashtra and West Bengal have quite similar situation in this regard. Altogether, 59.4 percent and 48 percent of seed were procured from the government outlets by Maharashtra and West Bengal respectively. Unlike Punjab, 3.1 percent and 30 percent of the seeds are procured from the domestic sources by Maharashtra and West Bengal respectively. In Maharashtra, 37.5 percent of the seed of wheat is procured from the open market and similarly, West Bengal also got 22 percent of the total seed of this crop from the same source.

#### **4.4:3 Sources of Seed Procurement Coarse Cereals under ICDP**

For the seed procuring of Coarse Cereal crop, altogether 113 quintals of seed are procured from the three States (37 from Karnataka, 34 from UP and 42 from Maharashtra), and the analysis is made from the data collected from these states of this crop. Table 4.4:3 shows that the state's total farmers are procuring seeds of coarse cereal from three sources. They are government outlet, open market and domestic sources. Out of which, 34.5 percent of the seed are procured from the domestic sources and 42.5 percent of them are from the government outlets. Only 23 percent of the total seed are from the open market sources.

Intra-state comparison of the procurement of the coarse cereal crop is concerned, in Karnataka, out of 37 quintals of seed of this crop, 15 quintals, i.e. 40.5 percent of the total seed procured are from the government outlets and it is followed by the domestic sources with 34.5 percent. Open market provides only 24.3 percent of the total seed used by the farmers in the state. Similarly, 41.2 percent of Uttar Pradesh and 45.2 percent of Maharashtra of their respective states' total seed of the crop are procured from the government source. Almost equally, 20.6 percent of UP and 23.8 percent of Maharashtra of their respective states' total seeds are procured from the open market.

5. Table 4.4:3

6. Sources of Seed Procurement Coarse Cereals under ICDP

States	Category	Govt.	Retail Shops	Open Market	Domestic	Others	Total (qtl)
Karnataka	Marginal	2	0	0	2	0	4
		(50.0)	(0.0)	(0.0)	(50.0)	(0.0)	(100.0)
	Small	3	0	3	1	0	7
		(42.9)	(0.0)	(42.9)	(14.3)	(0.0)	(100.0)
	Semi Medium	5	0	3	3	0	11
		(45.5)	(0.0)	(27.3)	(27.3)	(0.0)	(100.0)
	Medium	4	0	1	7	0	12
		(33.3)	(0.0)	(8.3)	(58.3)	(0.0)	(100.0)
Large	1	0	2	0	0	3	
	(33.3)	(0.0)	(66.7)	(0.0)	(0.0)	(100.0)	
<b>Total</b>	<b>15</b>	<b>0</b>	<b>9</b>	<b>13</b>	<b>0</b>	<b>37</b>	
	(40.5)	(0.0)	(24.3)	(35.1)	(0.0)	(100.0)	
Uttar Pradesh	Marginal	6	0	2	5	0	13
		(46.2)	(0.0)	(15.4)	(38.5)	(0.0)	(100.0)
	Small	3	0	3	4	0	10
		(30.0)	(0.0)	(30.0)	(40.0)	(0.0)	(100.0)
	Semi Medium	2	0	2	3	0	7
		(28.6)	(0.0)	(28.6)	(42.9)	(0.0)	(100.0)
	Medium	3	0	0	1	0	4
		(75.0)	(0.0)	(0.0)	(25.0)	(0.0)	(100.0)
Large	0	0	0	0	0	0	
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	
<b>Total</b>	<b>14</b>	<b>0</b>	<b>7</b>	<b>13</b>	<b>0</b>	<b>34</b>	
	(41.2)	(0.0)	(20.6)	(38.2)	(0.0)	(100.0)	
Maharashtra	Marginal	1	0	0	0	0	1
		(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)
	Small	5	0	1	2	0	8
		(62.5)	(0.0)	(12.5)	(25.0)	(0.0)	(100.0)
	Semi Medium	3	0	5	5	0	13
		(23.1)	(0.0)	(38.5)	(38.5)	(0.0)	(100.0)
	Medium	9	0	2	6	0	17
		(52.9)	(0.0)	(11.8)	(35.3)	(0.0)	(100.0)
Large	1	0	2	0	0	3	
	(33.3)	(0.0)	(66.7)	(0.0)	(0.0)	(100.0)	
<b>Total</b>	<b>19</b>	<b>0</b>	<b>10</b>	<b>13</b>	<b>0</b>	<b>42</b>	
	(45.2)	(0.0)	(23.8)	(31.0)	(0.0)	(100.0)	
All States	Marginal	9	0	2	7	0	18
		(50.0)	(0.0)	(11.1)	(38.9)	(0.0)	(100.0)
	Small	11	0	7	7	0	25
		(44.0)	(0.0)	(28.0)	(28.0)	(0.0)	(100.0)
	Semi Medium	10	0	10	11	0	31
		(32.3)	(0.0)	(32.3)	(35.5)	(0.0)	(100.0)
	Medium	16	0	3	14	0	33
		(48.5)	(0.0)	(9.1)	(42.4)	(0.0)	(100.0)
Large	2	0	4	0	0	6	
	(33.3)	(0.0)	(66.7)	(0.0)	(0.0)	(100.0)	
<b>Grand Total</b>	<b>48</b>	<b>0</b>	<b>26</b>	<b>39</b>	<b>0</b>	<b>113</b>	
	(42.5)	(0.0)	(23.0)	(34.5)	(0.0)	(100.0)	

7. Source: Compiled from the AERCs

8. Note: Figures in the parenthesis are percentages to the total.

### **Participation, Training and Demonstration:**

Under the ICDP programme of MMAs, different types of trainings and demonstrations were conducted to educate the farmers of improved cultivation method. As the basic aim of MMA is to accelerate the economic viability of agriculture to obtain optimum output with minimum input for the benefit of the farmers in the country, farmers (more precisely, sample farmers) are required to be trained thoroughly with scientific demonstrations. Eight types of demonstrations are evaluated in this section. They are: 1. Hybrid paddy demonstration; 2. System of Rice Intensification (SRI) method of paddy cultivation; 3. Scented rice demonstration; 4. Integrated farming system demonstration; 5. Yield improvement demonstration; 6. Mixed cropping method demonstration; 7. Crop diversification method demonstration; and 8. Farmers field school demonstration.

#### **4.5:1 Farmers attending Demonstration**

The number of farmers attended in various types of demonstration is given in Table 4.5:1. Altogether, 551 sample farmers are taken from the four states (51 sample farmers from Karnataka, 112 from Assam, 211 from Himachal Pradesh and 177 from Tamil Nadu) for this ICDP scheme.

From Table 4.5:1 it is clear that majority of the farmers who have attended some training/demonstrations are mainly the Hybrid Paddy demonstration. Altogether, 189 sample farmers (34.3 percent) out of the 551 sample farmers have attended this particular training. In the second priority is the Farmers' Filed School demonstration. It is attended by 105 sample farmers out of 551 sample farmers of this category. Yield Improvement and SRI method of demonstration are preferred by the farmers in third and forth position with 17.6 percent and 14.9 percent of the total sample farmers respectively. Crop diversification and Mixed cropping system of demonstrations are demanded less by the farmers with 7.1 percent and 6.9 percent of the total sample farmers. Scented rice demonstration is least wanted by the farmers to attend for the demonstration with 0.2 percent only. Unfortunately, no farmer has attended the demonstration of Integrated Farming System under this scheme (ICDP).

Table 4.5:1

## Farmers' participation in the demonstration

tates	Category	Hybrid Paddy	SRI Method	Scented Rice	Integrated Farming	Yield Improv	Mixed Croppi n	Crop Diversi	Farmer Fld School	Farmer attended
Karna ta	Marginal	3 (42.9)	3 (42.9)	0 (0.0)	0 (0.0)	1 (14.3)	0 (0.0)	0 (0.0)	0 (0.0)	7 (100.0)
	Small	9 (60.0)	5 (33.3)	1 (6.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	15 (100.0)
	Semi medium	7 (50.0)	7 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	14 (100.0)
	Medium	4 (50.0)	4 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	8 (100.0)
	Large	4 (57.1)	3 (42.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	7 (100.0)
	<b>Total</b>	<b>27</b> (52.9)	<b>22</b> (43.1)	<b>1</b> (2.0)	<b>0</b> (0.0)	<b>1</b> (2.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>51</b> (100.0)
Assam	Marginal	16 (53.3)	0 (0.0)	0 (0.0)	0 (0.0)	14 (46.7)	0 (0.0)	0 (0.0)	0 (0.0)	30 (100.0)
	Small	29 (53.7)	0 (0.0)	0 (0.0)	0 (0.0)	25 (46.3)	0 (0.0)	0 (0.0)	0 (0.0)	54 (100.0)
	Semi medium	9 (52.9)	0 (0.0)	0 (0.0)	0 (0.0)	8 (47.1)	0 (0.0)	0 (0.0)	0 (0.0)	17 (100.0)
	Medium	6 (54.5)	0 (0.0)	0 (0.0)	0 (0.0)	5 (45.5)	0 (0.0)	0 (0.0)	0 (0.0)	11 (100.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>60</b> (53.6)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>52</b> (46.4)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>112</b> (100.0)
HP	Marginal	31 (21.4)	0 (0.0)	0 (0.0)	0 (0.0)	31 (21.4)	27 (18.6)	25 (17.2)	31 (21.4)	145 (100.0)
	Small	9 (20.9)	0 (0.0)	0 (0.0)	0 (0.0)	9 (20.9)	7 (16.3)	9 (20.9)	9 (20.9)	43 (100.0)
	Semi medium	5 (21.7)	0 (0.0)	0 (0.0)	0 (0.0)	4 (17.4)	4 (17.4)	5 (21.7)	5 (21.7)	23 (100.0)
	Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>45</b> (21.3)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>44</b> (20.9)	<b>38</b> (18.0)	<b>39</b> (18.5)	<b>45</b> (21.3)	<b>211</b> (100.0)
Tamil Nadu	Marginal	9 (29.0)	11 (35.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	11 (35.5)	31 (100.0)
	Small	34 (32.7)	35 (33.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	35 (33.7)	104 (100.0)
	Semi medium	9 (33.3)	9 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	9 (33.3)	27 (100.0)
	Medium	3 (33.3)	3 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (33.3)	9 (100.0)
	Large	2 (33.3)	2 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (33.3)	6 (100.0)
	<b>Total</b>	<b>57</b> (32.2)	<b>60</b> (33.9)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>60</b> (33.9)	<b>177</b> (100.0)
<b>Total</b>	Marginal	59 (27.7)	14 (6.6)	0 (0.0)	0 (0.0)	46 (21.6)	27 (12.7)	25 (11.7)	42 (19.7)	213 (100.0)
	Small	81 (37.5)	40 (18.5)	1 (0.5)	0 (0.0)	34 (15.7)	7 (3.2)	9 (4.2)	44 (20.4)	216 (100.0)
	Semi medium	30 (37.0)	16 (19.8)	0 (0.0)	0 (0.0)	12 (14.8)	4 (4.9)	5 (6.2)	14 (17.3)	81 (100.0)
	Medium	13 (46.4)	7 (25.0)	0 (0.0)	0 (0.0)	5 (17.9)	0 (0.0)	0 (0.0)	3 (10.7)	28 (100.0)
	Large	6 (46.2)	5 (38.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (15.4)	13 (100.0)
	<b>Grand Total</b>	<b>189</b> (34.3)	<b>82</b> (14.9)	<b>1</b> (0.2)	<b>0</b> (0.0)	<b>97</b> (17.6)	<b>38</b> (6.9)	<b>39</b> (7.1)	<b>105</b> (19.1)	<b>551</b> (100.0)

Source: Compiled from the AERCs

Regarding farmer categories those who have attended the demonstration, of the total categories of farmers attended, the highest percentage of demonstration attended is Hybrid of Paddy method, i.e. 27.7 percent by Marginal, 37.5 percent by small, 37.0 percent by Semi-medium, 46.4 percent by Medium and 46.2 percent by large scale farmer respectively. In the second position, SRI method of demonstration is attended by almost all the categories of the farmers. Except marginal and small farmers, majority of other three categories of farmers have attended SRI method (19.8percent of semi-medium, 25.0percent of medium and 38.5percent of large scale farmers). The marginal farmers' third choice is the Farmer Field School demonstration with 19.7 percent of the total sample farmers of this category, and least number of this category preferred demonstration is SRI method with 6.6 per cent. For the small category farmers, 20.4 percent (second largest of this category farmer) of farmers attended Farmers field School demonstration. SRI method and Scented Rice demonstrations are preferred by this category of farmer is in the 3<sup>rd</sup> and 4<sup>th</sup> position with 18.5 percent and 0.5 percent respectively. Semi-medium category farmers' third largest preference for attending demonstration is Yield Improvement demonstration with 17.9 percent and Farmer Field School is least preferred by this category of farmers with 10.7 percent only. This Farmer field School method of demonstration is liked least both by the medium and large scale category farmers with 10.7 percent and 15.4 percent respectively.

#### **4.5:2 Agencies conducting the Demonstration to the Farmers**

Organisation who provides training or demonstration to the farmers is concerned, three organisations are found to be involved in providing demonstration to the farmers in four states. The organisations are: Indian Council of Agricultural Research (ICAR); Gram Panchyat and Agricultural Development Officers (ADO). From the Table 4.5:2 it is clear that out of 225 sample farmers collected for the purpose, 203 farmers (90.2 percent) got training or demonstration from the different organisations. Amongst the organisations that provide demonstration to the farmers, ADO ranks top in the position. This organisation provides demonstration to 84.0 percent of the farmers on the selected states (four). It is followed very marginally by Gram Panchayat and ICAR with 5.8 percent and 0.4 percent respectively.

**Table 4.5:2**  
**Agencies conducting the Demonstration to the Farmers**

States	Category	ICAR*	Gram Panchayath	Agricultural Development Officer (ADO)	No response	Total Farmers
Karnataka	Marginal	0 (0.0)	3 (30.0)	1 (10.0)	6 (60.0)	10 (100.0)
	Small	0 (0.0)	4 (21.1)	10 (52.6)	5 (26.3)	19 (100.0)
	Semi medium	1 (6.7)	2 (13.3)	5 (33.3)	7 (46.7)	15 (100.0)
	Medium	0 (0.0)	1 (9.1)	6 (54.5)	4 (36.4)	11 (100.0)
	Large	0 (0.0)	3 (60.0)	2 (40.0)	0 (0.0)	5 (100.0)
	<b>Total</b>	<b>1</b> (1.7)	<b>13</b> (21.7)	<b>24</b> (40.0)	<b>22</b> (36.7)	<b>60</b> (100.0)
Himachal Pradesh	Marginal	0 (0.0)	0 (0.0)	31 (100.0)	0 (0.0)	31 (100.0)
	Small	0 (0.0)	0 (0.0)	9 (100.0)	0 (0.0)	9 (100.0)
	Semi medium	0 (0.0)	0 (0.0)	5 (100.0)	0 (0.0)	5 (100.0)
	Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>45</b> (100.0)	<b>0</b> (0.0)	<b>45</b> (100.0)
Assam	Marginal	0 (0.0)	0 (0.0)	16 (100.0)	0 (0.0)	16 (100.0)
	Small	0 (0.0)	0 (0.0)	29 (100.0)	0 (0.0)	29 (100.0)
	Semi medium	0 (0.0)	0 (0.0)	9 (100.0)	0 (0.0)	9 (100.0)
	Medium	0 (0.0)	0 (0.0)	6 (100.0)	0 (0.0)	6 (100.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>60</b> (100.0)	<b>0</b> (0.0)	<b>60</b> (100.0)
Tamil Nadu	Marginal	0 (0.0)	0 (0.0)	15 (100.0)	0 (0.0)	15 (100.0)
	Small	0 (0.0)	0 (0.0)	26 (100.0)	0 (0.0)	26 (100.0)
	Semi medium	0 (0.0)	0 (0.0)	11 (100.0)	0 (0.0)	11 (100.0)
	Medium	0 (0.0)	0 (0.0)	5 (100.0)	0 (0.0)	5 (100.0)
	Large	0 (0.0)	0 (0.0)	3 (100.0)	0 (0.0)	3 (100.0)
	<b>Total</b>	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>60</b> (100.0)	<b>0</b> (0.0)	<b>60</b> (100.0)
All States	Marginal	0 (0.0)	3 (4.2)	63 (87.5)	6 (8.3)	72 (100.0)
	Small	0 (0.0)	4 (4.8)	74 (89.2)	5 (6.0)	83 (100.0)
	Semi medium	1 (2.5)	2 (5.0)	30 (75.0)	7 (17.5)	40 (100.0)
	Medium	0 (0.0)	1 (4.5)	17 (77.3)	4 (18.2)	22 (100.0)
	Large	0 (0.0)	3 (37.5)	5 (62.5)	0 (0.0)	8 (100.0)
	<b>Total</b>	<b>1</b> (0.4)	<b>13</b> (5.8)	<b>189</b> (84.0)	<b>22</b> (9.8)	<b>225</b> (100.0)

Source: Compiled from the AERCs

Note: Figures in the parenthesis are percentages to the total.

\* ICAR refers to Indian council of Agricultural Research

State-wise classification is concerned, 40 percent of Karnataka's farmers who have attended demonstration training are provided by the ADO of their respective blocks. It is followed by the Gram Panchayats with 21.7 percent and 1.7 percent by the ICAR. In case of the other three states (Tamil Nadu, Assam and Himachal Pradesh), 100 percent of the farmers who have attended demonstrations are provided by their respective ADOs (refer to Table 4.5:2).

#### **4.5:3 Constraints for attending Demonstrations (Farmers' Opinion)**

Constraints, which prevented in attending different demonstrations by the sample farmers, were identified as distance from the village, costs involved in other agricultural works, lack of transport, loss of wage, pre-occupation with other agricultural works, etc. (Table 4.5:3). For this section, 173 sample farmers (60 farmers from Karnataka, 103 from Assam, and 10 from Tamil Nadu) who did not attend demonstration of the scheme have been analysed from the three states (Karnataka, Assam and Tamil Nadu). The Table 4.5:3 shows that among all other problems, costs with other agricultural works was the major problems faced by 30.1 per cent of sample farmers. Moreover, other problems like no proper transport, distance from the village, pre-occupied with other works were encountered by 13.3 per cent, 13.9 per cent and 14.5 per cent of the farmers respectively. In addition to these, some general problems like late supply of rice seed, inadequate level of subsidy amount, insufficient extension services, institutional credit, etc. were also considered as major problems by the majority of farmers.

Further from the Table 4.5:3 it is learnt that altogether 28.3 percent of the farmers did not respond to the evaluation. It is a quite disappointing that the farmers could not be convinced of the importance of the demonstration. State-wise identification is concerned, Tamil Nadu farmers feel that this demonstration is not benefiting at all (100 percent), and it is the opportunity lost of other agricultural works. For Assam, 31.1 percent of the total sample (unattended of demonstration) feels that this demonstration is the opportunity lost of other agricultural works.

**Table 4.5:3**  
**Reasons for not attending Demonstration**

	Category	Costs other Agricultural works	No Proper Transport Felicity	No Response	Too far	Other	Total
<b>Karnataka</b>	Marginal	1 (9.1)	0 (0.0)	10 (90.9)	0 (0.0)	0 (0.0)	11 (100.0)
	Small	4 (16.0)	0 (0.0)	21 (84.0)	0 (0.0)	0 (0.0)	25 (100.0)
	Semi medium	3 (25.0)	1 (8.3)	8 (66.7)	0 (0.0)	0 (0.0)	12 (100.0)
	Medium	2 (28.6)	0 (0.0)	5 (71.4)	0 (0.0)	0 (0.0)	7 (100.0)
	Large	0 (0.0)	0 (0.0)	5 (100.0)	0 (0.0)	0 (0.0)	5 (100.0)
	<b>Total</b>	<b>10</b> <b>(16.7)</b>	<b>1</b> <b>(1.7)</b>	<b>49</b> <b>(81.7)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>60</b> <b>(100.0)</b>
	<b>Assam</b>	Marginal	12 (34.3)	8 (22.9)	0 (0.0)	7 (20.0)	8 (22.9)
Small		18 (33.3)	11 (20.4)	0 (0.0)	12 (22.2)	13 (24.1)	54 (100.0)
Semi medium		1 (11.1)	2 (22.2)	0 (0.0)	2 (22.2)	4 (44.4)	9 (100.0)
Medium		1 (20.0)	1 (20.0)	0 (0.0)	3 (60.0)	0 (0.0)	5 (100.0)
Large		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>		<b>32</b> <b>(31.1)</b>	<b>22</b> <b>(21.4)</b>	<b>0</b> <b>(0.0)</b>	<b>24</b> <b>(23.3)</b>	<b>25</b> <b>(24.3)</b>	<b>103</b> <b>(100.0)</b>
<b>Tamil Nadu</b>	Marginal	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)
	Small	6 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	6 (100.0)
	Semi medium	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)
	Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>10</b> <b>(100.0)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>10</b> <b>(100.0)</b>
<b>All States</b>	Marginal	15 (31.3)	8 (16.7)	10 (20.8)	7 (14.6)	8 (16.7)	48 (100.0)
	Small	28 (32.9)	11 (12.9)	21 (24.7)	12 (14.1)	13 (15.3)	85 (100.0)
	Semi medium	6 (26.1)	3 (13.0)	8 (34.8)	2 (8.7)	4 (17.4)	23 (100.0)
	Medium	3 (25.0)	1 (8.3)	5 (41.7)	3 (25.0)	0 (0.0)	12 (100.0)
	Large	0 (0.0)	0 (0.0)	5 (100.0)	0 (0.0)	0 (0.0)	5 (100.0)
	<b>Total</b>	<b>52</b> <b>(30.1)</b>	<b>23</b> <b>(13.3)</b>	<b>49</b> <b>(28.3)</b>	<b>24</b> <b>(13.9)</b>	<b>25</b> <b>(14.5)</b>	<b>173</b> <b>(100.0)</b>

Source: Compiled from the AERCs

Note: Figures in the parenthesis are percentages to the total.

It is followed by 24.3 percent of the total sample of the purpose with other excuses like pre-occupation of other work at the time of workshop, lately informed, etc. And, fairly equal numbers of the farmers have responded that they do not have proper transportation and demonstration site is too far by 23.3 percent and 21.4 percent of the respondents respectively. More interestingly, in Karnataka 81.7 percent of the sample farmers did not respond the reason for not attending demonstration. Out of the responded samples, 16.7 percent revealed that it is the lost of work of other agricultural activities and 1.7 percent opined that there was no transport facility for the purpose.

#### **4.5:4 Soil Testing**

Soil testing is one of the components of the scheme in order to correct the soil acidity/alkalinity. For the purpose, 225 sample farmers were collected from the four states. They are 60 sample farmers each from Karnataka, Assam, Tamil Nadu respectively and 45 from Himachal Pradesh. Out of 225 sample, 139 farmers (61.8 percent of the sample farmers) got tested their soil for correct acidity/alkalinity. It consists of 44 marginal farmers and 58 small farmers. Whereas, Semi-medium, medium and large category farmers consist of very few numbers with 22 farmers, 8 and 7 farmers respectively. It has been further observed from the Table 4.5:4 that 92.1 percent of the total farmers (undergone for soil tested) got tested their soil by the Agricultural Development Officers. Very limited number of the farmers of 7.9 percent did soil testing by themselves.

In the state-wise analysis in Karnataka, majority of the farmers (74.2 percent) did their soil testing by the ADO and remaining 25.8 percent was conducted by themselves. In case of Assam, only 3 farmers out of 60 farmers got tested their soil of their own/self. Condition is quite opposite in case of Tamil Nadu and Himachal Pradesh, all the sample farmers (100 percent) got tested their soil from the ADO.

**Table 4.5:4**  
**Soil Testing under ICDP scheme**

State	Category	Agricultural Development Officer (ADO)	Self	Total	No. of Sample Farmers
Karnataka	Marginal	2 (100.0)	0 (0.0)	2 (100.0)	11 (18.3)
	Small	14 (100.0)	0 (0.0)	14 (100.0)	25 (41.7)
	Semi medium	2 (33.3)	4 (66.7)	6 (100.0)	12 (20.0)
	Medium	1 (25.0)	3 (75.0)	4 (100.0)	7 (11.7)
	Large	4 (80.0)	1 (20.0)	5 (100.0)	5 (8.3)
	<b>Total</b>	<b>23</b> (74.2)	<b>8</b> (25.8)	<b>31</b> (100.0)	<b>60</b> (100.0)
Assam	Marginal	0 (0.0)	0 (0.0)	0 (0.0)	16 (26.7)
	Small	0 (0.0)	0 (0.0)	0 (0.0)	29 (48.3)
	Semi medium	0 (0.0)	2 (100.0)	2 (100.0)	9 (15.0)
	Medium	0 (0.0)	1 (100.0)	1 (100.0)	6 (10.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>0</b> (0.0)	<b>3</b> (100.0)	<b>3</b> (100.0)	<b>60</b> (100.0)
Tamil Nadu	Marginal	11 (100.0)	0 (0.0)	11 (100.0)	15 (25.0)
	Small	35 (100.0)	0 (0.0)	35 (100.0)	26 (43.3)
	Semi medium	9 (100.0)	0 (0.0)	9 (100.0)	11 (18.3)
	Medium	3 (100.0)	0 (0.0)	3 (100.0)	5 (8.3)
	Large	2 (100.0)	0 (0.0)	2 (100.0)	3 (5.0)
	<b>Total</b>	<b>60</b> (100.0)	<b>0</b> (0.0)	<b>60</b> (100.0)	<b>60</b> (100.0)
Himachal Pradesh	Marginal	31 (100.0)	0 (0.0)	31 (100.0)	31 (68.9)
	Small	9 (100.0)	0 (0.0)	9 (100.0)	9 (20.0)
	Semi medium	5 (100.0)	0 (0.0)	5 (100.0)	5 (11.1)
	Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	<b>Total</b>	<b>45</b> (100.0)	<b>0</b> (0.0)	<b>45</b> (100.0)	<b>45</b> (100.0)
All States	Marginal	44 (100.0)	0 (0.0)	44 (100.0)	73 (32.4)
	Small	58 (100.0)	0 (0.0)	58 (100.0)	89 (39.6)
	Semi medium	16 (72.7)	6 (27.3)	22 (100.0)	37 (16.4)
	Medium	4 (50.0)	4 (50.0)	8 (100.0)	18 (8.0)
	Large	6 (85.7)	1 (14.3)	7 (100.0)	8 (3.6)
	<b>Total</b>	<b>128</b> (92.1)	<b>11</b> (7.9)	<b>139</b> (100.0)	<b>225</b> (100.0)

Source: Compiled from the AERCs

Note: Figures in the parenthesis are percentages to the total.

#### **4.6 Assistance for Agricultural Implements:**

Assistance and subsidised supply of modern tools of cultivation is one of the important components under the ICDP. For the purpose, three states (60 sample farmers from Karnataka, 60 farmers from Tamil Nadu and 45 farmers from Himachal Pradesh) have been included with 165 sample farmers (not given in the Table). With a view to facilitate farming community to adopt new technology, numbers of assistance (in kind) have been given by the government under this scheme. Also, subsidy is being made available to the farmers for procurement of electric implements. Among others, the implements like, Peddlers, Cultivators, Seed-cum Fertilizer, Thresher, Sprinkler, Power driven and Multipurpose Toolbars, etc. are being issued from the Department of Agriculture on the subsidised rate under this scheme.

Table 4.6 reveals that 152 farmers (92.12 percent) out of 165 sample farmers got assistance from this scheme. Of the overall total of three states, 49.34 percent of the farmers of Himachal Pradesh alone availed this facility, and it is closely followed by Tamil Nadu with 40 percent. Karnataka falls at the bottom with 11.18 percent of the overall total sample of the three states. State-wise benefit is concerned, in Karnataka, only 17 farmers out of 60 sample farmers, got assistance for agricultural implements (28.33 percent). Unfortunate of this scheme in this state is that no marginal (bottom level category of farmers) farmer has availed the facility, and almost all the facility (assistance of agricultural implements) is enjoyed by the large category holdings (47.1 percent). Rest categories of the farmers (small, semi-medium and medium) in the state got only 17.6 percent of the state's total. Tamil Nadu is concerned, 100 percent of the farmers (60 farmers out of 60 samples) have availed the assistance of agricultural implements (34.47 percent of the overall total of three states). Within the state, all the categories of the farmers have availed the facility fairly uniformly that 43.3 percent by small farmers, 25 percent by marginal farmers. It is followed by semi-medium with 18.3 percent, medium and large category farmers with 8.3 percent and 5 percent respectively. In case of Himachal Pradesh, some farmers got more than one implements. So, 75 implements have been availed by only 45 farmers especially, the seed cum fertilizer. It is 49.34 percent of the implements of overall total of the three states enjoyed by this state. Amongst the different categories of the farmers, 66.7 percent of the marginal farmers got this

opportunity and it is followed by small and semi-medium farmers with 21.3 percent and 12 percent respectively.

**Table 4.6**  
**Assistance for Agricultural Implements**

Implement	Karnataka				Total	Tamil Nadu					Total	Himachal Pradesh				Total	All States					Total
	S	SM	M	L		M	S	SM	M	L		M	S	SM	L		M	S	SM	M	L	
Peddler	2	2	1	3	8	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	3	8
	(25.0)	(25.0)	(12.5)	(37.5)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(25.0)	(25.0)	(12.5)	(37.5)	(5.3)
Seed Cum Fertilizer	0	0	0	0	0	0	0	0	0	0	0	31	9	5	0	45	31	9	5	0	0	45
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(68.9)	(20.0)	(11.1)	(0.0)	(100.0)	(68.9)	(20.0)	(11.1)	(0.0)	(0.0)	(29.6)
Cultivator	0	0	1	0	1	0	0	0	0	0	0	16	4	2	0	22	16	4	2	1	0	23
	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(72.7)	(18.2)	(9.1)	(0.0)	(100.0)	(69.6)	(17.4)	(8.7)	(4.3)	(0.0)	(15.1)
Multi Purpose tool bar	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	(0.0)	(0.0)	(0.0)	(100.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(100.0)	(0.7)
Thresher	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
	(50.0)	(50.0)	(0.0)	(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(50.0)	(50.0)	(0.0)	(0.0)	(1.3)
Power driven	0	0	0	0	0	0	0	0	0	0	0	3	3	2	0	8	3	3	2	0	0	8
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(37.5)	(37.5)	(25.0)	(0.0)	(100.0)	(37.5)	(37.5)	(25.0)	(0.0)	(0.0)	(5.3)
Sprinkler or drip	0	0	1	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	5
	(0.0)	(0.0)	(20.0)	(80.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(20.0)	(80.0)	(3.3)
Others (Cono weeder)	0	0	0	0	0	15	26	11	5	3	60	0	0	0	0	0	15	26	11	5	3	60
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(25.0)	(43.3)	(18.3)	(8.3)	(5.0)	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(25.0)	(43.3)	(18.3)	(8.3)	(5.0)	(60.0)
Total	3	3	3	8	17	15	26	11	5	3	60	50	16	9	0	75	65	45	23	8	11	152
	(17.6)	(17.6)	(17.6)	(47.1)	(100.0)	(25.0)	(43.3)	(18.3)	(8.3)	(5.0)	(100.0)	(66.7)	(21.3)	(12.0)	(0.0)	(100.0)	(42.8)	(29.6)	(15.1)	(5.3)	(7.2)	(100.0)

Source: Compiled from the AERCs

Note: Figures in the parenthesis are percentages to the total.

#### **4.7 Production, Productivity and Area of Cultivation under ICDP:**

Rice is one of the major agricultural crops in the country. For the evaluation of this crop's output and area of cultivation, four states (Karnataka, Assam, Himachal Pradesh and Tamil Nadu) have been included. Basically, three seasons are found to be common in all the states of this cultivation with different names like, Ahu (autumn rice) and Sali (winter rice) and Boro (summer rice) in Assam. Similarly, it is Kuruvai, Samba and Thalady in Tamil Nadu. For easy analysis of the development or impact of the project, two periods have been taken, i.e. before the implementation and after the implementation of the project. As it was mentioned in the methodology in the first chapter, 2007-08 is taken as the year of reference of this study.

In case of wheat, three states are taken (Maharashtra, Punjab and West Bengal) and for coarse cereal also three states are selected (Maharashtra, Uttar Pradesh and Karnataka). Again, for coarse cereal, only jowar crop is taken for the evaluation.

##### **4.7:1 Production, Productivity and Area of Cultivation under ICDP of rice**

From the Table 4.7:1 it is clear that overall production of rice has been increased from 30686.9 qtls to 36283.7 qtls after the introduction of the scheme. It is almost 18.24 percent growth rate over the year. Similarly, its overall yield rate has increased from 16.8 qtl per acre to 18.7 qtl per acre. Whereas the area brought under the cultivation has not much changed during this period. It is hardly 9 percent of growth (1828.4 acre to 1938.0 acre). State-wise analysis is concerned; Karnataka does not have much implication of the scheme of this crop particularly. After the implementation of this scheme, average yield level is negligibly increased from 10.0 qtl per acre to 10.2 qtl per acre. Highest growth rate was recorded in Tamil Nadu with hike of yield rate from 19.9 qtl per acre to 23.4 qtl per acre. Moderate increase was seen in Himachal (from 10.1 qtl per acre to 12 qtl per acre) and Assam (from 15.6 qtl per acre to 17.2 qtl per acre). Area brought under the cultivation is concerned, in Karnataka, a total of 118 acre of has brought under the cultivation under this crop, and 35.7percent of more of rice production has been made. In Assam, the area of cultivation under this crop has slightly come down after the introduction of this scheme from 357.4 acre to 354.5 acre.

**Table 4.7:1**  
**Area, Production and Productivity of Rice (After and Before the Scheme)**

Farm Size Category	Area (in Acre)		Production (in Qtl)		Productivity (qtl/acre)*	
	Before	After	Before	After	Before	After
Karnataka						
Marginal	23.0	28.0	225.0	287.5	9.8	10.3
Small	88.0	112.0	844.0	965.3	9.6	8.6
Semi-Medium	70.0	97.0	689.0	1024.0	9.8	10.6
Medium	58.0	81.0	584.0	852.4	10.1	10.5
Large	122.0	161.0	1256.3	1752.5	10.3	10.9
<b>Total</b>	<b>361.0</b>	<b>479.0</b>	<b>3598.3</b>	<b>4881.7</b>	<b>10.0</b>	<b>10.2</b>
Assam						
Marginal	30.3	31.4	457.4	519.5	15.1	16.5
Small	139.3	140.0	2281.2	2495.1	16.4	17.8
Semi Medium	83.5	80.1	1315.0	1401.4	15.7	17.5
Medium	114.3	103.1	1684.8	1706.3	14.7	16.6
Large	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>367.4</b>	<b>354.5</b>	<b>5738.4</b>	<b>6122.2</b>	<b>15.6</b>	<b>17.2</b>
Himachal Pradesh						
Marginal	24.0	25.7	241.9	323.0	10.1	12.6
Small	16.5	17.8	173.6	200.0	10.5	11.3
Semi-Medium	11.7	13.3	116.0	159.0	9.9	12.0
Medium	0.0	0.0	0.0	0.0	0.0	0.0
Large	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>52.2</b>	<b>56.7</b>	<b>531.5</b>	<b>681.9</b>	<b>10.1</b>	<b>12.0</b>
Tamil Nadu						
Marginal	54.0	54.0	1121.8	1346.1	20.8	24.9
Small	208.0	208.0	4255.0	5105.9	20.5	24.5
Semi Medium	191.8	191.8	3841.8	4533.3	20.0	23.6
Medium	205.3	205.3	4027.1	4751.9	19.6	23.2
Large	388.8	388.8	7573.2	8860.6	19.5	22.8
<b>Total</b>	<b>1047.8</b>	<b>1047.8</b>	<b>20818.7</b>	<b>24597.9</b>	<b>19.9</b>	<b>23.4</b>
Total (All 4 States)						
Marginal	131.3	139.1	2046.1	2476.1	17.3	21.8
Small	451.8	477.7	7553.8	8766.3	25.0	34.8
Semi Medium	357.0	382.2	5961.7	7117.6	26.7	38.8
Medium	377.6	389.3	6295.9	7310.6	19.5	27.2
Large	510.8	549.8	8829.4	10613.1	25.0	37.2
<b>Total</b>	<b>1828.4</b>	<b>1938.0</b>	<b>30686.9</b>	<b>36283.7</b>	<b>16.8</b>	<b>18.7</b>

Source: Compiled from the AERCs

\* Figure is calculated from the total production divided by total area.

But the production has increased slightly from 5738.4 qtl to 6122.2 qtl (7percent). In Tamil Nadu, the area remains same after the introduction of this scheme of this crop (rice) but it has increased greatly from 2081.7 qtl to 24597.9 qtl. It is approximately

18.1percent over the period. Moderate change was seen in Himachal Pradesh that 4.5 acre more of land was brought under this crop and the production has increased fairly from 531.5 qtl to 681.9 qtl (28.3percent).

#### **4.7:2 Production, Productivity and Area of Cultivation under ICDP of wheat**

From the Table 4.7:2 it is clear that overall production of wheat has been increased from 1209.0 qtls to 1305.7 qtls. after the introduction of the scheme. It has brought 96.7 qtl more of output and is 8 percent growth rate over the period. Unfortunately, its overall yield rate has decreased from 13.9 qtl per acre to 13.7 qtl per acre. Whereas the area brought under the cultivation has increased from 87.0percent acre to 93.5 acre. It is the growth of 6.5 acre more land only and hardly 7.4 percent.

State-wise analysis is concerned; in Maharashtra, after the implementation of this scheme, average yield level has increased from 6.0 qtl. per acre to 7.0 qtl. per acre. Highest growth rate of yield was maintained by Punjab with an increased from 19.7 qtl. per acre to 20.6 qtl. per acre. It is followed by Maharashtra with a hike of yield rate from 6.0 qtl. per acre to 7.0 qtl. per acre. Least increased rate was seen in West Bengal with a marginal increased from 0.3 qtl. per acre to 0.4 qtl. per acre.

Area brought under the cultivation is concerned, in Maharashtra, negative trend was seen (-7.5percent) after the scheme. It has fallen down from 11.1 acre to 10.3 acre. Its total production has increased by 13.6 percent (61.2 qtl to 69.5 qtl) after the scheme. In Punjab, the area of cultivation under this crop has slightly increased after the introduction of this scheme from 57.9 acre to 59.6 acre (an increased of 3.0percent) and the production of the state has increased from 1140.8 qtl to 1226.6 qtl (growth of 7.5 percent). In West Bengal, the area of cultivation of this crop (wheat) has increased from 18.0 acre to 23.7 acre, and it is the increased of 31.7 percent over the period. Its production is also increased from 7.0 qtl to 9.6 qtl. It is an increased of 37.1 percent over the period.

Table 4.7:2

**Area, Production and Productivity of Wheat under ICDP**

<b>Maharashtra</b>						
Category of the Farmer	Area (acre)		Production (qtl)		Productivity (qtl/acre)*	
	Before	After	Before	After	Before	After
Marginal	0.0	0.0	0.0	0.0	0.0	0.0
Small	0.8	1.0	5.2	8.6	6.4	9.0
Semi-Medium	1.2	1.3	9.5	13.2	8.2	10.2
Medium	2.7	2.9	11.9	16.1	4.3	5.6
Large	6.4	5.1	34.6	31.6	5.4	6.2
<b>Total</b>	<b>11.1</b>	<b>10.3</b>	<b>61.2</b>	<b>69.5</b>	<b>6.0</b>	<b>7.0</b>
<b>Punjab</b>						
Marginal	0.0	0.0	0.0	0.0	0.0	0.0
Small	3.0	4.6	57.1	94.2	18.9	20.4
Semi Medium	5.5	5.5	103.6	108.2	19.0	19.9
Medium	13.4	13.4	261.2	279.0	19.6	20.9
Large	36.0	36.1	718.9	745.2	20.0	20.6
<b>Total</b>	<b>57.9</b>	<b>59.6</b>	<b>1140.8</b>	<b>1226.6</b>	<b>19.7</b>	<b>20.6</b>
<b>West Bengal</b>						
Marginal	9.5	12.4	3.7	5.1	0.4	0.4
Small	5.3	7.5	2.1	3.1	0.4	0.4
Semi Medium	3.2	3.8	1.2	1.4	0.4	0.4
Medium	0.0	0.0	0.0	0.0	0.0	0.0
Large	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>18.0</b>	<b>23.7</b>	<b>7.0</b>	<b>9.6</b>	<b>0.3</b>	<b>0.4</b>
<b>Total</b>						
Marginal	9.5	12.4	3.7	5.1	0.4	0.4
Small	9.2	13.1	64.4	105.9	7.0	8.1
Semi Medium	9.8	10.6	114.3	122.8	11.7	11.6
Medium	16.1	16.2	273.1	295.1	17.0	18.2
Large	42.4	41.2	753.5	776.8	17.8	18.8
<b>Total</b>	<b>87.0</b>	<b>93.5</b>	<b>1209.0</b>	<b>1305.7</b>	<b>13.9</b>	<b>13.7</b>

Source: Compiled from the AERCs

\*Figure is calculated from the total production divided by total area.

**4.7:3 Area, Production and Productivity of Coarse Cereal (Jowar)**

From the Table 4.7:3 it is clear that overall production of Jowar of three states has increased from 488.5 qtls to 818.5 qt. after the introduction of the scheme. It has brought

330 qtl more of output and is 67.5 percent growth rate over the year. Unfortunately, its overall yield rate has not been increased much (marginally from 4.0 qtl per acre to 5.1 qtl per acre) but large areas have been brought under the cultivation.

**Table 4.7:3**  
**Area, Production and Productivity of Coarse Cereal (Jowar) under ICDP**

<b>Maharashtra</b>						
Category of the Farmer	Area (Acres)		Production (qtl)		Productivity (qtl/acre)*	
	Before	After	Before	After	Before	After
Marginal	1.0	0.0	1.8	0.0	1.8	0.0
Small	1.1	1.5	9.2	10.6	8.2	6.9
Semi Medium	1.6	1.7	8.9	13.7	5.7	8.0
Medium	4.8	5.3	16.2	22.3	3.4	4.2
Large	6.0	6.7	26.4	36.0	4.4	5.4
<b>Total</b>	<b>14.5</b>	<b>15.2</b>	<b>62.5</b>	<b>82.5</b>	<b>4.3</b>	<b>5.4</b>
<b>Uttar Pradesh</b>						
Marginal	12.5	14.8	0.0	0.0	0.0	0.0
Small	18.3	21.2	0.0	0.0	0.0	0.0
Semi Medium	10.6	12.4	0.0	0.0	0.0	0.0
Medium	8.6	9.8	0.0	0.0	0.0	0.0
Large	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>50.0</b>	<b>58.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Karnataka</b>						
Marginal	3.0	8.0	21.0	40.0	7.0	5.0
Small	15.0	21.5	45.0	129.0	3.0	6.0
Semi Medium	0.0	0.0	0.0	0.0	0.0	0.0
Medium	20.0	27.0	160.0	297.0	8.0	11.0
Large	20.0	30.0	200.0	270.0	10.0	9.0
<b>Total</b>	<b>58.0</b>	<b>86.5</b>	<b>426.0</b>	<b>736.0</b>	<b>7.3</b>	<b>8.5</b>
<b>All States</b>						
Marginal	16.5	22.8	22.8	40.0	1.4	1.8
Small	34.4	44.2	54.2	139.6	1.6	3.2
Semi Medium	12.2	14.1	8.9	13.7	0.7	1.0
Medium	33.4	42.1	176.2	319.3	5.3	7.6
Large	26.0	36.7	226.4	306.0	8.7	8.3
<b>Total</b>	<b>122.5</b>	<b>159.8</b>	<b>488.5</b>	<b>818.5</b>	<b>4.0</b>	<b>5.1</b>

Source: Compiled from the AERCs

\*Figure is calculated from the total production divided by total area.

After the introduction of the scheme 30.4 percent of growth of this crop was visible under this scheme (122.5 acre to 159.8 acre).

State-wise analysis is concerned; Maharashtra and Karnataka have positive growth of the productivity after the scheme. In Maharashtra, 4.3 qtl per acre was the productivity and after the scheme it rose to 5.4 qtl per acre. Similarly, in Karnataka, it has increased marginally from 7.3 qtl per acre to 8.5 qtl per acre over the period. Land brought under the cultivation is concerned, Karnataka has made good job that 49.1 percent of growth was visible (58.0 acre to 86.5 acre after the scheme). Similarly, the state performs well in the field of production also that 72.8 percent growth was realised (426 qtl to 736 qtl after the scheme). But, in case of Maharashtra, the growth was not very significant, that 32 percent of growth in production was realised (62.5 qtl to 82.5 qtl after the scheme). However, the productivity has increased marginally from 4.3 qtl per acre to 5.4 qtl per acre after the implementation of the scheme.

#### **4.8 Conclusion and Suggestions:**

Though the scheme of ICDP of rice, wheat and coarse cereal is one of the flagship components under the MMA scheme in the country, the growth was not so significant. As these crops are the staple foods in the country as well as high demand for the export in neighboring nations, development of this scheme or component is very significant. Output of the crop is concerned, the production and productivity of rice and wheat are not showing much improvement compared to the sugarcane. Productivity of rice has increased marginally from 16.0 qtl per acre to 18.7 qtl per acre (Table 4.7:1). Whereas the productivity rate of wheat crop has declined marginally from 13.9 qtl per acre to 13.7 qtl per acre after the introduction of the scheme (Table 4.7:2). Secondly, farmers are not responding much to the crop procurement and demonstration of training provided by the agencies. These are the few areas to be looked into thoroughly if the scheme likes to proceed toward the advancement of production technique. More attention of the participation and training of the farmers are required. Seed procurement is an important issue under this study. For further development of the scheme, timely availability of the advanced (HYV) seeds should be made possible. For instance, most of the farmers under

the rice and wheat cultivation have procured seeds from the domestic sources to the tune of 63 percent and 76.2 percent respectively

In terms of financial achievement and target, it was found to be quite satisfactory as above 80 per cent financial achievements were made by the implementing agencies. Otherwise, in totality, the scheme is moving towards the right direction.

## Chapter V

### Scheme for Integrated Nutrient Management (INM)

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#### 5.1: Introduction

One of the challenges of agricultural sector in the country is the increasing demand for food in a sustainable way. Declining soil fertility and mismanagement of plant nutrients have impeded to the crop production and productivity and hence made this task of agricultural development more difficult. As the agriculture is a soil-based industry, increase in productivity is unlikely to be attained without ensuring that plants are given adequate and balanced supply of nutrients. Sustainable agricultural production incorporates the idea that natural resources should be used to enhance output and incomes, especially for low-income groups, without depleting the natural resource base. In this context, Integrated Nutrient Management (INM hereafter) scheme maintains soil as storehouse of plant nutrients that are essential for vegetative growth. It implies that the maintenance or adjustment of soil fertility and of plant nutrient supply to an optimum level for sustaining the desired crop productivity on one hand and to minimise nutrient losses to the environment on the other. It is however not a matter of conserving soil nutrient alone, rather becomes organic and mineral methods of soil fertility management.

With regard to the genesis of the scheme (INM) is concerned, a Centrally Sponsored Scheme "Balanced and Integrated Use of Fertilizers" was taken up during 1991-92 for promoting Integrated Nutrient Management (INM) envisaging soil test-based balanced and judicious application of NPK fertilizers and secondary (Sulphur, Calcium) and micro-nutrient fertilizers in conjunction with organic sources of nutrient like Farmyard Manure, Green Manures, Organic Manures (Compost), Phospho-compost, Vermi-compost, and Bio-fertilizers, etc. Later on, the scheme was subsumed under the Macro Management of Agriculture Scheme in 2000 ensuring that the States/UTs could continue to implement the programme through their Work Plans.

In this chapter, only three states (Karnataka, Himachal Pradesh and Punjab) have been included for the evaluation without any specific crop. The main thrust of the scheme is to ensure adequate availability of the quality fertilizers of the farmers through

periodical demand assessment and timely supply and balanced use of the chemical fertilizers in conjunction with the organic manures and bio-fertilizers. In this regard, the State Governments along with the central assistance conduct demonstrations and distributes the different micro-nutrients at the subsidised rates to facilitate the farmers.

## 5.2: Financial Targets and Achievement under INM of MMA

For the overall development of the scheme, not only the resources but also efficient utilisation of the resources especially of financial resources becomes very significant. The pattern of assistance or in other words financial target and achievements for various components under the Integrated Nutrient Management is given in the Table 5.1:

**Table 5.1:**  
**Financial Targets and Achievement under INM of MMA (Rs. in lakhs)**

Year		Himachal Pradesh	Punjab	Karnataka*	Total	Percentage Achievement
2000-01	Tar.	32	242	0	274	6.1
	Ach.	17	0	0	17	
2001-02	Tar.	31	258	0	289	10.3
	Ach.	30	0	0	30	
2002-03	Tar.	43	150	0	193	22.3
	Ach.	43	0	0	43	
2003-04	Tar.	56	80	0	136	31.2
	Ach.	43	0	0	43	
2004-05	Tar.	102	126	0	228	43.9
	Ach.	100	0	0	100	
2005-06	Tar.	123	81	0	204	65.9
	Ach.	134	0	0	134	
2006-07	Tar.	266	130	0	396	94.0
	Ach.	372	0	0	372	
2007-08	Tar.	251	165	0	416	85.4
	Ach.	355	0	0	355	
Total	Tar.	1038	1232	0	2270	48.1
	Ach.	1093	0	0	1093	

Source: Compiled from the AERCs

\* Information regarding the financial Target and Achievement are not available

Since the Table 5.1 has incomplete information of the states, overall development stock of the states cannot be taken. Still, Himachal Pradesh has been performing well over the period from the inception of the scheme (2000-01) till the period of evaluation of the scheme (2007-08). By and large, the statistic of financial achievement and target is not very precise and clear due to unavailability of the information of Karnataka and Punjab. And, this section will be evaluated mainly on the area of participation and number of farmers/area brought under the scheme.

### 5.3: Demographic profile of the sample farmers under INM

The demographic profile of the sampled beneficiaries under INM is presented in Table 5.3:1. For the analysis of this section, altogether 240 sample farmers have been collected. Of which, 135 samples have been taken from Punjab and it is followed by Karnataka with 60 samples and Himachal Pradesh with 45 sample farmers. The Table reveals that about 19 per cent of the sampled farmers belong to marginal category whereas 11.3 per cent of them belong to large holding category farmers. Small and semi-medium farmers occupy major share of this scheme with 23.3 percent and 25.4 percent respectively. Medium size holding farmers are also not very less. They constitute 21.3 percent of the total sample farmers.

**Table 5.3:1**  
**Demographic profile of the Sample farmers under INM by Size of holdings**

Sates	Marginal	Small	Semi medium	Medium	Large	Total
Karnataka	15 (25.0)	27 (45.0)	12 (20.0)	4 (6.7)	2 (3.3)	<b>60</b> <b>(100.0)</b>
Himachal Pradesh	30 (66.7)	15 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	<b>45</b> <b>(100.0)</b>
Punjab	0 (0.0)	14 (10.4)	49 (36.3)	47 (34.8)	25 (18.5)	<b>135</b> <b>(100.0)</b>
All States	<b>45</b> <b>(18.8)</b>	<b>56</b> <b>(23.3)</b>	<b>61</b> <b>(25.4)</b>	<b>51</b> <b>(21.3)</b>	<b>27</b> <b>(11.3)</b>	<b>240</b> <b>(100.0)</b>

Source: Compiled from the AERCs

In Himachal Pradesh, no large size holding farmer got benefited from this scheme. Marginal and small farmers got the entire share of the scheme with 66.7 percent and 33.3 percent in the state. Whereas, in Punjab, lion share of the scheme is enjoyed by

the large farmers. They constitute 36.3 percent of semi-medium farmers and 34.8 percent medium farmers. It is followed by 18.5 percent large size holding farmers. Only 14 percent of the small farmer got opportunity of the scheme in the state. For Karnataka, it is quite justifiable with the objective of the MMA that marginal and small farmers enjoy larger share of the benefits of the scheme. They constitute 25 percent of marginal and 45 percent of small farmers in the state. It is followed by the semi-medium farmers with 20 percent. Only few numbers of large and medium size holding category farmers with 3.3 percent and 6.7 percent respectively got the share in the State.

The Table 5.3:2 shows the social category of the farmers (in terms of number of farmer) benefited or involved of the scheme (INM). Overall number of SC and ST category of community in this scheme is quite low. They constitute 13.3 percent of SC and 3 percent of ST category of community. OBC category of farmer constitutes hardly 15.8 percent of the total sample farmers of the scheme. Majority of the farmers are from the general category of the society with 68 percent of the total sample farmers. It is basically contributed by the Punjab, that 98.5 percent of the State's (Punjab) total farmers are from this category only. In Punjab, social group-wise distribution of benefit of this scheme is very unequal. No ST category of the farmer is found benefited from this scheme. Other category of society of farmers in the State is concerned, only one farmer each (0.7 percent of the State's total farmer) is found from the section of SC and OBC category of community respectively. In Karnataka, the societal distribution is quite uniform that except OBC (60 percent of the State's total), SC, ST and General category of the farmers have almost equal numbers of farmers. They are 11.7 percent of SC; 10 percent of ST and 18.3 percent of General category of farmers in the state. In Himachal Pradesh too, the distribution is quite imbalanced. ST category of farmers constitutes 53.3 percent of the State's total and it is followed by General category with 42.2 percent. ST and OBC remain at the least position with 2.2 percent each.

#### **5.4: Participation of the sample farmers in INM demonstration:**

As the scheme emphasises more on the farmers' awareness, technology and output of agricultural produces, etc., the participation of the farmers in the training of the demonstrations provided by the agencies in the field is very significant.

**Table 5.3:2**  
**Number of sample farmers benefited from Integrated Nutrient Management**

Categories	Karnataka					Total Number
	Marginal	Small	Semi medium	Medium	Large	
SC	3 (42.9)	3 (42.9)	1 (14.3)	0 (0.0)	0 (0.0)	7 (100.0)
ST	3 (50.0)	3 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	6 (100.0)
OBC	5 (13.9)	17 (47.2)	10 (27.8)	2 (5.6)	2 (5.6)	36 (100.0)
General	4 (36.4)	4 (36.4)	1 (9.1)	2 (18.2)	0 (0.0)	11 (100.0)
<b>Total</b>	<b>15</b> <b>(25.0)</b>	<b>27</b> <b>(45.0)</b>	<b>12</b> <b>(20.0)</b>	<b>4</b> <b>(6.7)</b>	<b>2</b> <b>(3.3)</b>	<b>60</b> <b>(100.0)</b>
	<b>Himachal Pradesh</b>					
SC	15 (62.5)	9 (37.5)	0 (0.0)	0 (0.0)	0 (0.0)	24 (100.0)
ST	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
OBC	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
General	13 (68.4)	6 (31.6)	0 (0.0)	0 (0.0)	0 (0.0)	19 (100.0)
<b>Total</b>	<b>30</b> <b>(66.7)</b>	<b>15</b> <b>(33.3)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>45</b> <b>(100.0)</b>
	<b>Punjab</b>					
SC	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
ST	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
OBC	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)	1 (100.0)
General	0 (0.0)	13 (9.8)	48 (36.1)	47 (35.3)	25 (18.8)	133 (100.0)
<b>Total</b>	<b>0</b> <b>(0.0)</b>	<b>14</b> <b>(10.4)</b>	<b>49</b> <b>(36.3)</b>	<b>47</b> <b>(34.8)</b>	<b>25</b> <b>(18.5)</b>	<b>135</b> <b>(100.0)</b>
	<b>All States</b>					
SC	18 (56.3)	13 (40.6)	1 (3.1)	0 (0.0)	0 (0.0)	32 (100.0)
ST	4 (57.1)	3 (42.9)	0 (0.0)	0 (0.0)	0 (0.0)	7 (100.0)
OBC	6 (15.8)	17 (44.7)	11 (28.9)	2 (5.3)	2 (5.3)	38 (100.0)
General	17 (10.4)	23 (14.1)	49 (30.1)	49 (30.1)	25 (15.3)	163 (100.0)
<b>Total</b>	<b>45</b> <b>(18.8)</b>	<b>56</b> <b>(23.3)</b>	<b>61</b> <b>(25.4)</b>	<b>51</b> <b>(21.3)</b>	<b>27</b> <b>(11.3)</b>	<b>240</b> <b>(100.0)</b>

Source: Compiled from the AERCs

For this section, three states (Karnataka, Himachal Pradesh and Punjab) and two crops (Paddy and wheat) are taken for the analysis. Due to unavailability of the information, only paddy is considered for the analysis of Karnataka.

Table 5.4: reveals the level of participation of the sample households by farm size category in INM demonstration during the reference year (2007-08). Only 23 percent of the sample farmers have attended the demonstration of INM demonstration. Amongst the sample farmers attended for the demonstration, only 21.8 percent of marginal farmers have attended the demonstration. Unlike marginal category, small size farm owners occupy 43.6 percent of the attendance of the training. Almost equally, semi-medium and medium farmers' share in the participation is 14.5 percent and 16.4 percent respectively. Very unfortunately, in Punjab, only 6 percent of the total collected sample farmers were attended for the demonstration. But in Himachal Pradesh, it has little higher than the Punjab. It is 24.4 percent of the total sample was found attended demonstration provided by the agencies under the scheme. In case of Karnataka, it is quite impressive that 60 percent of the total sample farmers were attended demonstration in the training during 2007-08.

**Table 5.4:**  
**Participation of the sample farmers in the INM demonstration by crops**

States and Sample size	Crop – Paddy (2007-08)					Total
	Marginal	Small	Semi Medium	Medium	Large	
<b>Karnataka</b>	6 (16.7)	18 (50.0)	8 (22.2)	2 (5.6)	2 (5.6)	<b>36</b> <b>(100.0)</b>
No of Sample	15	27	12	4	2	<b>60</b>
<b>Punjab</b>	Crop – Wheat And Paddy (2007-08)					<b>8</b> <b>(100.0)</b>
	0 (0.0)	1 (12.5)	0 (0.0)	7 (87.5)	0 (0.0)	
No of Sample	0	14	49	47	25	<b>135</b>
<b>Himachal Pradesh</b>	Crop – Wheat (2007-08)					<b>11</b> <b>(100.0)</b>
	6 (54.5)	5 (45.5)	0 (0.0)	0 (0.0)	0 (0.0)	
No of Sample	30	15	0	0	0	<b>45</b>
<b>All states</b>	12 (21.8)	24 (43.6)	8 (14.5)	9 (16.4)	2 (3.6)	<b>55</b> <b>(100.0)</b>
No of Sample	45	56	61	51	27	<b>240</b>

Source: Compiled from the AERCs

### **5.5: Distribution of Nutrients under INM:**

Distribution of nutrients, as noted earlier, is one of the thrust objectives of INM sub-scheme and its performance in the study area is presented in Table 5.5. For the study, only two States have been included (irrespective of crops) and distribution is measured on the basis of number of farmers received nutrients (irrespective of quantity) in the States.

From the Table 5.5 it is clear that a total of 141 farmers (51 in Karnataka and 90 in Himachal Pradesh<sup>8</sup>) received nutrients. Out of this, 41.1 per cent is marginal farmer and 43.9 per cent is the small farmers. No large category farmer was found in both the States. However, 16 and 5 numbers of semi-medium and medium farmers respectively were found in Karnataka. Of the nutrients, Micro-nutrient was the largest component distributed among the farmers.

In Karnataka, only 51 farmers out of the 60 sample farmers are found to be provided/distributed nutrients under the INM. It consists of 17 small farmers (33.3 percent), and 16 semi-medium farmers (31.3 per cent). Marginal and medium farmers occupy third and fourth position with 25.4 per cent and 9.8 per cent respectively of the total farmers. Of the nutrients, Bio-fertilizer was the largest component distributed in the State. It accounts for 20 numbers of farmers (39.2 per cent) and 14 farmers were distributed micro nutrients (27.4 per cent). Enriched compost and Agri-gold fall in the third and fourth position with 17.6 per cent and 15.6 per cent respectively.

Whereas, in Himachal Pradesh, highest components distributed was the micro-nutrient. It composes of 66.6 per cent of the total component distributed in the State. It is followed by 33.3 per cent of earthworm nutrient. Of the category of farmer, both the marginal and small farmers received 50 per cent each of the total nutrients distributed in the State. No other higher rung farmer was found in Himachal Pradesh in this regard. In case of nutrients, only two components, i.e. micro-nutrients and earthworm were found in this study.

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<sup>8</sup> In Himachal Pradesh, some farmers received more than one component (Nutrients). However, in Karnataka each farmer receives only one component.

**Table 5.5:**  
**Distribution of Nutrients to the sample farmers**  
(Number)

Karnataka						
Components	Marginal	Small	Semi Medium	Medium	Large	Total Number
Micro Nutrients	4 (26.6)	4 (14.8)	4 (33.3)	2 (50.0)	0 (0)	14 (100)
Bio-Fertilizer	5 (33.3)	7 (25.9)	8 (66.6)	0 (0.0)	0 (0.0)	20 (100)
Enriched Compost	2 (13.3)	3 (11.1)	4 (33.3)	0 (0.0)	0 (0.0)	9 (100)
Agri-Gold	2 (13.3)	3 (11.1)	0 (0.0)	3 (75.0)	0 (0.0)	8 (100)
<b>Grand Total</b>	<b>13</b> <b>(25.4)</b>	<b>17</b> <b>(33.3)</b>	<b>16</b> <b>(31.3)</b>	<b>5</b> <b>(9.8)</b>	<b>0</b> <b>(0.0)</b>	<b>51</b> <b>(100)</b>
Himachal Pradesh						
Micro Nutrients	30 (50.0)	30 (50.0)	0 (0)	0 (0)	0 (0)	60 (100)
Earthworms	15 (50.0)	15 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	30 (100)
<b>Grand Total</b>	<b>45</b> <b>(50.0)</b>	<b>45</b> <b>(50.0)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>90</b> <b>(100)</b>

Source: Compiled from AERCs

Note: Figures in the parentheses are the value of money of Nutrient given to per farmer.

### 5.6: Usage of Soil Ameliorates:

Soil ameliorates are considered to be indispensable in the present day soil structure as quality of soil deteriorates after prolonged use for the cultivation. For the purpose, only two States (Karnataka and Punjab) are included with wheat and paddy crops. Out of the total 60 sample farmers, only 32 of them were using soil ameliorates in Karnataka and 26 farmers out of 135 farmers in Punjab. The item-wise use of soil ameliorates by the selected sample farmer is presented in Table 5.6. The Table shows that among the different items of soil ameliorates, only two (Gypsum and Zinc) were used by the farmers, 56.9 percent Gypsum and 43.1 percent Zinc. And among the farmers who used soil ameliorates (total 32 farmers), 78.1 percent of the total farmers (25 farmers) were using Zinc and it is followed by Gypsum with 21.9 percent (7 farmers) in Karnataka. But in Punjab, all the farmers (who used soil ameliorates) i.e. 100 percent (26 farmers) of the farmers were using Gypsum only.

**Table 5.6:**  
**Usage of Soil Ameliorates by the Sample farmers (in Numbers)**

Farmer Holdings	Karnataka				Total
	Gypsum	Zinc	Pirate	Lime	
Marginal	0 (0.0)	12 (100.0)	0 (0.0)	0 (0.0)	12 (100.0)
Small	3 (37.5)	5 (62.5)	0 (0.0)	0 (0.0)	8 (100.0)
Semi medium	0 (0.0)	3 (100.0)	0 (0.0)	0 (0.0)	3 (100.0)
Medium	4 (50.0)	4 (50.0)	0 (0.0)	0 (0.0)	8 (100.0)
Large	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)	1 (100.0)
<b>Total</b>	<b>7</b> (21.9)	<b>25</b> (78.1)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>32</b> (100.0)
	Punjab				
Marginal	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Small	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)
Semi Medium	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	9 (100.0)
Medium	8 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	8 (100.0)
Large	7 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	7 (100.0)
<b>Total</b>	<b>26</b> (100.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>26</b> (100.0)
	All State Total				
Marginal	0 (0.0)	12 (100.0)	0 (0.0)	0 (0.0)	12 (100.0)
Small	5 (50.0)	5 (50.0)	0 (0.0)	0 (0.0)	10 (100.0)
Semi Medium	9 (75.0)	3 (25.0)	0 (0.0)	0 (0.0)	12 (100.0)
Medium	12 (75.0)	4 (25.0)	0 (0.0)	0 (0.0)	16 (100.0)
Large	7 (87.5)	1 (12.5)	0 (0.0)	0 (0.0)	8 (100.0)
<b>Total</b>	<b>33</b> (56.9)	<b>25</b> (43.1)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>58</b> (100.0)

Source: Compiled from AERCs

### **5.7: Soil Tested under INM by Source:**

Soil testing is inevitable for judicious and rational application of plant nutrients on the soil for enhancing crop productivity. Similarly, this section also covers only two States (Karnataka and Himachal Pradesh) for the analysis. For the analysis, 45 sample farmers are taken from Himachal Pradesh and all of them (100 percent) found to have tested their soil by the Department of Agriculture (ADO). In case of Karnataka, only 22 farmers (out of 60 sample farmers) are found to have tested their soil under the INM sub-scheme. And, for this State too, all the farmers got tested their soil by Department of Agriculture (ADO).

By states, in Himachal Pradesh, only marginal and small farmers got tested their soil. Marginal farmers consist of 66.7 percent (30 farmers) and small farmers consist of 33.3 percent (15 farmers) got tested their soil from the Department of Agriculture (ADO) under this INM scheme, and the sample farmers of this scheme (INM) happened to be from this two categories of the farmers. In case of Karnataka, it is almost equally distributed. Small farmers consist of 40.9 percent of the sample farmers and it is followed by marginal farmers with 18.1 percent got tested soils. Semi-medium farmers are also equally large with 27.2 percent, but medium and large category farmers got very few numbers with 9 percent and 4.5 percent of the total sample farmers respectively.

### **5.8: Conclusion and Suggestions:**

As the main thrust of the scheme is to ensure adequate availability of the quality fertilizers of the farmers through periodical demand assessment and timely supply and balanced use of the chemical fertilizers in conjunction with the organic manures and bio-fertilizers, intensifying the process of this sub-scheme is very important not only for the production but also the environment protection. But the flop side of this chapter is the response of the farmers under this sub-scheme is quite poor and unbalanced in the application of the nutrients across the states.

**Table 5.7:**

**Sample farmers got Soil Tested under INM by Source (Numbers)**

Category of farms	Himachal Pradesh			Total
	Department of Agriculture	Self	Other	
Marginal	30	0	0	30
	(100.0)	(0.0)	(0.0)	(100.0)
Small	15	0	0	15
	100	0	0	100
Semi-medium	0	0	0	0
	(0.0)	(0.0)	(0.0)	(0.0)
Medium	0	0	0	0
	(0.0)	(0.0)	(0.0)	(0.0)
Large	0	0	0	0
	(0.0)	(0.0)	(0.0)	(0.0)
<b>Total</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>45</b>
	(100.0)	(0.0)	(0.0)	(100.0)
<b>Karnataka</b>				
Marginal	4	0	0	4
	(100.0)	(0.0)	(0.0)	(100.0)
Small	9	0	0	9
	(100.0)	(0.0)	(0.0)	(100.0)
Semi medium	6	0	0	6
	(100.0)	(0.0)	(0.0)	(100.0)
Medium	2	0	0	2
	(100.0)	(0.0)	(0.0)	(100.0)
Large	1	0	0	1
	(100.0)	(0.0)	(0.0)	(100.0)
<b>Total</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>22</b>
	(100.0)	(0.0)	(0.0)	(100.0)
<b>All State Total</b>				
Marginal	34	0	0	34
	(100.0)	(0.0)	(0.0)	(100.0)
Small	24	0	0	24
	(100.0)	(0.0)	(0.0)	(100.0)
Semi medium	6	0	0	6
	(100.0)	(0.0)	(0.0)	(100.0)
Medium	2	0	0	2
	(100.0)	(0.0)	(0.0)	(100.0)
Large	1	0	0	1
	(100.0)	(0.0)	(0.0)	(100.0)
<b>Total</b>	<b>67</b>	<b>0</b>	<b>0</b>	<b>67</b>
	(100.0)	(0.0)	(0.0)	(100.0)

Source: Compiled from AERCs

For instances, in Punjab, despite of the highly developed agricultural system, the usage of soil ameliorates of the farmers is very low in the state (26 farmers out of 135 sample). Though the social inclusion or bringing more of the weaker sections under MMA/agricultural development scheme being a policy of the government, no marginal farmer is benefited from INM scheme in Punjab. Similarly, in Himachal Pradesh, nutrient distribution to the farmers is concerned, only limited nutrients are made available to the farmers (like, micro-nutrients and earthworms only). Category-wise distribution of benefited farmers of nutrients too, only marginal and small farmers got the benefit in the State. But, on the whole, the scheme is moving towards the right direction.

For the further development of this scheme and sustainable development of agriculture, more attention should be given to the participation and training of the farmers. Basic essential materials, components or the nutrients are to be made available to the poor farmers at the reasonable price and at the appropriate time. Grass-root trainers (government functionaries and NGOs) are to be trained more to make effective delivery of the scheme and benefits to the farmers.

## Chapter VI

# Scheme for Foundation and Certified Seed Production of Vegetable Crops

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### 6.1: Introduction:

The Scheme for Foundation and Certified Seed Production of Vegetable Crops (FCSPVC hereafter) is one of the important sub-schemes under the MMA scheme. In Karnataka, the scheme was launched and implemented in 1995-96 by the Department of Horticulture. Unfortunately, the scheme was not successful and later on the same was merged into the scheme called *Development of Vegetable Crops* in 2000-01 (Department of Horticulture, Govt. of Karnataka). Therefore, the study is considered as the Development of Vegetable Crops in Karnataka. However, in Uttar Pradesh, the name of the scheme remains same as the *Scheme for Foundation and Certified Seed Production of Vegetable Crops*. Though the States have different nomenclatures of the scheme, objectives, nature and function, etc. of the scheme remain unchanged across the country.

The main objective of the sub-scheme is to increase the availability of foundation and certified seeds of vegetable crops and to create infrastructural facilities for processing and packaging of the seeds. The seed production, training and literature, distribution of tools and equipment and processing and packaging, etc. are the main components of this programme. For the evaluation of the scheme of FCSPVC, one district each from two States (Havari district from Karnataka and Vanarasi district from Uttar Pradesh) has been selected on the basis of financial achievement in the year 2004-05<sup>9</sup>. Number of sample farmer is concerned, 75 farmers from Uttar Pradesh and 60 farmers from Karnataka have been collected for the present study.

### 6.2: Financial Targets and Achievement under FCSPVC Scheme:

For the above objectives, proper financial assistance is very important. Any development programme or scheme without proper funding is practically impossible. On the other hand, effectiveness of the scheme depends on the accountability, efficient and

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<sup>9</sup> Though the entire study is based on 2007-08, due to the lack of information in Uttar Pradesh, the period of 2004-05 is taken as the year of reference for this particular section.

judicious utilisation of the resources. For assessing developmental trends of the scheme's financial target and achievement, the information of financial allocation from 2000-01 to 2005-06<sup>10</sup> is provided. The pattern of assistance for various components under the FCSPVC Scheme is given in the Table 6.2:

**Table 6.2:**  
**Financial Targets and Achievement under FCSPVC Scheme (Rs. in lakh )**

Years	Item	Karnataka	Percentage of Ach. against Tar.	Uttar Pradesh	percent of Ach. against Tar.	Total	percentage
2000-01	Tar.	1223	81.9	--	0.0	1223	81.9
	Ach.	1002		--		1002	
2001-02	Tar.	5100	72.3	5500	85.0	10600	78.9
	Ach.	3689		4675		8364	
2003-04	Tar.	2638	100.1	4999	92.6	7637	95.2
	Ach.	2640		4630		7270	
2004-05	Tar.	6499	93.0	10246	99.9	16745	97.2
	Ach.	6041		10232		16273	
2005-06	Tar.	5261	92.1	--	0.0	5261	92.1
	Ach.	4843		--		4843	
<b>Total</b>	Tar.	20721	87.9	20745	94.2	41466	91.0
	Ach.	18215		19537		37752	

Source: Compiled from the AERCs

From the Table 6.2: it is clear that the overall financial achievement of this sub-sector is 91 percent. Of which, Uttar Pradesh got 94.2 percent and Karnataka registered 87.9 percent of the financial achievement during the period from 2000 to 2005. During 2002-04, Karnataka registered highest achievement rate with 100.1 percent and lowest during 2001-02 with 72.3 percent. Whereas, in Uttar Pradesh, peak achievement level was registered during 2004-05 with 99.9 percent and lowest level was recorded about 85 percent during the initial stage of the scheme in 2001-02. In totality, of all the states, the financial allocation and spending rate is as high as above the 90 percent level.

<sup>10</sup> The information of UP of 2001-01 and 2005-06 is not available.

### **6.3: Socio- Economic Profile of the sample farmers:**

Another important objective of the MMA scheme is to work on the social inclusion. To identify the societal category of the farmers under this scheme, 135 sample farmers were collected from two states (refer to Table 6.3). It can be discerned from the Table that large number of the sample beneficiary farmers belongs to the weaker sections or small farm size holders of the society. Unlike other schemes, this scheme has very good part in the context of sample beneficiary farmers. The numbers of beneficiaries are in the descending order from the small section to the large section of the farmer. Marginal farmer constitutes highest percentage of the beneficiaries with 57 percent and large category farm size owners constitute lowest percent with 3 percent of the total sample farmers. Small farmers registered second highest with 22.2 percent and it is followed by semi-medium and medium farmers with 11.1 percent and 6.7 percent respectively.

Across the social groups, Other Backward Category (OBC) beneficiaries are on the top with 57 percent. However, general category community registered lowest position under this scheme with 2.2 percent. Scheduled Caste (SC) is in the second position with 30.3 percent and it is followed by Scheduled Tribe (ST) farmers in the third position from the top with 10.3 percent of the total sample beneficiary farmers.

State-wise classification is concerned (refer to Table 6.3); in Karnataka, OBC community occupies 55 percent of the total beneficiaries of the sub-scheme and it is followed by ST with 23.3 percent. SC and general category of the community register third and fourth position with 16.6 percent and 5 percent of the total sample respectively. In case of the category of holding size, marginal and small farmers have fairly more number of beneficiaries with 21.7 percent and 36.7 percent respectively. Semi-medium and medium farmers are in the third and fourth position with 20 percent and 15 percent respectively, and the large scale farm owner category is at the bottom with 6.7 percent in the State.

However, in case of Uttar Pradesh, the distribution is quite unequal that 85.3 percent of the beneficiaries are the marginal farmers. It is followed very meagerly by small and semi-marginal farmers with 10.7 percent and 4 percent respectively. In case of caste-wise distribution in the State, only two communities are benefiting from this sub-

scheme. Of which, SC category occupies 41.3 percent and OBC category of the community with 58.7 percent of the total sample farmers.

**Table 6.3:**  
**Socio- Economic Profile of the sample farmers under FCSPVC**

Category	Karnataka					Total
	Marginal	Small	Semi-medium	Medium	Large	
SC	4 (40.0)	3 (30.0)	2 (20.0)	0 (0.0)	1 (10.0)	10 (100.0)
ST	2 (14.3)	6 (42.9)	3 (21.4)	3 (21.4)	0 (0.0)	14 (100.0)
OBC	6 (18.2)	13 (39.4)	6 (18.2)	5 (15.2)	3 (9.1)	33 (100.0)
General	1 (33.3)	0 (0.0)	1 (33.3)	1 (33.3)	0 (0.0)	3 (100.0)
<b>Total</b>	<b>13</b> <b>(21.7)</b>	<b>22</b> <b>(36.7)</b>	<b>12</b> <b>(20.0)</b>	<b>9</b> <b>(15.0)</b>	<b>4</b> <b>(6.7)</b>	<b>60</b> <b>(100.0)</b>
<b>Uttar Pradesh</b>						
S.C.	30 (96.8)	1 (3.2)	0 (0.0)	0 (0.0)	0 (0.0)	31 (100.0)
S.T.	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
OBC	34 (77.3)	7 (15.9)	3 (6.8)	0 (0.0)	0 (0.0)	44 (100.0)
General	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>64</b> <b>(85.3)</b>	<b>8</b> <b>(10.7)</b>	<b>3</b> <b>(4.0)</b>	<b>0</b> <b>(0.0)</b>	<b>0</b> <b>(0.0)</b>	<b>75</b> <b>(100.0)</b>
<b>All State Total</b>						
S.C.	34 (82.9)	4 (9.8)	2 (4.9)	0 (0.0)	1 (2.4)	41 (100.0)
S.T.	2 (14.3)	6 (42.9)	3 (21.4)	3 (21.4)	0 (0.0)	14 (100.0)
OBC	40 (51.9)	20 (26.0)	9 (11.7)	5 (6.5)	3 (3.9)	77 (100.0)
General	1 (33.3)	0 (0.0)	1 (33.3)	1 (33.3)	0 (0.0)	3 (100.0)
<b>Total</b>	<b>77</b> <b>(57.0)</b>	<b>30</b> <b>(22.2)</b>	<b>15</b> <b>(11.1)</b>	<b>9</b> <b>(6.7)</b>	<b>4</b> <b>(3.0)</b>	<b>135</b> <b>(100.0)</b>

Source: Compiled from the AERCs

Note: Figures in the parentheses are the percentage of the total given in the last column

#### 6.4: Distribution of Mini-kits/Vegetable Seeds:

The mini-kit is a compact set of kit comprising of different advanced seeds (HYV), pesticides, and other materials for better productivity of vegetable crops. For the present study, mini-kit includes some common seeds, like chilly, brinjal, tomato, ladies finger, cucumber, etc. In order to give a boost to the production of vegetable crops and to introduce High Yielding Varieties Seed having local advantages, seeds having high productivity are being distributed to the farmers at a very nominal price through the mini-kits by the Department of Horticulture. Table 6.4 presents the mini-kits distribution to the sample farmers in Karnataka.

**Table 6.4:**

Distribution of Mini-kits under **FCSPVC in Karnataka** (No. of Farmers)

Item	Yes/No	Marginal	Small	Semi-medium	Medium	Large	Total
Mini-kits	Yes	13 (21.7)	22 (36.7)	12 (20.0)	9 (15.0)	4 (6.7)	<b>60</b> (100.0)
	No	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	<b>0</b> (0.0)
	<b>Total Farmers Received</b>	13 (21.7)	22 (36.7)	12 (20.0)	9 (15.0)	4 (6.7)	<b>60</b> (100.0)

Source: Compiled from the AERCs

Note: 1. The Information regarding the distribution of Mini-kits of Uttar Pradesh is not available.

2. Figures in the parentheses are the percentage of the total given in the last column

As the Table (Table 6.4) shows that the information of Uttar Pradesh is missing, only Karnataka is being evaluated in this section. It is clear that all the beneficiary farmers have availed the benefit of mini-kits and high yielding variety of seeds given by the Department of Horticulture. Of which, marginal and small farmers are higher in number than any other categories under this scheme. They constitute 21.7 percent and 36.7 percent respectively. Semi-medium farmers are in the third position with 20 percent of the total sample farmers, and medium and large category farmers are at the fourth and fifth position with 15 percent and 6.7 percent respectively.

#### 6.5: Participation of farmers in the Vegetable Crops Demonstration:

Demonstration of the advanced technology to the farmers is an important event of this scheme and essential activity, especially for the poor illiterate farmers. The

demonstrations of plantation, application of pesticides, and harvesting, etc. are being conducted by the Department of Horticulture not only for the vegetable crops but also for some other horticultural crops.

**Table 6.5**  
**Farmers Participation in the demonstration of vegetable crops**

Crops	Uttar Pradesh					Total
	Marginal	Small	Semi-Medium	Medium	Large	
Cucumber	11 (73.3)	3 (20.0)	1 (6.7)	0 (0.0)	0 (0.0)	15 (100.0)
Capsicum	11 (91.7)	1 (8.3)	0 (0.0)	0 (0.0)	0 (0.0)	12 (100.0)
Bitter guard	5 (83.3)	1 (16.7)	0 (0.0)	0 (0.0)	0 (0.0)	6 (100.0)
Water melon	4 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (100.0)
Musk melon	4 (66.7)	1 (16.7)	1 (16.7)	0 (0.0)	0 (0.0)	6 (100.0)
French beans	3 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (100.0)
Lot-anal	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)
Ladies finger	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
<b>Total</b>	<b>39</b> (79.6)	<b>8</b> (16.3)	<b>2</b> (4.1)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>49</b> (100.0)
	<b>Karnataka</b>					
Chilli	8 (25.8)	13 (41.9)	4 (12.9)	3 (9.7)	3 (9.7)	31 (100.0)
Brinjal	0 (0.0)	1 (33.3)	1 (33.3)	1 (33.3)	0 (0.0)	3 (100.0)
Tomato	2 (33.3)	4 (66.7)	0 (0.0)	0 (0.0)	0 (0.0)	6 (100.0)
<b>Total</b>	<b>13</b> (21.7)	<b>22</b> (36.7)	<b>12</b> (20.0)	<b>9</b> (15.0)	<b>4</b> (6.7)	<b>60</b> (100.0)

Source: Compiled from the AERCs

Note: Figures in the parentheses are the percentage of the total given in the last column

As mentioned above, the demonstration refers to the training of plantation, application of pesticides, weeding and harvesting, etc. of some commonly cultivated crops, like Tomato, Chilly, and Brinjal, etc. The detail of the participation and demonstration of various vegetable crops can be seen from the Table 6.5. Particularly in Karnataka, the demonstrations for the vegetable seeds were conducted in Karikoppa, Basapura, Kanakapira and Bhu kodihalli villages of Haveri district during the reference periods. However, the response of farmers' participation in demonstration appears to be quite poor in both the states (Karnataka and Uttar Pradesh). As both the states have studied different vegetables, comparative analysis of the crops of the states is quite impossible. For the purpose of the present study, evaluation is made state-wise separately.

In Uttar Pradesh, out of 75 farmers, only 49 of them (65.3 percent of the sample) have attended the demonstration of crops. Of which, marginal farmers is the largest number with 79.6 percent of the total sample. It is followed by small and semi-marginal farmers with 16.3 percent and 4.1 percent respectively. Among the demonstration of crops, demonstration of cucumber was attended largely by the farmers (30.6 percent) of the total demonstration attended farmers under this sub-scheme in the State. It is followed by capsicum with 24.4 percent and the third position was registered equally by two crops (12.2 percent each), bitter gourd and musk melon. And, crop-wise demonstration attended by the category farmers under this scheme in the state is concern, the percentage of marginal farmers attended to demonstration of cucumber, capsicum, bitter gourd and musk melon are 73.3 percent, 91.7 percent 83.3 percent and 66.7 percent respectively. Similarly, small farmers are in the order of 20 percent, 8.3 percent, 16.3 percent and 16.7 percent respectively of the crops orderly mentioned above.

In case of Karnataka, a good proportion of our sample farmers are found to have participated in demonstrations conducted of the crops like, Chilli, Tomato and Brinjal. This in turn reflects the initiative made by the government and boosted morale from the farmer's side to adopt the new technologies and cope with the growing awareness of the timely planting, Resistant Verities, use of fertilizer, weed control, etc. as initiated from the implementing authority under the scheme. The growing interest of the farmers on the demonstration programmes is reflected that the 100 per cent of the sample farmers have

found to be participated in the technology demonstrations. Of which, marginal farmers occupy with 21.7 percent and the small farmers on the top with 36.7 percent of the total sample farmers. Semi-medium farmers occupy third position with 20 percent and it is followed by the medium farmers with 15 percent and large farmers at the bottom with 6.7 percent only. Very interestingly, almost all the farmers (irrespective of category), say 51.6 percent of the total sample farmers have attended Chilli demonstration. It is marginally followed by Tomato and Brinjal with 10 percent and 5 percent respectively. Unlike UP, in this State, the participation is fairly and proportionately participated by all the categories of sample farmers to all the selected crops except Tomato.

#### **6.6: Difficulties faced by the farmers while attending demonstration:**

For successful implementation of the scheme, participation of the farmers is very significant. In this section, the constraints, which prevented the farmers in attending different demonstrations, are identified as distance from the village, costs involved in other agricultural works, lack of transport, loss of wage, pre-occupation with other agricultural works, etc. Table 6.6 shows the opinions revealed by the sample farmers. For which, 135 sample farmers (60 farmers from Karnataka, 75 from Uttar Pradesh) are collected and out of which, 87 farmers (64.4 percent of the sample) revealed their opinions regarding the difficulties faced by them while attending the demonstration.

Of the reasons, most the farmers revealed that the opportunity cost of other agricultural works (70.1 percent) is the main factor for not attending the demonstrations. It is followed by the factor like, *Distance from the Residence to the Demonstration Venue* with 19.5 percent and *Lack of transportation* with 10.3 percent as the least factor for not attending the demonstration.

By State-wise, in Uttar Pradesh, 76 percent of the farmers revealed that attending this demonstration is the opportunity lost of other agricultural works. It is followed by the factor of distance with 14 percent and lack of transport with 10 percent. Within the state, among the different categories of the farmers who responded to the factors for not attending the demonstrations, marginal farmers consist of 78 percent. It is followed by small farmer and semi-medium farmers with 16 percent and 6 percent respectively. Of the factors revealed by the different categories of farmers, *Opportunity Lost* of other

**Table 6.6**  
**Difficulties faced by the farmers while attending demonstrations (in Number)**

Category	Uttar Pradesh				Total
	Too far	Costs other workers	No transport	Other	
Marginal	5 (12.8)	30 (76.9)	4 (10.3)	0 (0.0)	39 (100.0)
Small	1 (12.5)	6 (75.0)	1 (12.5)	0 (0.0)	8 (100.0)
Semi Medium	1 (33.3)	2 (66.7)	0 (0.0)	0 (0.0)	3 (100.0)
Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>7</b> (14.0)	<b>38</b> (76.0)	<b>5</b> (10.0)	<b>0</b> (0.0)	<b>50</b> (100.0)
	<b>Karnataka</b>				
Marginal	5 (50.0)	2 (20.0)	3 (30.0)	0 (0.0)	10 (100.0)
Small	1 (5.9)	15 (88.2)	1 (5.9)	0 (0.0)	17 (100.0)
Semi Medium	3 (75.0)	1 (25.0)	0 (0.0)	0 (0.0)	4 (100.0)
Medium	1 (33.3)	2 (66.7)	0 (0.0)	0 (0.0)	3 (100.0)
Large	0 (0.0)	3 (100.0)	0 (0.0)	0 (0.0)	3 (100.0)
<b>Total</b>	<b>10</b> (27.0)	<b>23</b> (62.2)	<b>4</b> (10.8)	<b>0</b> (0.0)	<b>37</b> (100.0)
	<b>Total</b>				
Marginal	10 (20.4)	32 (65.3)	7 (14.3)	0 (0.0)	49 (100.0)
Small	2 (8.0)	21 (84.0)	2 (8.0)	0 (0.0)	25 (100.0)
Semi Medium	4 (57.1)	3 (42.9)	0 (0.0)	0 (0.0)	7 (100.0)
Medium	1 (33.3)	2 (66.7)	0 (0.0)	0 (0.0)	3 (100.0)
Large	0 (17.0)	3 (61.0)	0 (9.0)	0 (0.0)	3 (87.0)
<b>Total</b>	<b>17</b> (19.5)	<b>61</b> (70.1)	<b>9</b> (10.3)	<b>0</b> (0.0)	<b>87</b> (100.0)

Source: Compiled from the AERCs

Note: Figures in the parentheses are the percentage of the total given in the last column

agricultural works ranks top for not attending demonstration. This reason is responded by 76.9 percent of marginal farmers, 75 percent of small and 66.7 percent of semi-medium farmers.

In case of Karnataka, 62.2 percent of the farmers responded that attending demonstration is the opportunity lost of other agricultural works. It is followed by the factor of distance with 27 percent and lack of transport with 10.8 percent. Within the state, among the different categories of the farmers who responded, small farmers consist of 46 percent. It is followed by 27 percent of marginal farmers and semi-medium farmers with 18.8 percent. Medium and large farmer occupy equally with 8 percent each of the total responded sample. Of the factors revealed by the different categories of farmers, *Opportunity Lost of other agricultural works* ranks highest. This factor is responded by 20 percent of marginal farmers, 88.2 percent of small and 25 percent of semi-medium farmers. Medium and large farmers also gave highest rank to this factor with 66.7 percent and 100 percent respectively. Unlike Uttar Pradesh, *distance* as a factor for not attending demonstration was also ranked quite equally in this state. They consist of marginal farmers with 50 percent, semi-marginal with 75 percent and medium with 33.3, and small farmers of 5.9 percent.

#### **6.7: Usage of Soil Ameliorates by the sample farmers:**

Soil ameliorates are considered to be an indispensable factor in the present day agricultural system as quality of soil deteriorates after prolonged use of the land for cultivation. For the purpose, only two States (Karnataka and Uttar Pradesh) are selected. Out of the total 60 sample farmers, only 30 of them were using soil ameliorates in Karnataka and 70 farmers out of 75 in Uttar Pradesh. The item-wise use of soil ameliorates by the selected sample farmer is presented in Table 6.7. The Table shows that among the different items of soil ameliorates, only one (Zinc) was used by the farmers (100 percent). Very interestingly, both the states were using Zinc as their soil ameliorates.

In Uttar Pradesh, 93.3 percent of the sample farmers used soil ameliorates (though it is only Zinc with 100 percent). It consists of 88.5 percent of marginal farmers, followed by 7.1 percent small and 4.2 percent of semi-medium farmers. Whereas, in Karnataka, only 50 percent of the sample used soil ameliorates. But, unlike Uttar Pradesh, this state

**Table 6.7:****Usage of Soil Ameliorates by the sample farmers (in Numbers)**

Category of the farmers	Uttar Pradesh				Total
	Gypsum	Pyrite	Lime	Zinc	
Marginal	0 (0.0)	0 (0.0)	0 (0.0)	62 (100.0)	62 (100.0)
Small	0 (0.0)	0 (0.0)	0 (0.0)	5 (100.0)	5 (100.0)
Semi Medium	0 (0.0)	0 (0.0)	0 (0.0)	3 (100.0)	3 (100.0)
Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>70</b> (100.0)	<b>70</b> (100.0)
	<b>Karnataka</b>				
Marginal	0 (0.0)	0 (0.0)	0 (0.0)	6 (100.0)	6 (100.0)
Small	0 (0.0)	0 (0.0)	0 (0.0)	9 (100.0)	9 (100.0)
Semi Medium	0 (0.0)	0 (0.0)	0 (0.0)	6 (100.0)	6 (100.0)
Medium	0 (0.0)	0 (0.0)	0 (0.0)	7 (100.0)	7 (100.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)	2 (100.0)
<b>Total</b>	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>30</b> (100.0)	<b>30</b> (100.0)
	<b>Total</b>				
Marginal	0 (0.0)	0 (0.0)	0 (0.0)	68 (100.0)	68 (100.0)
Small	0 (0.0)	0 (0.0)	0 (0.0)	14 (100.0)	14 (100.0)
Semi Medium	0 (0.0)	0 (0.0)	0 (0.0)	9 (100.0)	9 (100.0)
Medium	0 (0.0)	0 (0.0)	0 (0.0)	7 (100.0)	7 (100.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)	2 (100.0)
<b>Total</b>	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>100</b> (100.0)	<b>100</b> (100.0)

Source: Compiled from the AERCs

Note: Figures in the parentheses are the percentage of the total given in the last column

has some uniformity in distribution of categories of farmers. They consist of 20 percent each of marginal and semi-medium farmers, 30 percent of small farmers, 23.3 percent of medium farmers and 6.7 percent of large category farmers at the bottom.

### **6.8: Area, Production and Yield (Productivity) of Vegetable Crops:**

In this section, with the introduction of the scheme, an attempt to portray the impact of the scheme in terms of area, production and productivity is made. Due to the lack of uniformity in the methodology, only two states (Karnataka and Uttar Pradesh) have been included in this section. Within these two states, there are lot of dissimilarities in the methodology, crops and unit system. As a result of which comparative analysis and aggregation are not practically possible in this section. So, evaluation of the scheme or the impact of the scheme has been done separately of the States. The impact of the scheme can be seen from the Table 6.8.a, of Karnataka and 6.8.b, of Uttar Pradesh.

From the Table 6.8.a it is clear that the impacts of 7 major vegetable crops are studies before and after the scheme in Karnataka. They are- Ladies Finger, Cluster Beans, Green Gourd, Brinjal, Chilli, and Beans. After the scheme, an average growth rate of 22.8 percent of yield of the 7 vegetables is realised and also 30.7 percent (72.4 acres) growth in the area of cultivation and the growth of 70.3 percent (6972 qtls. more of the vegetables of the 7 crops) of the total output (not shown in the Table).

Across the farm sizes, after the scheme, marginal farmers have increased their area of cultivation (of the 7 crops mentioned above) from 8.5 acre to 12.3 acres (3.8 acres more), and yield at the tune of 31.5 qtls per acre of output to 34.4 qtls per acre. For the small farmers, the magnitude of growth of area after the scheme is 51.7 acre to 75 acres (23.3 acres more), and yield at the tune of 32.4 qtls per acre of output to 37.5 qtls per acre. In case of Semi-medium farmers, the trend is almost same that from 41 acre to 57 acre of cultivation of the 7 crops. It is the net growth of 16 acres and yield is also increased from 74.5 qtls per acre to 81.9 qtls per acre. Still, the growth rate is huge in case of medium and large farmers. For medium farmers, the growth is from 56.2 acres to 75 acres (18.2 acres more) of cultivable lands and yield at the tune of 64.1 qtls per acre to 84.7 qtls per acre, and for large farmers, the change in the area of cultivation is from 29.5 acre of area to 40 acre (10.5 acres of land more) and the growth of yield is 44.3 qtls of

output to 65.6 qtls per acre. The average growth rate of the yield level is 40 percent after the scheme.

**Table 6.8.a:**

**Area, Production and Yield of Vegetable Crops under FCSPVC (in Karnataka)**

<b>Marginal Farmers</b>						
<b>Crops</b>	<b>Area(Acre)</b>		<b>Production (Qtl)</b>		<b>Yield (qtls/acre)</b>	
	Before	After	Before	After	Before	After
Ladies Finger	2.0	2.5	60.0	67.5	30.0	27.0
Cluster Beans	1.5	2.8	22.5	56.0	15.0	20.0
Green Gourd	1.0	1.0	55.0	49.0	55.0	49.0
Brinjal	2.0	2.5	90.0	162.5	45.0	65.0
Chilli	1.0	2.0	20.0	46.0	20.0	23.0
Beans	1.0	1.5	20.0	42.0	20.0	28.0
<b>Total</b>	<b>8.5</b>	<b>12.3</b>	<b>267.5</b>	<b>423.0</b>	<b>31.5</b>	<b>34.4</b>
<b>Small Farmers</b>						
Ladies Finger	5.0	7.5	150.0	255.0	30.0	34.0
Ridge gourd	8.0	10.0	160.0	140.0	20.0	14.0
Beans	5.0	6.5	125.0	149.5	25.0	23.0
Cauliflower	6.7	8.5	167.5	246.5	25.0	29.0
Tomato	10.0	17.5	350.0	735.0	35.0	42.0
Chilli	7.0	12.0	70.0	156.0	10.0	13.0
Brinjal	10.0	13.0	650.0	1131.0	65.0	87.0
<b>Total</b>	<b>51.7</b>	<b>75.0</b>	<b>1672.5</b>	<b>2813.0</b>	<b>32.4</b>	<b>37.5</b>
<b>Semi-medium Farmers</b>						
Brinjal	7.5	10.0	600.0	970.0	80.0	97.0
Ladies Finger	14.0	19.0	980.0	1216.0	70.0	64.0
Tomato	11.0	16.0	880.0	1488.0	80.0	93.0
Ridge gourd	8.5	12.0	595.0	996.0	70.0	83.0
<b>Total</b>	<b>41.0</b>	<b>57.0</b>	<b>3055.0</b>	<b>4670.0</b>	<b>74.5</b>	<b>81.9</b>
<b>Medium Farmers</b>						
Brinjal	18.5	23.0	1387.5	2806.0	75.0	122.0
Ladies Finger	9.0	13.0	225.0	546.0	25.0	42.0
Cauliflower	5.2	8.0	442.0	648.0	85.0	81.0
Green gourd	8.5	14.0	425.0	938.0	50.0	67.0
Tomato	15.0	17.0	1125.0	1411.0	75.0	83.0
<b>Total</b>	<b>56.2</b>	<b>75.0</b>	<b>3604.5</b>	<b>6349.0</b>	<b>64.1</b>	<b>84.7</b>
<b>Large Farmers</b>						
Ladies Finger	3.5	6.0	140.0	348.0	40.0	58.0
Green gourd	2.0	4.0	200.0	456.0	100.0	114.0
Tomato	8.5	10.0	425.0	860.0	50.0	86.0
Chilli	15.5	20.0	542.5	960.0	35.0	48.0
<b>Total</b>	<b>29.5</b>	<b>40.0</b>	<b>1307.5</b>	<b>2624.0</b>	<b>44.3</b>	<b>65.6</b>

Source: ADRTC, ISEC (Bangalore)

Among the vegetable crops, after the scheme, Brinjal registered highest productivity rate with 122 qtl per acre by the medium holding size category farmers, 97 qtls by the semi-medium farmers, 87 qtls by the small and 65 qtls by the marginal farmers. It is followed by Tomato, registered at the tune of 93 qtl per acre by the semi-medium, 86 qtl per acre by the large category and 83 qtl by the medium level farmers.

**Table 6.8.b:**

**Area, Production and Yield of Vegetable Crops under FCSPVC (in Uttar Pradesh)**

Uttar Pradesh						
Category	Area(acre)		Production (in Rs.)		Yield (Rs./acre)	
	Before	After	Before	After	Before	After
Marginal	41.4	49.8	1387055.0	1922400.0	33502.0	38608.0
Small	19.7	22.0	731725.0	890500.0	37077.0	40508.6
Semi-Medium	17.6	21.1	684450.0	775000.0	38837.5	36697.7
Medium	-	-	-	-	-	-
Large	-	-	-	-	-	-
<b>Total</b>	<b>78.8</b>	<b>92.9</b>	<b>2803230.0</b>	<b>3597900.0</b>	<b>35591.6</b>	<b>38731.1</b>

Source: AERC, Allahabad University (Allahabad)

In the case of Uttar Pradesh, production and yield level is estimated in terms of money value. Table 6.8: b shows that the growth rate of area after the scheme is 17.9 percent (14.1 acre more after the scheme). Value of production of the sample farmers is also increased from Rs. 2803230 to Rs. 3597900. The net addition is Rs. 794670 after the scheme (28.3 percent rate of growth). Average yield level of the farmers is concerned; it has increased from a total value of Rs. 35591.6 per acre of land to Rs. 38731.1 per acre (8.8 percent growth rate after the scheme).

Category-wise classification of the farmers is concerned; marginal farmers have benefited most with 15.2 percent of yield growth rate (Rs. 33502 per acre to Rs. 38608 per acre) after the scheme, and the area brought under the cultivation is also increased from 41.4 acres to 49.8 acres after the scheme. Its growth rate is 20.2 percent over the year (8.4 acres more). In case of small farmers, the area of cultivation is increased from 19.7 acre to 22 acre (2.3 acres more after the implementation of the scheme) and the

average growth rate of productivity is 9.3 percent (from Rs. 37077.0 per acre to Rs. 40508.6 per acre). But semi-marginal farmers have declined marginally to -5.5 percent after the scheme (from Rs. 38837.5 per acre to Rs. 36697.7 per acre of value of output). However, the area of cultivation of this category is increased from 17.6 acres to 21.1 acres (more of 3.5 acres after the scheme).

### **6.9: Conclusion and Suggestions:**

As the main thrust of the scheme is to ensure that the quality seeds, fertilizers and proper manures are used timely and increased output of the vegetable crops in the country, proper response and participation of the farmers is very essential. The impact of the scheme is measured primarily by the growth rate of area, production and yield of the crops, etc. Flip side of the scheme is concerned, after the scheme, an average growth rate of 22.8 percent of yield of the 7 vegetables is realised and also 30.7 percent (72.4 acres more area) growth in the area of cultivation and 70.3 percent (6972 qtls. more of the vegetables of the 7 crops) growth in the total output.

On the flop side, farmers' response to the scheme is quite poor in terms of soil ameliorates in Karnataka that only 50 percent of the sample farmers have used the soil ameliorates. And, in Uttar Pradesh, the productivity of the semi-marginal farmers has declined marginally to -5.5 percent after the scheme (from Rs. 38837.5 per acre to Rs. 36697.7 per acre of value of output). The farmers' participation in crop demonstration, only 65.3 percent of the sample farmers have attended in the state.

For the further development of this scheme and sustainable development of agriculture, more attention is to be given to the participation and training of the farmers. Grass-root trainers (government functionaries and NGOs) are to be trained more to make effective delivery of the scheme to the farmers.

## Chapter VII

### Special Jute Development Programme (SJDP)

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#### 7.1: Introduction:

Jute is one of the important commercial crops in India. It is basically a fiber crop from which fibre is extracted and used to produce textiles, ropes, twines, threads and more recently, a range of paper products. The crop needs a warm and humid climatic condition. Jute cultivation plays a significant role in the country's economy as more than four million farmer families are involved in jute cultivation and majority of them belong to marginal and small categories.

The genesis of the scheme is concerned; a centrally sponsored scheme on Special Jute Development Programme (SJDP hereafter) was launched in 1987-88 for the development of the jute cultivation in agricultural sector in the country. Initially, the programme was launched in eight jute/Mesta growing states<sup>11</sup>. Gradually, the Mesta Programme became operational in Andhra Pradesh, Orissa and Tripura and Sun-hemp Programme in Uttar Pradesh. Later, Ramie was included and introduced in Assam, Meghalaya and Arunachal Pradesh. However, with the introduction of the MMA scheme, the SJDP scheme was subsumed under the MMA scheme in 2001.

With the introduction of the Jute Technology Mission (JTM), the SJDP has been phased out of the purview of MMA scheme since the year 2007-08<sup>12</sup>. For Uttar Pradesh, special Sun-hemp development programme is taken for evaluation instead of Jute, and Mirzapur district of east U.P. has been selected on the basis of maximum area and seed distribution under the scheme. The sample farmers of it have consisted of only three size groups i.e. marginal, small and semi-medium. In the present study, only three states (Assam, Uttar Pradesh and West Bengal) have been included with 60 sample farmers, 75 sample farmers and 50 sample farmers respectively.

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<sup>11</sup> The eight states are: Assam, Meghalaya, Orissa, Tripura, Uttar Pradesh, West Bengal, Andhra Pradesh, and Arunachal Pradesh.

<sup>12</sup> 2006-07 is taken in place of 2007-08 in West Bengal as the base of this section.

The prime objective of the scheme SJDP was to increase the productivity and the improvement of the quality of fibre. The basic strategy adopted in SJDP involved - a) distribution of agricultural inputs having positive co-relation with productivity, b) creation of additional ridding facility by way of excavation of ridding tanks and motivating the farmers for larger use of fungal culture for upgradation of quality along with conduction of package demonstration and organisation of training programme at different levels.

## 7.2: Financial Target and Achievement under SJDP:

As mentioned in the earlier chapters, the need for financial support is very significant for successful implantation of any public programme. The Financial Target and Achievement under the Special Jute Development Programme (SJDP) from 2001-02 to 2006-07 is presented in the Table 7.2. It reveals that a total of Rs. 330.7 lakh has been utilised against the target of Rs 410.5 lakh, which works out to be 80.6 percent of the total target amount. A comparison analysis of the outlays across the states shows that the target is generally met in all the concerned states. Of which, Assam stands first with a financial achievement of 101.1 percent, and it is followed by the West Bengal with 81.7 percent, Uttar Pradesh with 64.6 percent. However, in terms of the financial targets, West Bengal has got highest share with Rs. 287.8 lakh, which works out to be around 70 percent of the total target. Similarly, with respect to the financial achievement, the contribution of West Bengal State is quite significant which accounts for 71.06 percent of the total target.

**Table 7.2:**

### **Financial Targets and Achievement under SJDP (Rs. in Lakhs)**

Years	Assam		%	West Bengal		%	Uttar Pradesh		%	Total		%
	Tar	Ach		Tar	Ach		Tar	Ach		Tar	Ach	
2001-02	0.0	0.0	0.0	151.4	114.8	75.8	22.2	15.2	68.3	173.6	130.0	74.9
2002-03	0.0	0.0	0.0	54.2	47.7	88.1	15.0	13.9	92.8	69.2	61.6	89.1
2003-04	0.0	0.0	0.0	0.0	0.0	0.0	16.0	11.5	72.0	16.0	11.5	72.0
2004-05	25.3	25.9	100.0	82.2	72.7	88.4	12.0	4.0	33.3	119.5	102.6	85.9
2005-06	0.0	0.0	0.0	0.0	0.0	0.0	10.9	4.3	38.8	10.9	4.3	38.8
2006-07	19.0	18.9	100.0	0.0	0.0	0.0	2.3	1.9	79.9	21.3	20.8	97.3
<b>Total</b>	<b>44.3</b>	<b>44.8</b>	<b>101.1</b>	<b>287.8</b>	<b>235.2</b>	<b>81.7</b>	<b>78.5</b>	<b>50.7</b>	<b>64.6</b>	<b>410.5</b>	<b>330.7</b>	<b>80.6</b>

Source: Compiled from the AERCs of the respective States.

### **7.3: Demographic profile of the sample Farmers under SJDP:**

It can be discerned from the Table 7.3 that the sample farmers from the three states (Assam, West Bengal and Uttar Pradesh) consists largely the marginal farmers with 44.9 percent and small farmers with 33.5 percent. It is followed by semi medium with 17.8 percent and medium farmers with 3.8 percent.

Across the states, it can be observed that West Bengal consists of majority of marginal farmers with 88.0 percent and followed by the Uttar Pradesh with 33.3 percent and Assam with 23.3 percent. Further, the majority of the small farmers is higher in the case of Uttar Pradesh with 44 percent and compared to the Assam with 40 percent and West Bengal with 10 percent only. In the case of the Semi-medium farmers, Assam stands first with 25 percent followed by Uttar Pradesh with 22.7 percent and West Bengal with 2 percent. However, it is interesting to note that the sample consisting of very small number of the medium and large farmers are found under this study. The sample consists only 3.8 percent of the medium farmers out of which 17 percent is from Assam. No beneficiary farmer was found from the large farmers' category.

Across the castes, it can be seen from the Table 7.3 that the sample consists of an overwhelming majority of 49 percent (i.e. 91 samples) of General category farmers followed by the Other Backward Classes (OBC) with 35.7 percent and Scheduled Caste (SC) with 14.6 percent and only 0.5 percent of Scheduled Tribe (ST). A deeper examination of the Table 7.3 reveals that the percentage of SC category of farmer in Assam is high with 20 percent (12 farmers) compared to other states. In West Bengal, the number of SC farmers is 16 percent (8 sample farmers) and Uttar Pradesh with 9.3 percent (7 farmers). As far as ST is concerned, except West Bengal with 2 percent (only 1 farmer), no other state found this category of farmer under this scheme. With regard to OBC category, the percentage seems quite significant across the states with Uttar Pradesh having the highest share of 64 percent (48 farmers) followed by the Assam with 26.7 percent (16 farmers) and West Bengal is the least of this category with 4 percent (2 farmers). However, in the case of the General category, almost all the States have relatively large number compared to other categories. West Bengal has 39 farmers (78 percent) highest share followed by Assam 32 farmers (53.3 percent) and Uttar Pradesh 20 farmers (26.7 percent).

**Table 7.3:**  
**Demographic profile of the sample farmers under the Special Jute Development Programme**

Particulars	Assam					Total
	Marginal	Small	Semi Medium	Medium	Large	
SC	2 (16.7)	3 (25.0)	2 (16.7)	5 (41.7)	0 (0.0)	12 (100.0)
ST	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
OBC	3 (18.8)	7 (43.8)	4 (25.0)	2 (12.5)	0 (0.0)	16 (100.0)
General	9 (28.1)	14 (43.8)	9 (28.1)	0 (0.0)	0 (0.0)	32 (100.0)
<b>Total</b>	<b>14</b> (23.3)	<b>24</b> (40.0)	<b>15</b> (25.0)	<b>7</b> (11.7)	<b>0</b> (0.0)	<b>60</b> (100.0)
<b>West Bengal</b>						
SC	7 (87.5)	1 (12.5)	0 (0.0)	0 (0.0)	0 (0.0)	8 (100.0)
ST	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
OBC	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)
General	34 (87.2)	4 (10.3)	1 (2.6)	0 (0.0)	0 (0.0)	39 (100.0)
<b>Total</b>	<b>44</b> (88.0)	<b>5</b> (10.0)	<b>1</b> (2.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>50</b> (100.0)
<b>Uttar Pradesh</b>						
SC	2 (28.6)	4 (57.1)	1 (14.3)	0 (0.0)	0 (0.0)	7 (100.0)
ST	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
OBC	18 (37.5)	22 (45.8)	8 (16.7)	0 (0.0)	0 (0.0)	48 (100.0)
General	5 (25.0)	7 (35.0)	8 (40.0)	0 (0.0)	0 (0.0)	20 (100.0)
<b>Total</b>	<b>25</b> (33.3)	<b>33</b> (44.0)	<b>17</b> (22.7)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>75</b> (100.0)
<b>All State</b>						
SC	11 (40.7)	8 (29.6)	3 (11.1)	5 (18.5)	0 (0.0)	27 (100.0)
ST	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
OBC	23 (34.8)	29 (43.9)	12 (18.2)	2 (3.0)	0 (0.0)	66 (100.0)
General	48 (52.7)	25 (27.5)	18 (19.8)	0 (0.0)	0 (0.0)	91 (100.0)
<b>Total</b>	<b>83</b> (44.9)	<b>62</b> (33.5)	<b>33</b> (17.8)	<b>7</b> (3.8)	<b>0</b> (0.0)	<b>185</b> (100.0)

Source: Compiled from the AERCs of the respective States.

Note: Figures in the parentheses are the per cent of the total of the last column.

#### **7.4: Sources of Seed procurement under SJDP:**

For better production and productivity of crops, better seed and making available of advanced seed to the farmers is very important component of MMA scheme. The sources of seed of Jute have been presented in the Table 7:4. It clearly indicates that the farming communities mainly depend on four sources (Department of Agriculture/ADO, Retail Shops, Domestic and Open Market). Out of which, the major source for the seed procurement has been the Department of Agriculture. It has been playing a very significant role in supplying the Jute and sun-hemp to the tune of 75.7 percent followed by the domestic sources with 13 percent. As a result of which, the retail shops (8.1 percent) and open markets (3.2 percent) are being preferred least by the farming communities. Overall farmers' category-wise classification is concerned, of the total 185 sample farmers (60 from Assam, 50 from WB, and 75 from UP), marginal farmers consist of 42.1 percent and small farmers with 28.1 percent of the total sample farmers of three states. Semi-medium and medium farmers are at the third and fourth position with 20 and 9.7 percent respectively. But, no large category farmer is found in procuring seeds under this sub-scheme.

By states, the farmers from the Uttar Pradesh are found to have completely dependent on the Govt. source (100 percent) for the seed procurement. In the case of West Bengal, the sample farmers have mainly relied upon the Department of Agriculture (72.6 percent) to procure the seeds. The rest of the farmers of the state depend on the domestic sources (16 percent) and open markets (12 percent). Again, in Assam, 48 percent of the sample farmers are depending on the Govt. sources the seed, 26 percent of the farmers managed from domestic sources and 25 percent from the retail market. The important point is that despite of the growth of organised seed supply mechanisms, a good section of the farmers still have faith on the domestic (26 percent) and retail shops' seeds (25 percent).

**Table 7.4:**  
**Sources of Seed procurement of the sample farmers for jute crop (Numbers)**

Farm size	Assam				Total
	ADO	Open Market	Domestic	Retail Shop	
Marginal	6 (66.7)	0 (0.0)	3 (33.3)	0 (0.0)	9 (100.0)
Small	11 (78.6)	0 (0.0)	2 (14.3)	1 (7.1)	14 (100.0)
Semi Medium	8 (42.1)	0 (0.0)	7 (36.8)	4 (21.1)	19 (100.0)
Medium	4 (22.2)	0 (0.0)	4 (22.2)	10 (55.6)	18 (100.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>29</b> (48.3)	<b>0</b> (0.0)	<b>16</b> (26.7)	<b>15</b> (25.0)	<b>60</b> (100.0)
<b>West Bengal</b>					
Marginal	32 (72.7)	5 (11.4)	7 (15.9)	0 (0.0)	44 (100.0)
Small	3 (60.0)	1 (20.0)	1 (20.0)	0 (0.0)	5 (100.0)
Semi-medium	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>36</b> (72.0)	<b>6</b> (12.0)	<b>8</b> (16.0)	<b>0</b> (0.0)	<b>50</b> (100.0)
<b>Uttar Pradesh</b>					
Marginal	25 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	25 (100.0)
Small	33 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	33 (100.0)
Semi Medium	17 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	17 (100.0)
Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>75</b> (100.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>75</b> (100.0)
<b>All States</b>					
Marginal	63 (80.8)	5 (6.4)	10 (12.8)	0 (0.0)	78 (100.0)
Small	47 (90.4)	1 (1.9)	3 (5.8)	1 (1.9)	52 (100.0)
Semi Medium	26 (70.3)	0 (0.0)	7 (18.9)	4 (10.8)	37 (100.0)
Medium	4 (22.2)	0 (0.0)	4 (22.2)	10 (55.6)	18 (100.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>140</b> (75.7)	<b>6</b> (3.2)	<b>24</b> (13.0)	<b>15</b> (8.1)	<b>185</b> (100.0)

Source: Compiled from the AERCs of the respective States.

### **7.5: Participation of the farmers in crop Demonstrations:**

Demonstration of the advanced crops to the farmers is an important component of this scheme and essential activity, especially for the poor illiterate farmers. The demonstration of plantation, application of pesticides, and harvesting are being conducted by the different Departments and Organisations. Table 7.5 portrays the number of farmers participating in different organisations. Only two states (W.B. and Assam) have been included in this section.

From Table 7.5 it is clear that five types of demonstrations are included in this section. They are: Production Technology Demo, Improved Technology Demo, Retting Technique Demo, Kachcha Retting Tank Demo, Pucca Retting Tank Demo. Of which, majority of the farmers (57 percent of the total) go for Production Technology Demo, and it is followed by Improved Technology Demo with 35.4 percent. The other three demonstrations are responded very negligibly by the farmers.

Category-wise composition of the farmers in different demonstration is concerned, marginal farmers consist of 43.1 percent and it is followed by 27.8 percent by the small farmers. The participation of semi-medium and medium farmers in the demonstration of jute is also quite impressive with 20.1 percent and 9 percent respectively. However, no large scale farmer was found to be attended in the demonstration.

With regard to the participation of farmers in the demonstrations, Production Technology Demo is attended widely by the farmers across the states with 61.8 percent in Assam and 46.8 percent in West Bengal. The second wanted demonstration by the farmers is the *Improved Technology Demo*. It is attended at the tune of 38.1 percent of the farmers in Assam and 29.8 percent of West Bengal. Again, in West Bengal, most of the farmers attended demo is the marginal farmers, which consists of 89.4 percent of the total farmers attended demonstration. It is marginally followed by small and semi-medium with 8.5 percent and 2.1 percent respectively, but no large and medium farmer was found attended in the demonstration. In Assam, the ratio is quite proportionate that 20.6 percent of the farmers are the marginal and 37.1 percent of them are small farmers. Semi-medium and medium farmers are also equally participated in the demonstration in this state. But, similar to West Bengal, no large category farmer is found to be attended in the demonstration in this state.

**Table 7.5:****Participation by the sample farmers in the Jute demonstration (Numbers)**

Demonstrations	West Bengal					Total
	Marginal	Small	Semi-medium	Medium	Large	
Production Technology Demo	22 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	22 (100.0)
Improved Technology Demo	14 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	14 (100.0)
Retting Technique Demo	4 (80.0)	1 (20.0)	0 (0.0)	0 (0.0)	0 (0.0)	5 (100.0)
Kachcha Retting Tank Demo	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)
Pucca Retting Tank Demo	1 (25.0)	2 (50.0)	1 (25.0)	0 (0.0)	0 (0.0)	4 (100.0)
<b>Total</b>	<b>42</b> (89.4)	<b>4</b> (8.5)	<b>1</b> (2.1)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>47</b> (100.0)
	<b>Assam</b>					
Production Technology Demo	14 (23.3)	24 (40.0)	15 (25.0)	7 (11.7)	0 (0.0)	60 (100.0)
Improved Technology Demo	6 (16.2)	12 (32.4)	13 (35.1)	6 (16.2)	0 (0.0)	37 (100.0)
Retting Technique Demo	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Kachcha Retting Tank Demo	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Pucca Retting Tank Demo	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>20</b> (20.6)	<b>36</b> (37.1)	<b>28</b> (28.9)	<b>13</b> (13.4)	<b>0</b> (0.0)	<b>97</b> (100.0)
	<b>Total</b>					
Production Technology Demo	36 (43.9)	24 (29.3)	15 (18.3)	7 (8.5)	0 (0.0)	82 (100.0)
Improved Technology Demo	20 (39.2)	12 (23.5)	13 (25.5)	6 (11.8)	0 (0.0)	51 (100.0)
Retting Technique Demo	4 (80.0)	1 (20.0)	0 (0.0)	0 (0.0)	0 (0.0)	5 (100.0)
Kachcha Retting Tank Demo	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)
Pucca Retting Tank Demo	1 (25.0)	2 (50.0)	1 (25.0)	0 (0.0)	0 (0.0)	4 (100.0)
<b>Total</b>	<b>62</b> (43.1)	<b>40</b> (27.8)	<b>29</b> (20.1)	<b>13</b> (9.0)	<b>0</b> (0.0)	<b>144</b> (100.0)

Source: Compiled from the AERCs of the respective States.

### **7.6: Agencies of conducting the Jute Demonstration under SJDP:**

About the agencies conducted the demonstrations, based on the responses revealed (107 farmers out of 110 samples) by the sample farmers, as high as 89.7 percent of the sample farmers have responded that the District Agricultural Officers are in the lead. Secondly, a total of 10.2 percent of the farmers are given demonstration by the State Agricultural Universities. It is interesting to note that unlike other sub-schemes mentioned above, no other agencies like ICAR, Panchayat and other agencies could be involved in the demonstration for the farmers. Across the categories of farmers, marginal farmers involved highest number with 52.3 percent of the total sample farmers. Of the total marginal farmers, 89.2 percent of them are given demonstration by the ADO and remaining 10.8 percent is provided by the Agri-universities.

Small farmer occupy 26.2 percent of the total farmers in the demonstration (28 out of 107 samples). Of the total small farmers, 86 percent of them are given demonstration by the ADO (24 out of 28 samples). Semi-medium and medium farmers are found with 15 percent and 6.5 percent respectively under this demonstration provided by the agencies.

Across the states also, majority of the farmers have responded that it was the Agriculture Development Officers at the District level who are instrumental in conducting the demonstrations for the jute and Sun-hemp crop. As the Table 7.6 reveals that 76.6 percent of the farmers in West Bengal have replied that demonstration are conducted by the Agriculture Development Officers. It is followed by Agricultural University which provides demonstration to 23.4 percent of the total farmers in the state. In case of farmers' categories participated in the demonstration, 89.4 percent are marginal farmers and very negligibly followed by small and semi-medium 8.5 percent and 2.1 percent respectively are found under this study. But, interestingly, no other large rung (medium and large category) farmer was found to be participated in the demonstration. In case of Assam, it is significant to learn from the Table 7:6 that 100 percent of the sample farmers in state have responded that the demonstrations were conducted by the Agriculture Development Officers. Of which, 40 percent of the farmers are from the small farmer category and it is followed by semi-medium farmers with 25 percent of the

total. Marginal farmers are in the third position with 23.3 percent and medium farmers are at the bottom with 11.7 percent of the total sample farmers.

**Table 7.6:**  
**Agencies of conducting the Jute Demonstration (Farmers response)**

Agencies	West Bengal					Total
	Marginal	Small	Semi-medium	Medium	Large	
Gram Panchayat	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
District ADO	36 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	36 (100.0)
State Agricultural Universities	6 (54.5)	4 (36.4)	1 (9.1)	0 (0.0)	0 (0.0)	11 (100.0)
I.C.A.R.	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Others	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>42</b> (89.4)	<b>4</b> (8.5)	<b>1</b> (2.1)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>47</b> (100.0)
<b>Assam</b>						
Gram Panchayat	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
District ADO	14 (23.3)	24 (40.0)	15 (25.0)	7 (11.7)	0 (0.0)	60 (100.0)
State Agricultural Universities	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
ICAR	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Others	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>14</b> (23.3)	<b>24</b> (40.0)	<b>15</b> (25.0)	<b>7</b> (11.7)	<b>0</b> (0.0)	<b>60</b> (100.0)
<b>All States Total</b>						
Gram Panchayat	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
District ADO	50 (52.1)	24 (25.0)	15 (15.6)	7 (7.3)	0 (0.0)	96 (100.0)
State Agricultural Universities	6 (54.5)	4 (36.4)	1 (9.1)	0 (0.0)	0 (0.0)	11 (100.0)
I.C.A.R.	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Others	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>56</b> (52.3)	<b>28</b> (26.2)	<b>16</b> (15.0)	<b>7</b> (6.5)	<b>0</b> (0.0)	<b>107</b> (100.0)

Source: Compiled from the AERCs of the respective States.

### **7.7: Difficulties for attending Demonstrations of the sample Farmers:**

Successful implementation of this scheme depends on the response of the farmers. Though the government provides facilities for attending demonstration, farmers have some difficulties to share with. Table 7.7 reveals the difficulties faced while attending demonstrations provided by the government (reasons for not attending demonstrations). For the purpose, two states (Assam and West Bengal) are included with 110 sample farmers (50 from WB and 60 from Assam).

From the Table 7:7 it is clear that out of the 110 respondents 58 of them are marginal farmers and 29 are small farmers. They are 53 percent and 26.3 percent respectively. It is followed by semi-medium and medium farmers very negligibly with 14.4 percent and 6.3 percent respectively. Factor-wise classification of the farmers for not attending demonstration is concerned, 43.6 percent of them have revealed that attending this demonstration is the lost of other agricultural works. In short, it does not give much benefit to them. Very closely, 42.7 percent of the farmers said it is too far from their village and 13.6 percent of them are in the opinion that no transportation is arranged for attending demonstration.

State-wise classification is concerned (refer to Table 7.7), marginal farmers consist of 88 percent in West Bengal and 23.3 percent in Assam, and small farmers occupy 10 percent in West Bengal and 40 percent in Assam. Slightly differently, semi-medium farmers in West Bengal register with 2 percent only while it is 25 percent in Assam. Medium category farmers at the least number with 11.7 percent of in Assam, however no medium farmer is found in West Bengal. Factor for refraining from the demonstration is concerned, 36 percent of the West Bengal and 48.3 percent of Assam farmers revealed that distance is the factor for not attending the demonstrations. And almost equally important factor is the opportunity lost of other agricultural works while attending demonstration. The opinion of this factor is responded by 54 percent of farmers in West Bengal and 35 percent in Assam. It is followed marginally by the factor like lack of transportation to attend the demonstration (10 in West Bengal and 16.7 percent in Assam).

**Table 7.7**  
**Difficulties faced by the Farmers while attending the Jute demonstration**  
**(in Numbers)**

Category of Farmers	<b>West Bengal</b>				Total
	Too Far	Costs Other Works	No Transport	Other	
Marginal	16 (36.4)	23 (52.3)	5 (11.4)	0 (0.0)	44 (100.0)
Small	2 (40.0)	3 (60.0)	0 (0.0)	0 (0.0)	5 (100.0)
Semi-medium	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)	1 (100.0)
Medium	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>18</b> (36.0)	<b>27</b> (54.0)	<b>5</b> (10.0)	<b>0</b> (0.0)	<b>50</b> (100.0)
	<b>Assam</b>				
Marginal	6 (42.9)	5 (35.7)	3 (21.4)	0 (0.0)	14 (100.0)
Small	11 (45.8)	10 (41.7)	3 (12.5)	0 (0.0)	24 (100.0)
Semi-medium	9 (60.0)	2 (13.3)	4 (26.7)	0 (0.0)	15 (100.0)
Medium	3 (42.9)	4 (57.1)	0 (0.0)	0 (0.0)	7 (100.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>29</b> (48.3)	<b>21</b> (35.0)	<b>10</b> (16.7)	<b>0</b> (0.0)	<b>60</b> (100.0)
	<b>Total</b>				
Marginal	22 (37.9)	28 (48.3)	8 (13.8)	0 (0.0)	58 (100.0)
Small	13 (44.8)	13 (44.8)	3 (10.3)	0 (0.0)	29 (100.0)
Semi-medium	9 (56.3)	3 (18.8)	4 (25.0)	0 (0.0)	16 (100.0)
Medium	3 (42.9)	4 (57.1)	0 (0.0)	0 (0.0)	7 (100.0)
Large	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>47</b> (42.7)	<b>48</b> (43.6)	<b>15</b> (13.6)	<b>0</b> (0.0)	<b>110</b> (100.0)

Source: Compiled from the AERCs of the respective States.

### **7.8: Area, Production and Yield of the sample Farmers under SJDP:**

As mentioned earlier in other chapters, the impact of the scheme is one of the important components of this study. It is primarily determined by the level of change in the area of cultivation, production and productivity. In this section, three states (West Bengal, Assam and Uttar Pradesh) are included and particularly the output of UP is based on 2006-07 of Sun-hem (not jute). The impact of the scheme (SJDP) can be seen from the Table 7:8 that after the implementation of the scheme a total of 13.9 acres more have been brought under cultivation (11.43 percent of growth rate). The productivity is concerned, the average productivity after the scheme is found to be 6 qtls per acre, and it is the growth of 5.2 percent over the year. Good part of this scheme is that the marginal and small farmers have been benefited largely. To mention it, 23.3 qtls of jute per acre and 22.8 qtls of jute per acre of marginal and small farmers respectively could be produced after the implementation of the scheme.

Across the states, West Bengal has better position in terms of productivity of Jute and registered with an average of 11.6 qtls per acre after the scheme. In Assam, it is 10.4 qtls jute per acre and in UP, it is 1.1 qtl of Sun-hem per acre after the implementation of the scheme. Farmers' category-wise classification is concerned, in West Bengal, lower rung farmers perform well compared to the larger rung farmers in the State. They consist of 12.1 qtls of jute per acre by marginal and 11.3 qtls per acre by the small farmers. It is very closely followed by the semi-medium farmers with 10.5 qtls per acre. The area brought under the cultivation in the State is marginally increased from 11.7 acre to 14.6 acre after the scheme, and it is at the net addition of 2.9 acres after the scheme. It is basically contributed more by the lower rung farmers in the State. In case of Assam, it is almost equal with West Bengal that an average of 10.4 qtls of jute per acre (it is at the growth rate of 6.25 percent compared to previous period) could be produced in the State. Within the State, almost all the categories of the farmers have improved equally with approximately 10 qtls of jute per acre after the scheme, and the area brought under the cultivation is 3.3 acres more after the scheme. Finally, in case of Uttar Pradesh, though the productivity is less (1.1 qtls per acre), the growth rate is worked out to be 10 percent of yield after the scheme and the area brought under the cultivation is 7.7 acres more.

**Table 7.8:**

**Area, Production and Yield of the sample farmers under the Scheme**

<b>West Bengal</b>						
Category	Area (acre)		Production (in qtl.)		Yield (qtl./acre)	
	Before	After	Before	After	Before	After
Marginal	6.7	8.3	72.7	100.4	10.9	12.1
Small	3.3	4.2	36.0	47.2	10.8	11.3
Semi-medium	1.7	2.1	16.3	21.5	9.7	10.5
Medium	0.0	0.0	0.0	0.0	0.0	0.0
Large	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>11.7</b>	<b>14.6</b>	<b>125.1</b>	<b>169.2</b>	<b>10.7</b>	<b>11.6</b>
<b>Assam</b>						
Marginal	6.3	6.3	62.3	63.4	10.0	10.1
Small	16.5	15.9	162.8	164.7	9.9	10.4
Semi Medium	17.0	17.0	167.5	177.8	9.9	10.5
Medium	12.3	16.1	118.5	166.5	9.7	10.3
Large	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>52.0</b>	<b>55.3</b>	<b>511.1</b>	<b>572.4</b>	<b>9.8</b>	<b>10.4</b>
<b>Uttar Pradesh*</b>						
Marginal	13.4	15.9	14.1	17.2	1.0	1.1
Small	29.5	33.3	28.9	36.3	1.0	1.1
Semi Medium	15.1	16.5	15.0	17.2	1.0	1.0
Medium	0.0	0.0	0.0	0.0	0.0	0.0
Large	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>58.0</b>	<b>65.7</b>	<b>58.0</b>	<b>70.7</b>	<b>1.0</b>	<b>1.1</b>
<b>All States Total</b>						
Marginal	26.3	30.5	149.1	181.0	21.8	23.3
Small	49.3	53.4	227.7	248.3	21.7	22.8
Semi Medium	33.8	35.5	198.8	216.5	20.6	22.0
Medium	12.3	16.1	118.5	166.5	9.7	10.3
Large	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>121.6</b>	<b>135.5</b>	<b>694.1</b>	<b>812.3</b>	<b>5.7</b>	<b>6.0</b>

Source: Compiled from the AERCs of the respective States.

\* In UP, it is Sun-hem in place of Jute.

### **7.9: Conclusion and Suggestions:**

As the main thrust of the scheme is to increase production and productivity of jute, proper response and participation of the farmers is very essential. The impact of the scheme is measured primarily by the growth rate of area, production and yield of the crops, etc. The positive side of this sub-scheme is concerned, after the scheme, the growth rate of the lower rung farmers are higher than the larger/richer category of farmers. On the flop side, farmers' response to the scheme is quite poor in terms of demonstration of the crop, and the overall growth rate of productivity after the scheme is not very significant compared to other crops.

For the further development of this scheme and sustainable development of agriculture, more attention is to be given to the participation and training of the farmers. Grass-root trainers (government functionaries and NGOs) are to be trained more to make effective delivery of the scheme and benefits to the farmers.

## Chapter VIII

### Conclusion and Policy Implications

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#### 8.1: Agriculture and MMA:

As mentioned in the chapter I, the growth of agricultural sector is important not only for ensuring food security and for reduction of poverty in rural areas, but also for sustaining the growth of the rest of the economy. Growth of the two non-farm sectors viz. the secondary and tertiary sector can be sustained only when the agricultural sector grows at its fullest extent. The growth rate of the agricultural sector however, has remained very low throughout the plan periods. It decelerated from 3.5 percent per year during 1981–82 and 1996–97 to around 2 percent during 1997–98 and 2004–05. During the 10th Five Year Plan (2002-03 to 2006-07), the contribution of agriculture to GDP growth in the country was 2.47 percent whereas the overall GDP grew at the rate of 7.77 percent during the same period. Consequently, growth rate of agricultural sector has been well below the target of 4 percent set in both Ninth and Tenth Five year Plans in India ([www.planningcommission.nic.in](http://www.planningcommission.nic.in)). Under such circumstances, it becomes extremely important to step up the growth rate of the agricultural sector through major structural changes in the sector. Here, the importance of Macro Management of Agriculture Scheme (MMA) appears very significant in the country.

The Macro Management of Agriculture (MMA) Scheme is one of the major centrally sponsored schemes launched in 2000-01 by integrating 27 centrally sponsored sub-schemes and formulated by the Department of Agriculture and Cooperation. The introduction of this scheme of the centre was a move away from a Programmatic/Schematic Approach to a Macro Management Mode of assistance to the States in the form of Work Plans prepared by the States and implemented in partnership with the States. Later, with the launch of the National Horticulture Mission in 2005-06, altogether 10 sub-schemes or components relating to horticulture were excluded from the MMA scheme.

## 8.2: Findings of the Study of MMA:

To conclude, through the information gathered by this study, an attempt has been made to present the findings and policy implications emanated from the study. To avoid repetition and duplicity of the chapters, information and analysis, a scheme-wise presentation of findings are made in the following sub-sections below.

### 8.2:1: Demographic Profile of the Sample Farmers:

The demographic profile of the sample farmers is presented in two tables (Table 8.2.1a: and 8.2.1b :) in terms of caste-wise and farm size-wise. The Table 8.2.1a: portrays that a total of 1320 sample farmers of different categories (caste-wise) are found to be involved in five different schemes/components of MMA. The five different schemes or components are: SUBACS; ICDP (rice, wheat and coarse cereal); INM; FCSPVC; and SJDP, and the categories of farmers (communities of farmers) involved in the five different schemes are SC; ST; OBC and General Categories of farmers.

**Table 8.2:1 a:**  
**Demographic Profile of the sample farmers (by Category)**

<b>Schemes</b>	<b>SC</b>	<b>ST</b>	<b>OBC</b>	<b>Gen</b>	<b>Total</b>
<b>SUBACS</b>	25 (10.9)	28 (12.2)	55 (23.9)	122 (53.0)	230 (100.0)
<b>ICDP</b>	75 (14.2)	30 (5.7)	156 (29.4)	269 (50.8)	530 (100.0)
<b>INM</b>	32 (13.3)	7 (2.9)	38 (15.8)	163 (67.9)	240 (100.0)
<b>FCSPVC</b>	41 (30.4)	14 (10.4)	77 (57.0)	3 (2.2)	135 (100.0)
<b>SJDP</b>	27 (14.6)	1 (0.5)	66 (35.7)	91 (49.2)	185 (100.0)
<b>Grand Total</b>	200 (15.2)	80 (6.1)	392 (29.7)	648 (49.1)	1320 (100.0)

Source: Compiled from the different Schemes/sub-scheme of MMA of earlier chapters  
Note: Figures in the parentheses are percentages to the total

In Table 8.2.1a, under the five different schemes mentioned above, among the categories of farmers, general category occupies highest percentage of farmers with 648 sample farmers. It is at the tune of 49.1 of (general category) the total sample farmers of the MMA schemes. It is followed by OBC with 29.7 per cent and SC is in the third position with 15.2 per cent. ST category of farmer falls at the bottom with 6.1 percent (80 sample farmers only) of the total 1320 sample farmers. Majority of the SC farmers consisting of 30.4 per cent are involved in FCSPVC sub-scheme and the rest farmers of this community are more or less uniformly involved in other four sub-schemes, ranges from 11 per cent to 15 per cent. Similarly, most of the ST farmers (12.2 per cent) are found in SUBACS and least number of this community is found with SJDP consisting of 0.5 per cent only.

Of the OBC farmers, majority with 57 per cent of this category got involved in FCSPVC sub-scheme, and the least number of this category farmer is with INM (15.8 per cent). However, in case of general category farmers, 68 per cent of the farmers are with INM, and 51 per cent to 53 percent of this category is with ICDP and SUBACS respectively. At the bottom, FCSPVC component remains with 2.2 per cent of this category. More interesting part of this section is that all the sub-scheme or components of MMA are being benefited more by the general category farmers (49.1 per cent). For instances, 53 per cent of the total farmers involved in SUBACS are general category farmers, and 11 per cent at the least is SC category under this sub-scheme. Similarly, ICDP, INM and SJDP components are being benefited mostly by the general category farmers with 51 per cent, 68 per cent and 49.2 per cent respectively. However, only 2.2 per cent of this category of farmers got benefited from FCSPVC sub-scheme (least percentage of this sub-scheme). ST category of farmer is at the bottom in three sub-schemes. They are ICDP, INM and SJDP with 6 per cent, 3 per cent and 0.5 per cent respectively.

**Table 8.2:1 b:****Socio-economic profile of the sample farmers (by Farm Size)**

<b>Schemes</b>	<b>Marginal</b>	<b>Small</b>	<b>Semi Medium</b>	<b>Medium</b>	<b>Large</b>	<b>Total</b>
<b>SUBACS</b>	66 (28.7)	76 (33.0)	45 (19.6)	41 (17.8)	2 (0.9)	230 (100)
<b>ICDP</b>	153 (28.9)	142 (26.8)	113 (21.3)	86 (16.2)	36 (6.8)	530 (100)
<b>INM</b>	45 (18.8)	56 (23.3)	61 (25.4)	51 (21.3)	27 (11.3)	240 (100)
<b>FCSPVC</b>	77 (57.0)	30 (22.2)	15 (11.1)	9 (6.7)	4 (3.0)	135 (100)
<b>SJDP</b>	83 (44.9)	62 (33.5)	33 (17.8)	7 (3.8)	0 (0.0)	185 (100)

Source: Compiled from the different Schemes/sub-scheme of MMA of earlier chapters

Note: Figures in the parentheses are percentages to the total

Scheme-wise classification is concerned (refer to Table 8.2.1:b), ICDP component is found to be involved by the highest number of sample farmers with 530 sample farmers (40.1 per cent of the total sample). It is followed by INM with 240 farmers (18.1 per cent of the total). The third position is registered by SUBACS with 230 sample farmers (17.4 per cent of the sample). The fourth and fifth positions are occupied by SJDP and FCSPVC with 185 sample farmers (14 per cent) and 135 sample farmers (10.2 per cent) respectively (refer to Table 8.2:1.a and 8.2:1.b).

Further, in detail, the scheme-wise involvement by the farm size category of farmers is given in the Table 8.2:1.b. In almost all the sub-scheme/components mentioned above, except SJDP, the number of large scale category of farmers are found to be involved at the least position (Table 8.2:1). They are as follows: 0.9 per cent of the large scale farmers are found in SUBACS, 6.8 per cent with ICDP, 11.3 per cent with INM and 3 per cent with FCSPVC. However, in the case of SJDP sub-scheme, the least position is registered by the medium category of farmers with 3.8 per cent.

Majority of the sample farmers in SUBACS is small category of farmers with 33 per cent and it is followed by marginal farmers with 28.7 per cent of the same scheme. In case of ICDP, majority is marginal category with 28.9 per cent with and it is followed very closely by the small farmers with 26.8 per cent with. Similarly, FCSPVC and SJDP

sub-schemes are also dominated by the marginal farmers with 57 per cent with and 44.9 per cent with respectively. And, at the same time, small farmers follow the marginal category farmers in this regard in both the schemes with 22.2 per cent with and 33.5 per cent with respectively. However, INM is led by semi-marginal farmers with 23.3 per cent of the total sample farmers of the scheme and it is followed by small farmers with 23.3 per cent. This indicates, by and large, the MMA scheme is being reached out to the lower rung farmers.

### **8.2.2: Financial Targets and Achievement of MMA:**

To determine the progress and development of MMA scheme, proper financial assistance is very important. It is not only for the assessment of the scheme but also for the development of the scheme. The trend and pattern of financial assistance and achievements of various sub-schemes/components of MMA Scheme from 2000-01 to 2008-09 is presented in the Table 8.2.2:

It is clear from the Table 8.2.2: that the overall percentage of financial targets of different sub-scheme of MMA scheme is quite impressive and increasing gradually from the inception of the scheme till 2008-09. To mention the performance of the scheme, only 57.6 per cent of the financial achievement was made when the scheme was introduced in 2000-01. Almost all the sub-schemes were found to be very poor achievement rate during the initial stages. It gradually improved over the years and reached 96.6 per cent of achievement rate during 2008-09, and the improvement level was registered from 2003-04 onwards at the rate above the 90 per cent. The percentage achievement rate against the target is registered at 89.4 per cent during the period from 2000-01 till 2008-09.

The component-wise achievement level till 2008-09 of MMA is concerned, ICDP registered highest performance with 101 per cent achievement level over the year. It is followed by SUBACS with 96.5 per cent and FCSPVC with 91 per cent in the third position. SJDP and INM fall in the fourth and fifth position with 80.5 per cent and 51.2 per cent respectively.

**Table 8.2:2****Financial targets and achievement under selected MMA schemes (Rs. in Lakh)**

Schemes		SUBACS	ICDP	INM	FCSPVC	SJDP	Total	% of Ach. against Tar
2000-01	Tar	N A	993.6	274.0	1223.0	0.0	2490.6	57.6
	Ach	N A	415.9	17.0	1002.0	0.0	1434.9	
2001-02	Tar	32.0	858.1	289.0	10600.0	173.6	11952.7	76.9
	Ach	32.0	631.8	30.0	8364.0	130.0	9187.8	
2002-03	Tar	853.3	901.6	193.0	N A	69.2	2017.1	81.9
	Ach	835.5	712.4	43.0	N A	61.6	1652.5	
2003-04	Tar	892.5	938.7	136.0	7637.0	16.0	9620.2	93.8
	Ach	838.9	864.2	43.0	7270.0	11.5	9027.6	
2004-05	Tar	996.0	1186.1	228.0	16745.0	119.5	19274.6	95.5
	Ach	994.0	936.2	100.0	16273.0	102.6	18405.8	
2005-06	Tar	917.2	1453.2	204.0	5261.0	10.9	7846.3	91.0
	Ach	876.8	1281.3	134.0	4843.0	4.3	7139.4	
2006-07	Tar	1222.8	2336.3	396.0	N A	21.3	1873.7	90.9
	Ach	1199.9	2044.2	372.0	N A	N A	3636.9	
2007-08	Tar	1996.0	1790.0	416.0	N A	N A	4202.0	92.0
	Ach	1894.3	1617.7	355.0	N A	N A	3867.0	
2008-09	Tar	6909.8	714.3	N A	N A	N A	7624.1	96.6
	Ach	6671.5	693.3	N A	N A	N A	7364.8	
<b>Total</b>	Tar	<b>13819.6</b>	<b>9069.2</b>	<b>2136.0</b>	<b>41466.0</b>	<b>410.5</b>	<b>69004.0</b>	<b>89.4</b>
	Ach	<b>13342.9</b>	<b>9197.0</b>	<b>1094.0</b>	<b>37752.0</b>	<b>310.0</b>	<b>61695.9</b>	

Source: Compiled from the different Schemes/sub-scheme of MMA of earlier chapters

Note: NA implies as Not Available

**8.2.3: Seed Procurement under MMA:**

Timely availability of seed is one of the important factors for successful implementation of the MMA scheme. Sources of seed of the sample farmers of the four sub-schemes (excluding INM) under MMA are given in the Table 8.2:3. When we see the share of sample farmers scheme-wise procurement of seeds, ICDP registered 73.2 per cent of the total sample farmers of all the schemes. It is followed marginally by the SUBACS with 12.5 per cent of the total sample farmers and 10 per cent by SJDP. The number of sample farmers procured seed of FCSPVC sub-scheme is only 4 per cent of the total sample farmers of all the schemes (excluding INM).

The sources of seed procurement of the farmers of all the four sub-schemes are concerned; most of the farmers got their seeds from domestic sources, i.e. 54.4 per cent

of all sample farmers. It is followed by government outlets with 34 per cent in the second position. Open market provides 7.3 per cent of the total seeds to the sample farmers. Very negligibly, retail shops provide 2.6 per cent of the total seed requirement and 1.6 per cent by the other sources (unspecified sources) to the sample farmers of the MMA scheme.

**Table 8.2:3**

**Sources of Seed Procurement under MMA (No. of Farmers)**

<b>Schemes</b>	<b>Government outlets</b>	<b>Retail Shops</b>	<b>Open market</b>	<b>Domestic</b>	<b>Others</b>	<b>Total</b>
SUBACS	136 (59.1)	2 (0.9)	8 (3.5)	55 (23.9)	29 (12.6)	230 (100)
ICDP*	295 (22.0)	40 (3.0)	87 (6.5)	921 (68.6)	0 (0.0)	1343 (100)
FCSPVC	53 (70.7)	0 (0.0)	15 (20.0)	7 (9.3)	0 (0.0)	75 (100)
SJDP	140 (75.7)	6 (3.2)	24 (13.0)	15 (8.1)	0 (0.0)	185 (100)
<b>Total</b>	<b>624</b> (34.0)	<b>48</b> (2.6)	<b>134</b> (7.3)	<b>998</b> (54.4)	<b>29</b> (1.6)	<b>1833</b> (100)

Source: Compiled from the different Schemes/sub-scheme of MMA of earlier chapters

\*It is in terms of quantity in quintals.

Figures in the parentheses are percentages to the total.

From the Table 8.2:3 it is clear that the 59.1 per cent of the sample farmers of SUBACS component procured seed from the government outlets. It is followed by domestic source with 23.9 per cent. Retail shops provide least share (0.9 per cent) of seeds of this sub-scheme. In case of ICDP, majority of the farmers are provided seeds by the domestic source with 68.6 per cent of the total sample farmers of this component, and least by retail shops with 3 per cent only. However, for FCSPVC and SJDP sub-schemes, government outlets provide 70.7 per cent and 75.7 per cent of the total sample farmers respectively. At the bottom, only 9.3 per cent and 3.2 per cent of the farmers are provided by the domestic and retail shops respectively.

#### **8.2.4: Distribution of the Agricultural implements under MMA:**

Similar to the seed procurement, the distribution of agricultural implements is an objective to bring technological change under MMA scheme. Table 8.2.4: shows the number of beneficiary farmers under four different sub-schemes (excluding INM). Of the total implements distributed (191 implements), cono-weeder was the biggest number distributed with 60 in number and the whole 60 cono-weeders (100 per cent) were distributed under ICDP sub-scheme. It is followed by seed-cum-fertilizer with 45 numbers (23.5 per cent of the total implements distributed), and it is also 100 per cent under the ICDP sub-scheme. Out of the 191 farmers benefited, 152 farmers (80 per cent) got benefited from the ICDP sub-scheme. Of which, 60 implements were cono-weeders and 45 were seed-cum-fertilizers (39.4 per cent and 29.6 per cent respectively). Under the SUBACS sub-scheme, 39 farmers/implements (20.4 per cent) were distributed. Of the total beneficiaries under this sub-scheme, 51.2 per cent were sprayers and 43.5 per cent were cultivators. Out of the total sprayers distributed in different sub-schemes, the whole (100 per cent) sprayers were distributed under SUBACS sub-scheme, and 42.5 per cent of the total cultivators were distributed under this same sub-scheme. Unfortunately, no implement was found to be distributed under FCSVC and SJDP sub-schemes.

#### **8.2.5: Area, Yield and Production under MMA:**

Table 8.2.5: shows the overall changes in the production, productivity and the areas brought under the cultivation of four sub-schemes of MMA. It has brought positive changes in the area of cultivation after the implementation of the scheme (2007-08). Similarly, its changes are visible in productivity and production also.

**Table 8.2:4**

Distribution of the Agricultural implements under MMA schemes (Numbers)

Implements	SUBACS	ICDP	FCSVC	SJDP	Total
Disk Blade	2 (100)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100)
Sprayer	20 (100)	0 (0.0)	0 (0.0)	0 (0.0)	20 (100)
Peddler	0 (0.0)	8 (100.0)	0 (0.0)	0 (0.0)	8 (100)
Seed cum Fertilizer	0 (0.0)	45 (100)	0 (0.0)	0 (0.0)	45 (100)
Cultivator	17 (42.5)	23 (57.5)	0 (0.0)	0 (0.0)	40 (100)
Multi purpose tool bar	0 (0.0)	1 (100)	0 (0.0)	0 (0.0)	1 (100)
Thresher	0 (0.0)	2 (100)	0 (0.0)	0 (0.0)	2 (100)
Power Driven	0 (0.0)	8 (100)	0 (0.0)	0 (0.0)	8 (100)
Sprinkler or Drip	0 (0.0)	5 (100)	0 (0.0)	0 (0.0)	5 (100)
Other( Cono-weeder)	0 (0.0)	60 (100)	0 (0.0)	0 (0.0)	60 (100)
<b>Total</b>	<b>39</b> (20.4)	<b>152</b> (80)	<b>0</b> (0.0)	<b>0</b> (0.0)	<b>191</b> (100)

Source: Compiled from the different Schemes/sub-scheme of MMA of earlier chapters

Note: Figures in the brackets are the percentages to the total.

Component-wise analysis is concerned, FCSPVC registered highest growth after the implementation of the scheme with 65.6 qtls of output per acre. Similarly, the area brought under the cultivation has increased from 29.5 acres to 40 acres after the scheme. It is the change of 35.5 per cent after the scheme. It is followed by SUBACS with a change of productivity from 25 qtls per acre to 29 qtls per acre after the implementation of the scheme. The change in the area of cultivation under this sub-scheme is 3.4 per cent after the scheme, i.e. from 629 acres to 651 acres.

**Table 8.2:5****Area Yield and Production under the Selected MMA**

Schemes	Area (Acres)		Production (Qtls)		Yield (Qtls/Acre)	
	Before	After	Before	After	Before	After
SUBACS*	629.0	651.0	15547.0	18553.0	25.0	29.0
ICDP**	3830.6	4062.9	63791.7	75178.9	16.7	18.5
FCSPVC***	29.5	40.0	1307.5	2624.0	44.3	65.6
SJDP	121.6	135.5	694.1	812.3	5.7	6.0

Source: Compiled from the different Schemes/sub-scheme of MMA of earlier chapters

\*For Sugar cane crop production is presented in terms of Tons.

\*\* It includes all the three crops (rice, wheat and coarse cereal).

\*\*\* For this particular sub-scheme, only two states (Karnataka and Uttar Pradesh) are included, and the Area, Yield and Production of Vegetable crops for Uttar Pradesh is given in terms of money value. Since the quantity of the crop is missing in UP, the evaluation is done for Karnataka only.

In the third position, ICDP sub-scheme comes with 18.5 qtls of output per acres after the scheme, and it is the changed of 1.8 qtls after the scheme (16.7 qtls per acre before the scheme). The total area increased after the scheme is 232.3 acres, i.e. from 3830.6 acres to 4062.9 acres after the scheme. At the bottom, SJDP sub-scheme registered a growth of productivity from 5.7 qtls of output per acre to 6 qtls of output per acre after the implementation of the scheme. The area brought under the cultivation under this sub-scheme is from 121.6 acres to 135.5 acres, and it is the growth of 13.9 acres more after the scheme

**8.3: Policy Implications:**

MMA is one of the significant schemes introduced for the development of agricultural sector in the country. This has been able to bring visible changes among the farmers, especially for the lower run farmers. In totality, the sub-schemes under MMA and their objectives have been made tremendous impact on agriculture in the States.

Having analysed the facts and findings of the scheme, some of the policy implications of the study are given below:

1. As the successful and development of MMA scheme depends on the involvement of the targeted farmers, more attention should be given to the participation and training of the lower rung farmers. Grass-root trainers (government functionaries) are to be trained more to make effective delivery of the scheme. The percentage of ST and SC category farmers involve in this scheme is work out to be 6.1 per cent and 15.2 per cent respectively. The scheme needs to look into this area for further development and inclusion of the lower rung farmers in future.
2. For the achievement and reach out of advanced technology to the grass-root farmers under this scheme, participation of training provided by the agencies is very significant. Unfortunately, the rate of participation by the farmers under the scheme is very poor. For instances, only 22.9 per cent of the total sample farmers had attended in INM sub-scheme. Similarly, SUBACS and ICDP also experienced low participation by the farmers with 28.3 per cent and 34.3 per cent respectively. In this regard, proper information is to be reached out to the farmers and proper mobilisation is to be made on time. Most of the sample farmers revealed that the participation of the training given by the agencies is the opportunity lost of other agricultural works. This signifies that the benefit of the training is either not known or the training is not effective and beneficial for the farmers. So, serious attention on the training and extension service is needed under this scheme.
3. From the findings of this study in the previous chapters, it is revealed that the seed procurement and the supply of agricultural implements are not as satisfactory as targeted by the scheme. For instance, most of the seeds (54.4 per cent) are procured from the domestic sources. It is slightly away from the objective of the use of advanced technology seeds like HYV. On the other side, most of the implements are received by the higher rung farmers. This is the reason why more attention is to be given in the distribution system and delivery mechanism of the scheme.
4. For the overall development of the scheme, proper publicity and information is to be reached out to the village farmers through the Village Panchayat, and similarly,

- the panchayat is to be trained properly. It is especially to reduce the favoritism in the delivery system of the benefits of the schemes under MMA.
5. Last but not the least, appropriate implements and timely delivery of the same to the needy farmers is very significant for the successful implementation of this scheme. Very often, it is experienced that the fertilizers and other necessary implements are reached to the farmers very lately, even after the season due to the institutional complications. Supplying materials for the sake of supplying or the fulfillment of the scheme is not the objective of this particular scheme. So, the government machineries and the agencies, especially those who are carrying out the MMA scheme are to be made efficient and inculcate professionalism. On the other hand, financial allocation for the purpose is also to be made on time and released sufficiently by the government.

#### **8.4: Concluding Note:**

Obviously, the tasks are many and performing of these tasks enumerated above would require coordinated efforts among different departments of the government. Nevertheless, considering the broader objectives of the MMA scheme, the aforesaid policies boil down only to minor corrections in the strategies for implementation of the schemes concerned, so as to sustain the Macro Management Mode in its glory of success. Much more coordination works are to be done, between the farmers and government or its implanting agencies.

Otherwise, in totality, the scheme has made commendable jobs in the field of agriculture. So, for making the agricultural development programmes successful in the States, development of institutional and infrastructural supports are necessary and it also requires efficient planning, monitoring and sincere execution of the policies by the government agencies to make the schemes viable.



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